Directly Observed Therapy (DOT) Manual for Tuberculosis Programs in British Columbia

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Resources:

Directly Observed Therapy Manual 2007, Health Canada, Alberta Region

New Jersey Medical School National Tuberculosis Center, School Nurse Handbook 2001

Canadian Tuberculosis Standards 6th Edition 2007

A Guide for Tuberculosis Treatment Supporters, WHO 2002

Curing Tuberculosis with Directly Observed Therapy (DOT), Toronto Public Health 2002

The Patients' Charter for Tuberculosis Care, 2006 World Care Council

National Center for Disease Control – Division of Tuberculosis Elimination: Self Study Modules on Tuberculosis

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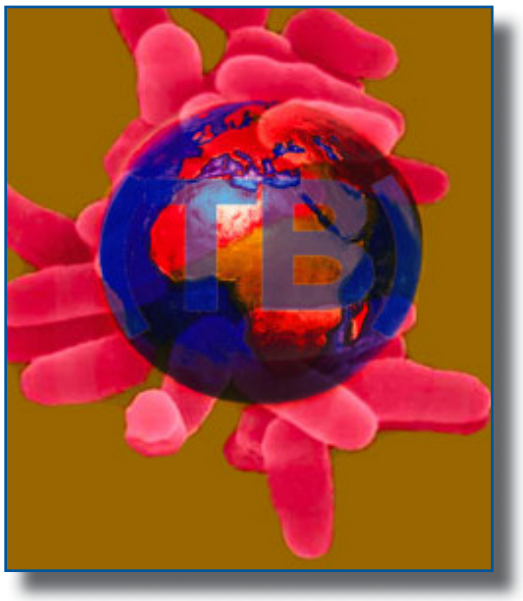
Introduction



- **Introduction**
- **TB Program Partners**
- **What is Directly Observed Therapy?**

Introduction

Welcome to the Tuberculosis (TB) program. Whether you are a Directly Observed Therapy **(DOT)** Lay Worker, Community Health Representative (CHR) or Community Health Nurse (CHN) you will be a vital member of your community's TB team. Together, the team can provide the best possible standard of TB care for your clients.

This manual is intended to provide guidance to all staff involved with delivering TB medications by Directly Observed Therapy, also known as **DOT**.

The DOT manual:

- **defines the roles and responsibilities of the various DOT partners**
- **provides a tool for the education of all team members about the delivery of TB medication by directly observed therapy**
- **outlines the process needed for a registered nurse to assign the task of DOT delivery to another member of the TB team**

Directly Observed Therapy is the World Health Organization (WHO) standard for treatment of Tuberculosis disease; the TB Services for Aboriginal Communities (TBSAC) program at the BC Center for Disease Control (BCCDC) has adopted it as the standard for delivery of all TB medications whether they are for treatment of active TB disease or latent TB infection (LTBI).

TBSAC is funded through First Nations & Inuit Health (FNIH) to provide enhanced TB services and programs to all on-reserve First Nations in British Columbia. Regular TB program activities are provided by health centre staff.

Although the **DOT** manual is designed for on-reserve communities, many First Nations communities are situated near towns and cities, where contact tracing, case management and social networking may continue off-reserve. Therefore, the principles of the **DOT** manual can also apply off-reserve.

TB Program Partners

A number of partners are responsible for the delivery of the TB program for on-reserve communities. These partners include the local community health team, BCCDC – TBSAC, the FNIH Pacific Region, physicians and local laboratories and x-ray facilities. These partners work together to implement the TB program elements of case finding, contact tracing, surveillance, screening and education.

FNIH contracts the BCCDC – TBSAC program to provide specific expertise in TB care. This arrangement ensures that on-reserve clients receive care from TB experts and that their care is consistent with other TB clients living in British Columbia. This type of centralized TB program is the World Health Organization standard for TB management and allows for the centralized TB expertise and management essential to the cure and prevention of TB.

What is Directly Observed Therapy?

Directly Observed Therapy **(DOT)** is a program to help cure TB. A **DOT** Lay Worker meets with clients to help with TB medication, and provide support and education. **DOT by definition means watching clients swallow each dose of anti-TB medication.**

DOT has been shown to reduce the risk of drug resistance and to provide better treatment completion rates (Canadian Tuberculosis Standards 6th Edition, 2007). Therefore, **DOT** is the standard for providing TB medication to all clients taking TB therapy, for both treatments of active disease and latent TB infection (prevention).

Everyone

CAN LEARN ABOUT TB!

CHAPTER 2

Roles & Responsibilities

- **Introduction**
- **Legal Context**
- **Roles of the TBSAC Program**
- **Basic Training Requirements**

Introduction

This chapter outlines the roles and responsibilities of the various **DOT** partners and the legal parameters that support the delegation of nursing tasks to the **DOT** Lay Worker. A **DOT** Lay Worker could be a Community Health Representative (CHR) or a community member hired specifically for this task. Both require special **DOT** training.

Legal context

The Health Professions Act allows for the assignment of some tasks ordinarily considered to be nursing functions to non-regulated health workers (i.e. **DOT** lay worker or CHR). According to this Act a nursing function can be assigned if:

- **The worker has been taught the tasks in their basic education program and the tasks have been included in the job description.**
- **The worker has ongoing practice with or retaining of the skills required.**

The Registered Nurse is responsible for all clients receiving DOT and must oversee the DOT lay worker to ensure that medication is given in a safe manner, that ingestion of the medication is directly observed and in accordance with the prescription provided for the client. The Nurse is responsible for the monitoring of the TB client.

Roles Of The TBSAC Program

The current contractual relationship between First Nations & Inuit Health, BCCDC, Band Health Centers and Nursing Stations ensures collaboration on the management of TB.

The Role of the TBSAC Physician Consultant

- Advises the Programs Medical Officer (PMO) on all matters related to the control of tuberculosis in First Nations communities, including planned revisions to TBSAC program policies.
- Reports all cases of active tuberculosis to the PMO, Regional Medical Health Officer (MHO) and Community Health Nurse (CHN), and recommends appropriate management.
- Provides telephone consultation to physicians and nurses regarding management and treatment of active or suspected cases of active TB disease and Latent Tuberculosis Infection (LTBI).
- Reviews case management requests from the CHN and/or physician regarding home conditions, obstacles, or other issues that may impede the success of home treatment for clients with active TB disease.
- Facilitates admission to the TB ward at the Vancouver General Hospital (VGH) when required.
- Interprets and makes recommendations based on chest x-rays referred from First Nations communities.

- Has access to a database, including records of active and inactive cases of tuberculosis, contacts of active TB cases, and cases of latent TB infection.
- Provides an annual activity report and statistics to the PMO.
- Provides consultation regarding epidemiological trends of TB in First Nations populations to BC physicians, nurses and other health care professionals.
- Provides in-service education to physicians and other allied health care professionals in BC upon request.
- In cooperation with the TBSAC nurse consultants; assesses, plans, implements and evaluates effective education programs pertaining to TB Control and policy manual.

The Role of the TBSAC Nurse Consultant

- Provides support and direction to the CHN regarding diagnosis, treatment and contact tracing associated with active cases of tuberculosis.
- Reviews medication records submitted by the CHN.
- Facilitates patient admission to the TB ward (at VGH) when necessary.
- Provides information pertaining to treatment of active disease, treatment of LTBI, screening programs and education.
- Provides on-site consultation services and assists the CHN with community TB skin testing surveys.
- Provides referrals to the TB Nurse Educator and/or assists with in-service education and workshops in the community as requested.
- In consultation with the TBSAC physician consultant, reviews and revises the TBSAC section of the BCCDC TB Control Manual.
- Evaluates the effectiveness of the TBSAC screening programs and assists the PMO and TBSAC physician consultant as required.

The Role of the TBSAC Nurse Educator

- Provides in-service education and workshops to community members, CHNs, CHRs, and other health care providers upon request.
- Develops and distributes culturally appropriate education materials as required.
- Assists with coordination of community based TB programs and projects, and supports the community development process.
- Acts as a resource person for TBSAC and other BCCDC staff on issues of cultural competency and the health of First Nations populations.
- In consultation with the TBSAC physician and nurse consultants reviews and revises the TBSAC section of the BCCDC TB Control Manual.
- Evaluates the effectiveness of TB education programs.
- Works in collaboration with the TBSAC nurse consultants as required.

The Role of the Community Health Nurse

- Participates in case finding and promptly reports to the TBSAC nurse consultant all people with symptoms suggestive of active tuberculosis.
- Identifies contacts of active cases of tuberculosis disease and conducts the appropriate screening of these individuals.
- Directly supervises the treatment and provides information for all TB medications taken by client for all active cases of tuberculosis and persons on INH treatment for LTBI.
- Directly supervises **DOT** Lay Worker.
- Ensures that routine blood work is completed and symptoms monitored as recommended in the TB Manual. Reports abnormal blood work and symptoms of drug intolerance to the TBSAC Nurse Consultant.
- Ensures that clients are referred for chest radiographs as required
- Submits monthly medication reorder forms for individuals taking anti-tuberculosis medications to the TBSAC Nurse Consultant.
- Participates in tuberculosis education with individuals with active TB disease, and communicates the importance of adherence to the medication regime. Including compliance with recommendations for isolation as needed.
- Coordinates and participates with the CHR and other health care providers in community-wide tuberculosis skin testing screenings.
- Annually conducts the following screening in all communities:
    - ◇ Tuberculin skin testing (TST) for children attending Grades 1 and 6 in all Band schools.
    - ◇ TST for Health Center employees, schoolteachers, day care and preschool staff.
    - ◇ TST for individuals with high risk factors for developing active TB disease.
- Promotes and provides annual TST for children less than 5 years of age in communities which have been identified as enhanced First Nations communities.
- Provides tuberculosis education to First Nations communities.

Strong TB programs include early detection and treatment of both TB disease & infection and the promotion of TB awareness in communities.

Strong TB programs can prevent future generations from having TB.

The Role of the DOT Lay Worker

Under the supervision of the Community Health Nurse;

- Assists the CHN with the supervision of treatment for cases of active tuberculosis and individuals on INH for treatment of LTBI.
- Reports promptly to the CHN any individuals who are missing doses of anti-TB medication, and any adherence issues.
- Reports promptly to the CHN any individuals who show signs or symptoms of side effects to the anti-TB medication.
- Assists the CHN in planning, organizing and advertising tuberculosis surveys, and provides on-site support to the CHN and TBSAC Nurse Consultant during a survey.
- Participates in the tuberculosis education within the community.
- For those **DOT** Lay Workers that have adequate training:
- Assists with sputum collection, reading tuberculin skin tests, and sending clients for chest x-ray under the direction of the CHN.
- Document all client contacts.
- Provide TB meds through **DOT** when task is assigned by the supervising CHN.

Basic Training Requirements and Process

Although the CHN is responsible for the TB program in the community, the TBSAC Program will assist the CHN in educating, preparing, and assigning the specific **DOT** Lay Worker tasks. Therefore, both the CHN and the TBSAC Program are responsible for determining when the **DOT** lay worker is ready to be assigned the tasks based on the worker's knowledge and skill competency. Additionally, the CHN and the TBSAC Program are both responsible for monitoring and ensuring the **DOT** Lay Worker maintains the required competencies for the assigned tasks. It is the **DOT** Lay Worker's responsibility to confirm their confidence and competence to perform the assigned tasks and to be accountable for their work prior to starting the job. A **DOT** Skills Assignment Check List (Appendix B) and the TB **DOT** Lay Worker Training Pre and Post Test (Appendix C) are helpful tools to ensure **DOT** Lay Worker readiness.

The education the **DOT** Lay Worker must complete in their orientation with the CHN and/or TBSAC program nurses includes:

- **Basic information about TB infection and disease**
- **Information on managing and conducting DOT**
- **Information about the medications for TB and their administration**

After completing the **DOT** training, the **DOT** Lay Worker will be expected to perform the following functions:

- **Support client through TB treatment**
- **Watch for side effects from TB medication**

- **Help client to take TB medicine correctly**
- **Help client complete TB treatment**
- **Help client to understand TB**
- **Help client with TB related test appointments**
- **Help client with other social supports as needed**

To facilitate supervision of the **DOT** Lay Worker, the CHN should discuss with the **DOT** Lay Worker strategies related to:

- **Effective charting and communication**
- **Enhancing communication and relationship with client**
- **Effective medication dispensing systems, i.e. blister packs**

For assistance with DOT Worker training and education, please contact

The BC Center for Disease Control – TB Services for Aboriginal Communities.

Toll Free: 1-888-569-2299

CHAPTER 3

History of TB in First Nations Communities

Young patients at the Prince Albert Sanatorium in Saskatchewan (Valley Echo, October 1955).

- **History of Tuberculosis**
- **History of TB and First Nations Communities**
- **Why is TB still a problem in First Nations communities today?**
- **Bacille Calmette-Guerin (BCG) Vaccine**

History of Tuberculosis

Fresh air was a part of the regimen to battle tuberculosis.

Other names for tuberculosis include TB, consumption, wasting disease and the white plague. TB has affected humans for centuries. Evidence of TB was found in the ancient mummies. Until the mid-1800s, people thought that TB was hereditary; they did not realize that it is spread from person to person through the air. In the late 1800s, a German scientist by the name of Robert Koch discovered the bacterium that causes TB. It is called ***Mycobacterium tuberculosis***.

It was not until the end of the 20th century that a cure for TB was found. Until then, people were sent away to TB Sanatoriums to prevent the spread of TB in the community. This was the only way to protect friends and family from contracting TB.

Treatment at the Sanatoriums included: bed rest, fresh air and healthy food. Some received extensive surgeries to remove parts of diseased lungs.

History of TB and First Nations Communities

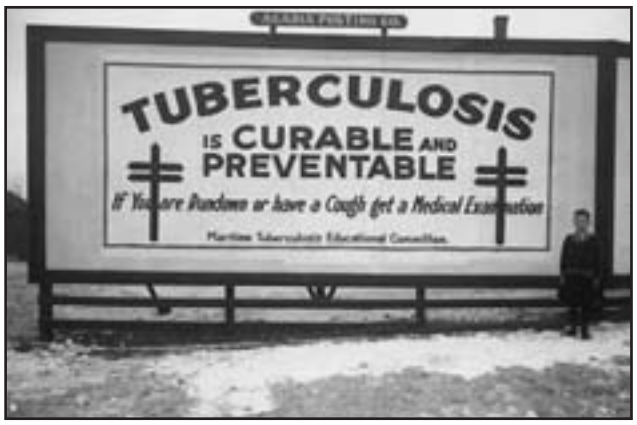
Sanatorium patients are impressed with a live Pow-wow by a local First Nations group © 1960

Working with TB requires an understanding of the history of TB in First Nations communities. The TB germ was first introduced to First Nations in Canada by European settlers.

The TB germ was new to First Nations people and therefore First Nations persons had little immunity to the TB germ. A devastating outbreak of TB occurred among First Nations in the early 1900s fuelled by this lack of immunity, crowded living conditions and poor nutrition on reserves. Death rates reached 700 per 100,000. TB treatment in this era consisted mainly of isolation of those with disease into special TB hospitals called Sanatoriums. To prevent the spread of the disease, TB patients were taken from their homes and communities to the Sanatorium where they spent months or years. First Nations people's culture and language were often lost by those removed from their communities, especially children. TB patients

sometimes died in hospital and word of the death was never received by family back home. The discovery of antibiotics in the 1940s and 1950s made TB curable and preventable and the death rates continued to decrease quickly.

TB Disease rates among British Columbia's First Nations have continued to slowly decline in the decades since TB medications were discovered. The rates however remain disproportionately high compared to the general population of British Columbia. These higher rates are due to crowded living conditions, lack of access to health care and high rates of TB infection in those who lived during the epidemic.



Public education and awareness campaigns played a large part in convincing the general public to show up at TB clinics. By surveying the entire population for tuberculosis, it was caught before it spread

This history leaves many First Nations people with sad memories and feelings about TB. It is understandable that those who remember this time may have negative views about TB. It is important to let communities know that TB is now curable and preventable. Those who are treated for TB disease no longer have to stay in a hospital for extended period, unless circumstances prevent the person from protecting others from TB disease. With education, proper isolation precautions, and medication most clients can be cured and treated in their home communities. Directly Observed Therapy is a powerful tool which helps to successfully treat and prevent TB.

Why is TB Still a Problem in First Nations Communities Today?

Even though the number of TB cases started to decline after the introduction of medications, there remains a very large pool of TB infection in First Nations communities. Transmission of TB is still a problem for a variety of reasons, most due to social, economic and environmental factors like:

- **crowded housing and/or homelessness**
- **limited access to primary care services**
- **cultural and language barriers**
- **drug & alcohol addictions**
- **mental health issues**
- **literacy & education**
- **HIV and other immune altering diseases**

Bacille Calmette-Guerin – BCG Vaccine

BCG is a live, attenuated vaccine derived from ***Mycobacterium bovis*** and is the only vaccine currently in use for the prevention of serious forms of TB. BCG vaccination in the past was universally promoted throughout Canada. As anti-TB drugs became available in Canada, and the rates of TB declined, the Bacille Calmette-Guerin (BCG) vaccine was discontinued for most Canadians. However, the BCG vaccine was still used in First Nations communities, specifically for children living on-reserve to provide some protection against serious forms of tuberculosis such as miliary TB or TB meningitis.

BCG does not prevent TB infection and BCG will not prevent the development of active TB in individuals already infected. BCG vaccination of First Nations infants was discontinued in British Columbia in 2003. It was stopped due to fatal disseminated BCG disease from the vaccine, specifically in immune-compromised First Nations children. Due to concerns for higher rates of First Nations children with immunocompromised conditions, precautionary measures were taken and the BCG vaccination was stopped.

Most often:

- **BCG vaccination can be ignored as a cause of a positive skin test if the BCG vaccination was given in infancy and the person tested is now aged 10 years or older.**

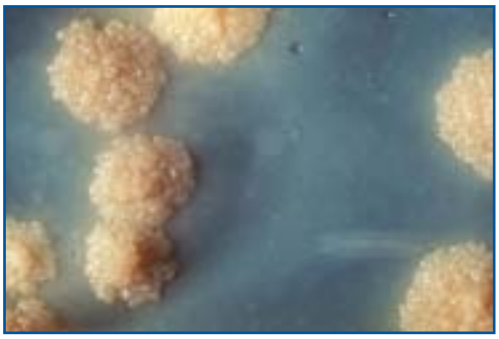
- **A client who has had a BCG vaccination can be skin tested.**

CHAPTER 4

TUBERCULOSIS

- **TB Bacteria**
- **TB Transmission**
- **TB Infection**
- **TB Disease**
- **Latent TB Infection vs TB Disease**

TB Bacteria



- Require oxygen to survive
- Have a slow replication or growing rate
- Have a thick fatty membrane

- Looks like thin, slightly curved rods under the microscope
- Can survive in the air for several hours depending on the environment
- Are not filtered by simple gauze masks or stopped when a patient covers his or her mouth and nose when coughing

The thick membrane and slow growth of the TB bacteria make it difficult to kill

TB Transmission

TB is spread or "transmitted" through the air.

When someone with infectious active TB disease in their lungs or voice box coughs, laughs, or sings, tiny droplets containing the TB germ may be released into the air. If another person breathes in these droplets, TB germs may be spread.

People that breathe in the droplets may:

- **Never become infected with TB**
- **Become infected but never develop active TB disease**
- **Become infected and develop active TB disease weeks (not days), months, or years after exposure**

TB Infection

Most often when we hear the word **infection**, we think of being sick with something like a throat or chest infection. The language around TB is different. TB is a slow growing germ. Most people who breathe the TB germ into their lungs have immune systems that are strong enough to protect themselves. Their immune system builds a wall around the TB germ, putting the germ to sleep, and stops the TB germ from growing. The germ is in the lung but is not doing any damage.

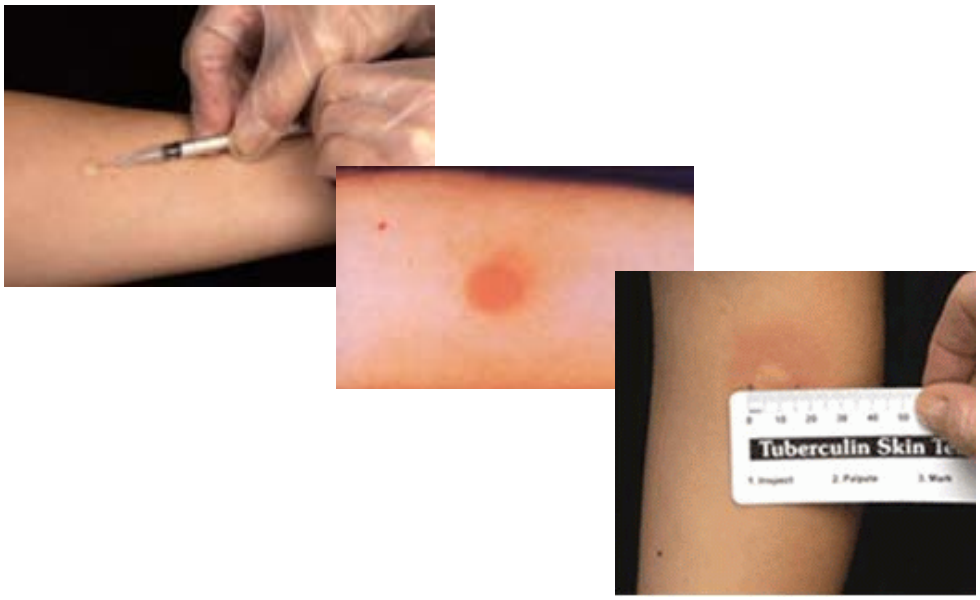
Therefore, TB infection means that there are TB germs asleep in the body. People with TB infection are not sick, do not have symptoms, and cannot spread TB to other people. Another name for TB infection is **latent TB infection** or "LTBI".

Risk factors for being infected with TB

- **Being born in or traveling to countries where TB is common**
- **Being in close contact with a person who has contagious TB disease**
- **Living in communities with high rates of TB disease (past and present)**
- **Being homeless in an urban centre**
- **Living in overcrowded and poor living conditions**
- **Having lived in a time period when TB was more prevalent and cure was not possible (e.g. some First Nations Elders)**
- **Immune-compromised**

Diagnosis of TB infection

The main tool to diagnose TB infection is the tuberculin skin test (TST). This test consists of the intradermal injection of purified protein derived from ***Mycobacterium tuberculosis*** bacteria. The CHN or trained **DOT** Lay Worker can read the client's TB skin test 48 to 72 hours later. In persons who are exposed and become infected with the TB germ, the reaction will cause localized swelling and will manifest as an induration, or hard bump, of the skin at the injection site. The client then proceeds with a chest x-ray and is followed by TBSAC and the local TB team.



Treatment of TB Infection

Treatment of **latent TB infection (LTBI)** is also called **prophylaxis** or **preventative therapy.** Treating **TB infection** with medication kills the bacteria and significantly decreases the chance that **TB disease** will develop in the future. The decision to offer clients preventative treatment is made by TB doctors. Decisions are based upon many factors including:

- **Age and health status of client**
- **Presence of risk factors for progressing to TB disease**
- **Likelihood of side effects from medications**
- **Likelihood of completing treatment**

Accepting preventative therapy for **TB infection** is the client's choice. Treatment for LTBI is voluntary and the risks and benefits of taking the medications should be clearly outlined to the client so that they are able to make an informed decision. In an effort to eliminate TB, health care professionals need to support clients in their decision to initiate and complete treatment for **TB infection**. It is important to let the clients know that by taking the prevention pills he or she will be protecting his or her family and friends, as well as themselves, from TB disease. Medication for TB infection can be and should be administered by **DOT**.

Curing TB infection prevents future cases of disease and subsequent transmission of TB throughout the community

Candidates for Preventative Therapy

Individuals who have a significant TB skin test and:

- Have had recent contact (within 2 -3 years) with a contagious case of TB disease
- Have conditions that reduce the body's ability to fight infection (e.g. HIV/AIDS, long-term steroid use, some types of cancer, use of some types of arthritis medications)
- Have significant lung scars likely due to previous TB disease (without adequate treatment)
- People 35 years of age and younger tend to tolerate TB medications with few side effects. However, individuals over the age of 35 who are at increased risk for developing TB disease may be recommended prevention treatment. In these situations, their risk of developing TB disease is weighed against the risk of side effects and in some situations, treatment may be offered
- Are health care workers OR are residents of shared living environments as these individuals are often offered prevention treatment because if they were to develop TB disease, they have the potential to infect many people

TB Disease

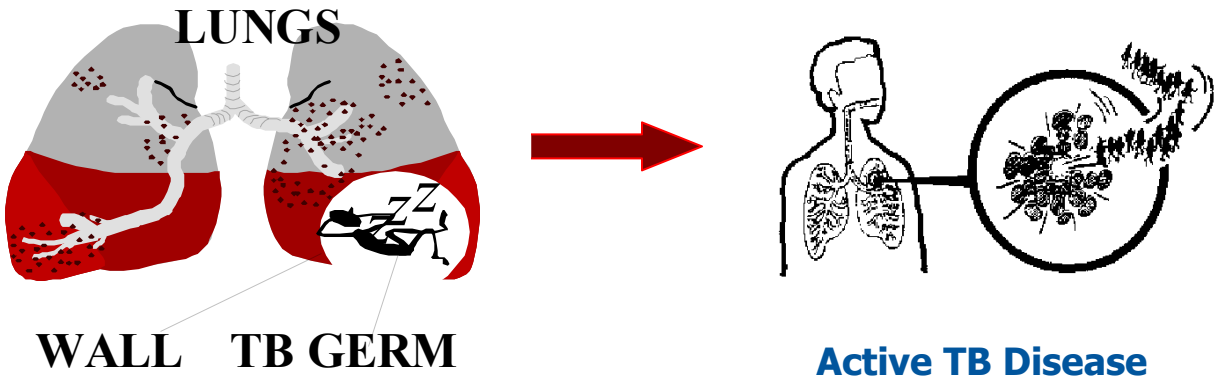
TB infection may progress to **TB disease** if the immune system cannot keep the bacteria asleep. The body's fighter cells, called "macrophages" are no longer able to contain the germs. The hard shell surrounding the bacteria breaks down and TB germs escape and multiply. This means the TB germs are awake and causing harm to the body.

This process can occur anywhere in the body, but usually occurs in the lungs. The germs cause damage to the tissues in which they are growing.

Possible Sites of TB Disease:

- **Kidneys**
- **Bone**
- **Brain**
- **Spinal cord**
- **Lymph nodes**
- **Lungs (this is the most common type in adults)**
- **TB can occur anywhere**

Latent TB Infection

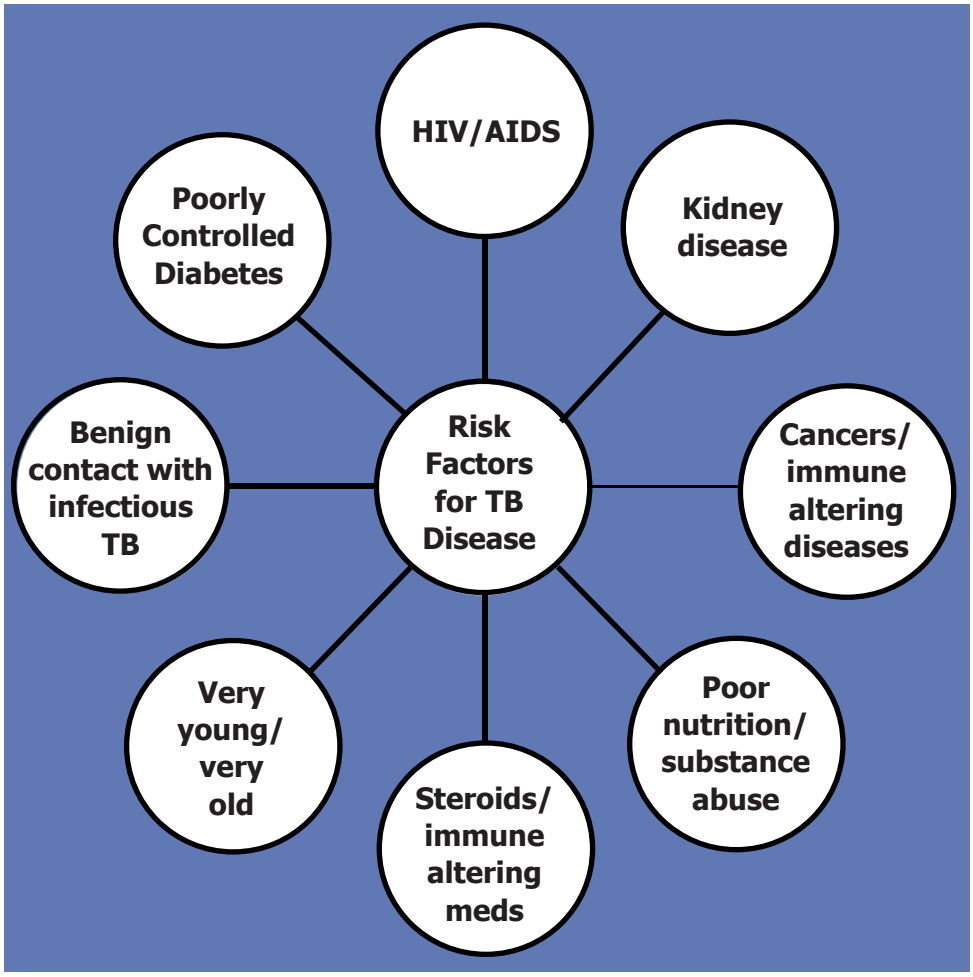


Since the GREATEST risk of developing TB disease is in the first 2 years after infection, it is important to detect new infection early (and to offer treatment when appropriate).

Period of Greatest Risk

Progression from TB infection to TB disease may happen months or years after having been infected with the TB germ OR it may never happen. The period of greatest risk for developing TB disease from TB infection is in the first 2 years after being infected (5%). The risk for the remainder of one's lifetime is another 5%. This means that out of 100 people infected with the TB germ, 5 will get the disease in the first 2 years and 5 more will develop the disease at some time in their lifetime. The other 90 people will never develop TB disease.

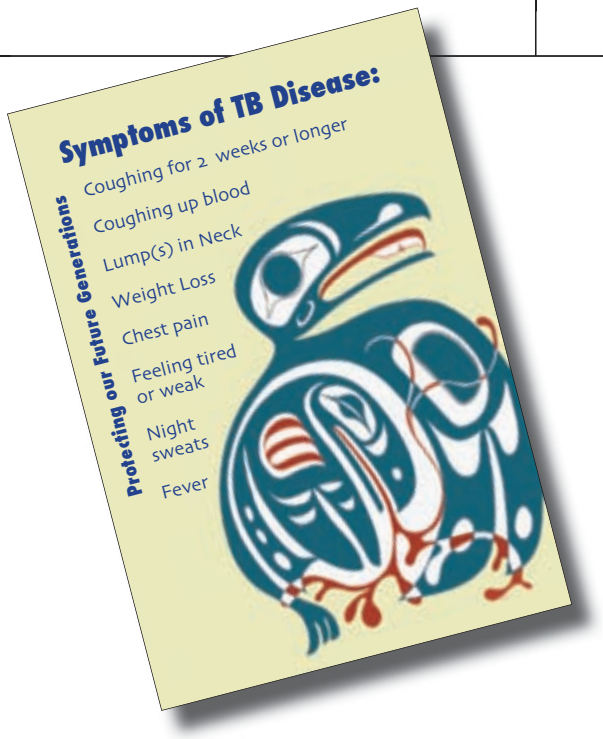
Risk Factors for Progressing to TB Disease



- **Being in close contact with a person who has contagious TB disease**
- **Being very young or very old**
- **Having conditions that weaken the body's ability to fight disease (e.g. poorly controlled diabetes, HIV/AIDS, kidney disease, alcoholism, IV drug use, crack and cocaine use, poor nutrition, some types of cancer)**
- **Taking drugs that affect the body's ability to fight disease (e.g., steroids, some arthritis medications)**

Signs & Symptoms of TB

ADULTS	CHILDREN
In adults, watch for these signs and symptoms: • **Cough lasting 2 weeks or more** • **Fever** • **Loss of appetite** • **Weight loss** • **Night sweats** • **Fatigue**	**Young children often do not have the obvious symptoms of TB because their immune systems are not mature. Watch for these signs and symptoms:** • **Cough (with no phlegm)** • **Fever** • **Feeling sick** • **Extreme lack of energy** • **No appetite** • **Weight loss** • **Noises in the chest when breathing**



Signs & Symptoms of TB

Night Sweats

Coughing 2+ weeks

Weight Loss

Fever

Loss of Appetite

Fatigue

Diagnosis of TB Disease

As with TB infection the TST is used, but is not helpful if the client has active TB disease as their immune system is busy fighting the TB germ and may not produce an immune response to the TST. Symptom inquiry becomes very important in diagnosing active TB as the classic symptoms of TB are chronic cough of at least 2 weeks, fever, night sweats, hemoptysis (blood in sputum), anorexia, weight loss, and chest pain. Sputum samples should be collected and client sent for Chest X-ray (CXR).

Diagnosis of TB disease is made using:

- **Medical history**
- **Physical examination & symptom inquiry**
- **Chest x-ray**
- **Sputum or other specimen tests (e.g., tissue)**

Early Identification of Cases of TB Disease

Early identification and treatment of TB disease are very important strategies needed to eliminate TB from communities. Treating cases of TB promptly prevents the spread of the disease within communities. Community members need to be aware of the symptoms of TB and be aware of who to call if they know someone is symptomatic. Providing community members with the right information will help prevent TB in their community.

Treatment for TB Disease

TB has been a curable disease since the 1950s.

Some facts about TB treatment:

- **Treatment is achieved with several antibiotics (i.e. isoniazid™, rifampin™, pyrazinamide™ and ethambutol™).**
- **Treatment usually lasts 6–9 months, but may be longer in some situations e.g. the client is not able to take one or more of the antibiotics; or if TB involves a part of the body that is difficult to treat i.e. TB meningitis; or the TB germ is resistant to usual medications. Medication for TB disease is administered by DOT.**
- **Treatment of TB disease is mandatory under the Public Health Act.** "Public Health Act; Part 4, Division 6 - Enforcement of Orders": Health officers may take enforcement measures in situations where individuals are not compliant with the Act, or pose a threat to their personal health or public health. Health officers may: obtain a warrant to enter and search a place; obtain an injunction to stop a person from violating the Act; obtain an order to detain an infected individual; order an individual to submit to public health protective measures; or order an individual to move to a residence where the person's health is not endangered.

  For example, this section could be used to detain people with tuberculosis that refuse to go on treatment and stay isolated until they are no longer infectious; or for people living in squalid conditions which threaten their health and for whom all other avenues to assist them have been exhausted." www.hls.gov.bc.ca/phact/overview.

  Although treatment of TB is mandatory, all efforts should be made to help clients understand the importance of not spreading TB if they are infectious and the repercussions of their actions. The Health Act should never be used as a threat. The TB team should consider the historical aspect of TB in the First Nations Communities and work with clients to resolve issues and identify common ground.
- **While receiving treatment, individuals are watched closely for side effects. Blood work is done before and throughout treatment to ensure that the liver is tolerating the medications.**

TB disease can be spread and result in many people getting sick, it is important that people with TB disease are identified early and given adequate treatment. Without treatment, the germs continue to multiply and cause damage to the body.TB can be fatal if not treated.

Latent TB Infection vs TB Disease

A person with LATENT TB infection…	A person with ACTIVE TB disease…
• Has tuberculosis **TB germ** (bacteria) in the body, but the **TB germs** are sleeping or inactive • Does not feel sick • Is not contagious • Has the potential to develop disease if the tuberculosis **germ** (bacteria) become active and multiply in the body • Is treatable – so progression to TB disease **can be prevented**	• Has active tuberculosis **germ** (bacteria) in the body • Feels sick and experiences symptoms such as coughing, fever and weight loss • Is capable of spreading the disease to others if the **germs** (bacteria) are active in the lungs or throat • Is curable if diagnosed accurately and early, with prompt initiation and completion of appropriate treatment.

CHAPTER 5

TB Screening

- **Screening for TB**
- **TBSAC Recommended TB Screening Guidelines**

Screening for TB

'Screening' is a tool used to identify disease early so that treatment can be started promptly. Early identification helps reduce the negative impact on people's health and reduces the spread of disease. Screening programs are only as successful as the follow-up that accompanies them. Groups should be screened only when resources exist to provide treatment for individuals found to have **TB infection** or **TB disease.**

Why Screen for TB?

- **Screening encourages early identification and treatment of TB infection.**
- **Screening provides an indication of how much TB is in the community.**

A TB skin test (TST) is used for screening people. It will detect if there is presence of the TB germ in the body.

Groups Commonly Screened for TB Include:

- Individuals living in shared living environments (e.g. nursing homes)
- People who are at increased risk of developing TB disease from TB infection (e.g. weak immune systems from HIV)
- Individuals who may be exposed to infectious cases of TB (e.g. health care workers)
- People who have the potential to transmit TB to many people if they were to develop TB disease (e.g. health care workers)
- Individuals who are good candidates for preventative treatment (e.g. school aged children)

NOTE:
Children who test positive for the TB germ have a 40% increased risk of developing active TB disease and other serious forms such as TB meningitis or miliary TB.

General TB screening includes:

- **Symptom inquiry**
- **Tuberculin skin testing (TST)**

NOTE:
Future screening may include a blood test called IGRA.

If client is symptomatic, further screening may include:

- **Sputum or other specimen (e.g. tissue) examinations**
- **Chest x-ray**

The tuberculin skin test (TST) is a tool used to determine if there are TB germs present in the body. A 'significant' reaction means that the person has **TB infection** (LTBI). **Tuberculin skin testing is used to identify TB infection, not TB disease.**

Significant (positive) reactions must be followed up.

A significant skin test reaction means the individual has been infected with the TB germ and needs to be further checked to see if they have **TB disease.**

A positive test for TB infection results in a raised bump at the site of TB skin test.

Measure the 'induration' or lump NOT the redness!

The role of the DOT Lay Worker in follow up of a significant TST includes:

- **Reporting to the supervising CHN, who will in turn report to appropriate people (BCCDC/TBSAC)**
- **Assisting the health team and client with completing follow up tests as directed by the community health nurse (history, symptom inquiry, sputum tests, chest x-rays, doctor's appointments)**
- **Documenting all client contacts and activities**

As discussed previously, those with TB infection may be offered medication to treat the infection **before** it has a chance to develop into TB disease.

TBSAC Recommended TB Screening Guidelines

To improve TB control efforts on-reserve, TBSAC has developed an enhanced surveillance program for all Aboriginal communities which includes TB skin testing for children attending Band Schools as they enter Grade 1 and Grade 6 and annual TB screening for those living on-reserve who are at higher risk of developing TB (e.g. HIV/AIDS, diabetes, renal disease, prednisone use etc).

TB Services for Aboriginal Communities Guidelines for Annual Screening

	Grade 1 & 6	Employees	High Risk Group
	Band Schools	Health Centre, Band Schools, Daycare & Preschool	HIV/AIDS, prednisone, kidney dialysis, cancer, lymphoma, leukemia, transplantation, low body weight, diabetes.
Tuberculin Skin Test (TST)	All children with previous negative TST.	All employees with previous negative TST. 2 step TST @ baseline.	All clients with previous negative TST.
Symptom inquiry. Document results	All children with positive TSTs.	All employees with positive TSTs.	All clients in high risk group.
Chest x-ray (CXR)	Children with a new positive TST or symptoms of TB.	Positive TST: Baseline CXR at employment & thereafter if symptoms of TB occur or contact with active TB.	CXR all clients with new TST positive or symptoms of TB regardless of TST status.
Sputum for AFB		Productive cough for more than 2 weeks.	Productive cough for more than 2 weeks.

For Aboriginal communities with one or more cases of contagious TB since 2003, we recommend community-wide TB skin testing surveys every two years and annual TB skin testing of children 5 years of age and younger. The enhanced screening program for young children will also help to monitor the impact of BCG discontinuation (June 1, 2003). All children born after June 1, 2003 in these communities will be offered TB skin testing (TST) at 10 months, then yearly until age 5.

TB Services for Aboriginal Communities

Communities With 1 or More Cases of Infectious TB Disease in the Past 5 Years

Community wide Screening every 2 years	Children born after June 1, 2003
▪Tuberculin Skin Test (TST) screening for entire community and should include screening of all grades in Band schools. ▪Discuss treatment with Isoniazid (INH) for all clients with positive TSTs (Latent Tuberculosis Infection).	▪Annual TST screening of children @ 10 months, & 2, 3, 4, & 5 years of age. ▪TST is positive if ≥ 10 mm or ≥ 5mm for contacts of an active case or immune compromised children.
▪Symptom inquiry for all clients with previous positive TST. CXR not required if asymptomatic. ▪CXR and sputum collection for clients with new positive TST or symptoms of TB.	▪Treatment of Latent Tuberculosis Infection (LTBI) with Isoniazid (INH) is safe and strongly recommended.
▪Reverse contact tracing should happen for all new positive TSTs in children.	▪Reverse contact tracing should happen for all new positive TSTs in children.

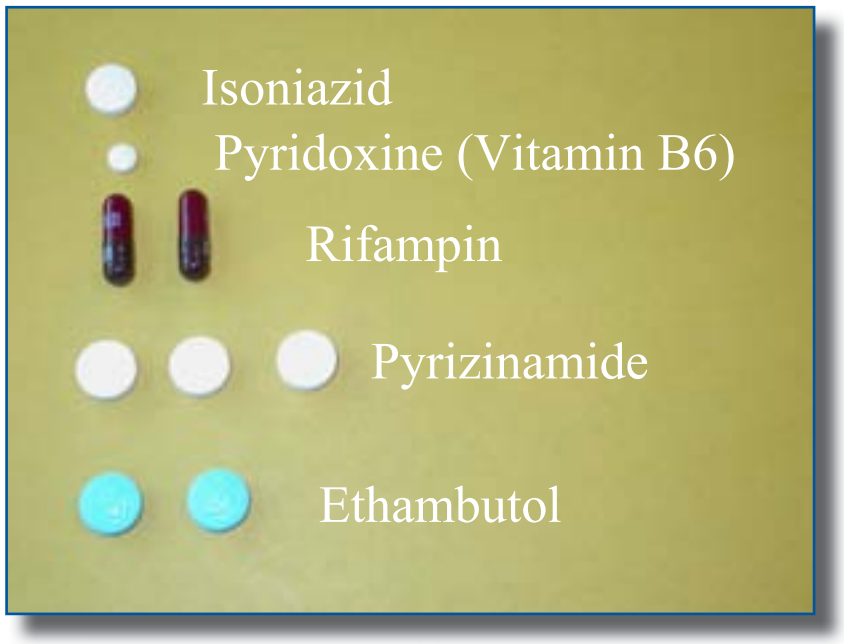
It is important to keep TB information up to date for communities. The results of the TB skin test screening are sent to BCCDC – TBSAC program, where community profiles are up-dated and made available to the community health nurse as requested. The TB picture has changed greatly in the past 50 years. TB is curable and preventable. With hard work and increased TB awareness in communities we can make strong steps toward eliminating TB.

Prevent

future generations from having TB!

CHAPTER 6

TB Medications



- **TB Medications**
- **TB Medication and Side Effects**
- **Drug Resistant Tuberculosis**
- **Tips for Giving Medication**
- **Incentives and Enablers**

300 mg

100 mg

ISONIAZID

DAILY DOSE		TWICE WEEKLY DOSE		STORAGE	COMMENTS
Children:	**Adults:**	**Children:**	**Adults:**		
10-15 mg/kg Max: 300 mg	5 mg/kg Max: 300 mg	20-30 mg/kg Max: 900 mg	15 mg/kg Max: 900 mg	Keep pill form and liquid form INH in dry, cool locked place.	Liquid INH contains sorbitol and may cause diarrhea, especially in infants and toddlers. Tastes extremely sweet and may be unpleasant Can crush tablets of INH and mix with soft food like yoghurt or jam.

150 mg

300 mg

RIFAMPIN

DAILY DOSE		TWICE WEEKLY DOSE		STORAGE	COMMENTS
Children:	**Adults:**	**Children:**	**Adults:**		
10-20 mg/kg **Max: 600 mg**	**10 mg/kg** **Max: 600 mg**	**10-20 mg/kg** **Max: 600 mg**	**10 mg/kg** **Max: 600 mg**	**Keep pill form Rifampin in dry, cool locked place.** **Liquid rifampin once mixed must be kept refrigerated and any unused portions discarded after 6 weeks.**	**Liquid rifampin will stain fabric and skin.** **Will cause dis-coloration to body fluids & stains soft contact lenses. Liquid rifampin should be shaken well before pouring of each dose.**

100 mg

400 mg

ETHAMBUTOL

DAILY DOSE		TWICE WEEKLY DOSE		STORAGE	COMMENTS
Children:	**Adults:**	**Children:**	**Adults:**		
15-20 mg/kg	**800-1600 mg**	**50 mg/kg**	**2000-4000 mg**	**Keep pill form ethambutol in dry, cool locked place.**	**Not routinely recommended for children who cannot be monitored for vision changes.**
Max: 1 g	**Max: 1600mg**	**Max: 2.5 g**	**Max: 4000mg**		

500 mg

PYRAZINAMIDE

DAILY DOSE		TWICE WEEKLY DOSE		STORAGE	COMMENTS
Children: 15-30 mg/kg Max: 2 g	**Adults:** 1000-2000 mg Max: 2 g	**Children:** 50 mg/kg Max: 2 g	**Adults:** 2000-4000 mg Max: 4 g	Keep pill form pyrazinamide in dry, cool locked place.	Not recommended for those with liver problems. Not recommended during pregnancy.

TUBERCULOSIS MEDICATIONS and SIDE EFFECTS

DRUG:	COMMON SIDE EFFECTS:	ACTION/SOLUTION:	COMMENTS:
All TB Medications:	Allergic Reaction • Fever • Itchiness • Rash • Difficulty breathing (rare)	Seek medical attention immediately if difficulty in breathing occurs Consult with TB Control Antihistamines (e.g.: Benadryl)	Always check with pharmacist for possible interactions between clients TB medications and other medications
Isoniazid	Liver Hepatitis: • Abdominal pain • Nausea/vomiting • Tiredness • Loss of appetite • Jaundice	If liver enzymes (AST/ALT) are **abnormal:** **(See Appendix F: Notification of Abnormal AST Form)** • Monitor enzymes • Change medication (as per TB Control physician)	
	Stomach Upset	With **normal** AST/ALT levels: • Try taking medication with food • May resolve once client is used to medication • TB Control may recommend anti-nausea medication	
	Tiredness	With **normal** AST/ALT levels: • Alter time of day medication is taken • Usually resolves within first month	
	Tingling in fingers and toes	TB Control may increase dose of Vitamin B6	

DRUG:	COMMON SIDE EFFECTS:	ACTION/SOLUTION:	COMMENTS:
Rifampin	Liver Irritation: • Abdominal pain • Nausea/vomiting • Tiredness • Loss of appetite • Jaundice Stomach Upset: Tiredness: Red/Orange Discoloration of body fluids: (tears, urine, sweat)	If liver enzymes (AST/ALT) are **abnormal: (See Appendix F)** • Monitor enzymes • Change medication (as per TB Control physician) With **normal** AST/ALT levels: • Try taking medication with food • May resolve once client is used to medication With **normal** AST/ALT levels: • Alter time of day medication is taken • Usually resolves within first month Discoloration is normal: • Warn client • Stains soft contact lenses	Be especially aware of interactions with other medications (e.g. birth control pills, blood medications, some diabetes medications etc), as there are many drug interactions with rifampin

DRUG:	COMMON SIDE EFFECTS:	ACTION/SOLUTION:	COMMENTS:
Pyrazinamide	Liver irritation: • Abdominal pain • Nausea/vomiting • Tiredness • Loss of appetite • Jaundice	If liver enzymes (AST/ALT)are **abnormal:** **(See Appendix F)** • Monitor enzymes • Change medication (as per TB Control physician)	Not recommended in pregnancy.
	Stomach Upset:	With **normal** AST/ALT levels: • Try taking meds with food • May resolve once client is used to medication	
	Tiredness:	With **normal** AST/ALT levels: • Alter time of day medication is taken • Usually resolves within first month	
	Joint Pain and/or Gout:	Depending on severity, change medication.	
Ethambutol (EMB)	Visual Changes: • Visual acuity • Color perception	Change medication (as per TB Control physician)	Not recommended for children who cannot be monitored for vision changes.

Drug Resistant Tuberculosis

Drug resistant tuberculosis is a type of TB that cannot be killed by the most common kinds of TB antibiotics. Drug resistant TB develops when TB medicines are used inappropriately, i.e. non-adherence, allowing the TB germ to change itself so that the medications no longer work. Resistance can happen when treatment fails.

Treatment might fail if:

- **Not enough medication is given (too small a dose)**
- **The whole dose is not taken**
- **TB medicines are not taken together**
- **Too many doses are missed**
- **Medication is frequently started and stopped**
- **Wrong medication prescribed/used**

People can also get drug resistant TB by breathing in a germ that is already drug resistant or if their medication treatment for TB had failed in the past.

In some countries (NOT Canada) TB drugs can be purchased by anyone without a prescription. This has contributed to incorrect use of the drugs and the development of drug resistant TB. In other cases doctors who are not experienced with TB have prescribed medications incorrectly, again leading to drug resistant TB. In British Columbia we are fortunate to have a centralized TB program overseen by TB specialists very knowledgeable in effective treatment of TB. These TB specialists oversee treatment for all TB clients in British Columbia. Directly observed therapy also helps prevent drug resistant TB by helping clients take their medicine correctly.

There are limited numbers of medicines that are effective against TB. If one or more of these medicines are not effective because the germ has become resistant, the treatment becomes longer and more complicated. Preventing drug resistant TB is very important. **It is vital that you help your clients take and complete their full course of medications exactly as prescribed.**

Drug resistant TB is very unusual in First Nations communities. This is partly due to the fact that medication is delivered with Directly Observed Therapy.

Helpful Tips for Giving Medication

Pills may be crushed with a pill crusher (available in most pharmacies) or between two spoons. Capsules may be opened and powder emptied out. Remember even the powdered form of Rifampin can stain skin and clothing. Crushing tablets and opening capsules and mixing with food or liquid should be done **just prior to administering** the medication and with the **minimum volume** required to mix the medication. Discard medication and start again if it is not used within one half hour of mixing with liquid or food.

NOTE:
This is a specialized task and should **NOT** be undertaken by DOT Lay Workers

When providing **DOT** for children, it can be helpful to mix the medication in one of the following:

LIQUIDS:

Koolaid:

- **Add 1 teaspoon of sweetened Koolaid powder**
- **Mix in 1 or 2 teaspoons water**
- **Stir until mixed well**
- **Feed to child using syringe, medicine dropper or spoon**

Juices:

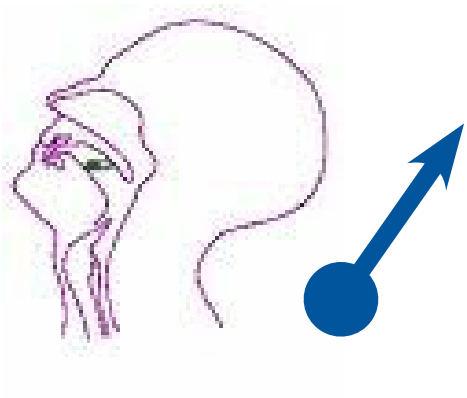
- **Use one with a strong, sweet flavor (such as orange juice)**
- **Mix powdered medications with 1 or 2 tablespoons of juice**
- **Stir until mixed**
- **Feed to child using syringe, medicine dropper or spoon**

FOODS:

- **E.g. applesauce, bananas, jelly or jam**
- **Mix powdered medications with 1 or 2 tablespoons of food**
- **Stir until mixed**
- **Feed to child using spoon**

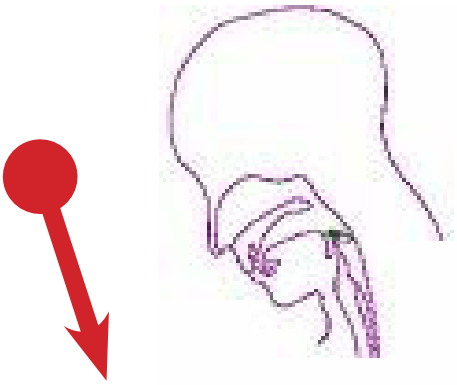
Be observant, Individualize, Be flexible

Hints for swallowing pills and capsules:



(FIG. 1) TABLETS:

Tablets tend to **sink** so tilt
your head **BACK** to swallow



(FIG. 2) CAPSULES:

Capsules tend to **float** so tilt
your head **DOWN** to swallow

Tips For Giving Medication To Children

AGE:	STRATEGY:
Infant:	• Offer medication when child is hungry • Crush & mix medication with age appropriate fluids or foods • Offer special bib when giving rifampin
Toddlers: **1 – 3 years**	• Use distraction • Expect difficulties • Be persistent and consistent • Give simple explanations • Offer incentives for each dose
Preschoolers: **3 – 5 year**	• Give simple explanations • Allow some negotiation for the method of taking medicine • Offer medicine when child is rested • Offer lots of praise • Offer incentive for each dose • Be persistent and consistent
School: **5 – 12 years**	• Provide simple explanation • Allow negotiation for method of taking pills (e.g. pills whole or crushed, with water or juice) • May be able to swallow pills – offer tips – capsules vs tablets (see Figs. 1 and 2) • Offer praise and incentives
Adolescent: **12 – 18 years**	• Involve adolescent in decision making • Should be able to swallow pills • offer tips – capsules vs tablets (see Figs 1 and 2) • Allow flexible method of taking pill • Offer praise and incentives • May be interested in longer term type incentives (e.g. gift certificate to a store or favorite food spot) instead of small item with each dose.

Incentives and Enablers

Incentives and enablers help with motivation and with overcoming barriers that may otherwise prevent a client from successfully completing his/her treatment. They are tools that can also help build a positive relationship with the client.

Incentives are what motivate clients to take their medicine, keep their appointments or get necessary testing done. An incentive can be just about anything (e.g., a food voucher, a friendly smile, cup of coffee, ice cream, etc.). Some people find that getting healthy is incentive enough to take TB medications. Others do not. The key to using incentives is to determine what is important or meaningful to each client. Discovering a client's likes, dislikes, interests and hobbies can make incentives more effective. Providing a variety of choices allows for change from time to time.

Enablers are similar to incentives. Enablers help the client overcome barriers. Some barriers a client may experience include:

- **Lack of transportation**
- **No babysitter**
- **Fear**
- **Family beliefs**
- **Past experiences**
- **Inability to take time off work**
- **Substance abuse**

An example of using an enabler would be to arrange transportation for a client who doesn't have a vehicle and needs to come to the clinic for follow up or providing a snack for the person to take with their pills if the medications upset their stomach.

Further examples of incentives and enablers:

Food:	Coffee, applesauce, fruit, ice cream, pudding, juice, Grocery Certificate
Clothing:	Socks, gloves, department store gift certificate
Automotive:	Gasoline, motor oil, oil change certificate
Entertainment:	Movie tickets, movie rental ticket
Services:	Restaurant or hair salon gift certificates
Transportation:	Arranging a ride with medical transportation, bus fare/passes, taxi voucher
Personal Care:	Make up, nail polish, cologne, body wash, hair salon gift certificate
Hobby supplies:	Gardening, books

Celebration: Celebration for client on completion, acknowledge birthdays, certificate of completion

Children: Bibs to protect clothing.

Be sure items are age appropriate and safe.

Younger children will likely enjoy a small item with every dose rather than wait for a big item at the end of treatment. Crayons, coloring books, small story books, toys, stickers (e.g. Smile Makers).

Calendars to put a sticker on with each dose.

Incentives and Enablers are great tools to assist in client's adherence to the TB medication, but DO NOT replace building a therapeutic relationship based on trust and mutual respect.

The BCCDC-TBSAC program can provide support for incentives/enablers upon discussion.

CHAPTER 7

Managing DOT

- **Principles of DOT**
- **Advantages of DOT**
- **Roles and responsibilities of DOT**
- **Procedures of DOT**
- **Setting up & Delivering DOT**
- **Common Lab Tests for TB**
- **Influencing Adherence to TB-DOT**

Principles of Directly Observed Therapy

- A trained health worker delivers each dose of TB medication.
- A **DOT** worker can be a:
    - Community health nurse
    - Community health representative with special training, assigned by the supervising RN
    - Lay person with special training, assigned by the supervising RN
- A close family member of the recipient of medications may not be an appropriate choice as that client's **DOT** worker.
- The **DOT** worker watches the client swallow each dose of medication. Medication must never be left with the client.
- The **DOT** worker asks and observes the client for side effects with each dose of medication.
- The **DOT** worker documents all pertinent information of **DOT** administration in a timely fashion.

Advantages of DOT

- **DOT** is important to cure and prevent the spread of TB in the community.
- The client is supported to successfully complete the full course of medication.
- The client is monitored closely for side effects of medications and supported to work through the side effects appropriately.
- The client is encouraged and supported to complete required check ups – blood work, chest x-rays, etc.
- A trust relationship often develops between **DOT** worker and the client. This relationship:
    - reduces fears about TB and its treatment
    - increases client's comfort level so he/she will ask questions
    - improves client's quality of health care as **DOT** workers can be an important link to other community resources for the client
    - reduces the possibility of TB germs becoming resistant to the medication

Roles and Responsibilities of DOT Team

This document is meant to guide the practice and clarify the roles of each TB **DOT** team member within the community. The **DOT** worker role may be taken on by a community health nurse, a community health representative or an individual hired and trained as a **DOT** Lay Worker.

COMMUNITY HEALTH NURSE	DOT WORKER	HEALTH MANAGER
Ensures competency of DOT Lay Worker's skills and knowledge • trains **DOT** Worker in collaboration with TBSAC • ensures safe and correct storage of TB medications • sets up reporting and documentation system • receives and checks medication against prescription • prepares individual client medication dose packages (e.g. envelopes or dosettes only if blister pack is not available) • does TB medication teaching for clients starting therapy • ensures required testing is completed and results forwarded to TB Control • provides record of medication compliance to TB Control as per protocol • communicates with TB Control re: side effects, client concerns, missed doses as appropriate • orders more medication as needed • is available to advise & support **DOT** Lay Worker at all times when he/she is on duty or identifies a designate for this role • reviews client progress with **DOT** Lay Worker every 1-2 weeks • sees and assesses client monthly • answers client and **DOT** Lay Workers questions (or refers to TBSAC if needed • acts as client advocate	• completes **DOT** training skills and knowledge and accepts assignment of **DOT** tasks • visually checks TB medications • meets with client, assesses for side effects and administers TB medications according to principles of directly observed therapy • never leaves medication for client to take on own • notifies client of needed follow up (lab work, chest x-rays, etc.) • supports client to complete necessary follow up • reports all side effects, missed doses and client concerns to supervising nurse • reviews client progress with supervising nurse every 1-2 weeks • documents all pertinent information on **DOT** Record • stores medications safely and correctly • treats all client medication, documents and information with confidentiality • reinforces TB teaching done by CHN • provides cultural and language support to CHN/client relationship as appropriate • acts as advocate for client • answers client questions when appropriate; refers questions to CHN when appropriate • aids TB team with other TB Program related activities upon completion of training and time permitting	• requests funding for **DOT** Lay Worker position as appropriate • ensures work plan for **DOT** Lay Worker position submitted to BCCDC – TB Control • arranges acquisition of incentives/enablers to support program

Directly Observed Therapy (DOT) Assessment Tool

All persons starting treatment for suspected or confirmed active TB should be evaluated for their risk of non-adherence to therapy **at the time treatment is initiated.**

DOT should be provided if one or more of the following apply:

YES	NO	
		Client is on an intermittent regimen (e.g. bi-weekly)
		Client has pulmonary TB, sputum smear positive and/or Chest x-ray shows cavitary disease
		Client has reactivated TB disease or history of previous TB disease
		Client has confirmed or suspected drug-resistant TB
		Client has previously taken treatment for latent TB infection
		Client is 18 years of age or less
		Client has HIV infection
		Client has history of non-adherence with prescribed medical therapy (TB or other)
		Client shows poor understanding of TB diagnosis, or non-acceptance of diagnosis
		Client is too ill to self-administer medications
		Client is homeless
		Client is incarcerated in a correctional facility
		Client abuses/misuses alcohol or other substances
		Client is unable to self-administer medications due to mental, physical, or emotional impairments
		Other:

Clients not initially on **DOT** should start **DOT** if any of the following occur:

YES	NO	
		Slow sputum culture conversion (culture still positive >2 months after treatment started)
		Slow clinical improvement or clinical deterioration while on TB therapy
		Adverse reaction to TB medications
		Significant interruptions in therapy
		Second Line treatment

(Source: Minnesota Department of Health TB Prevention and Control Program: Revised, June 2004)

DOT Procedures

Initiating Treatment of LTBI (prophylaxis/preventative treatment)

Once the TBSAC physician reviews the client's chest x-ray and 939 form, a recommendation will be made and the consult note will be sent to both the client's physician and the CHN.

GOAL: To work as a team and to have the client's physician actively involved.

The physician and/or the CHN will discuss the recommendation to initiate treatment for LTBI (preventative therapy). This conversation includes:

- **Purpose of treatment**
- **Type of medications and length of treatment**
- **Side effects of medications and required follow-up**
- **Importance of adhering to treatment**

Following discussion of the recommendation from TB Control with the client, the CHN will complete the "Request for Preventative Therapy" Form (Appendix G) and fax it to TB Control. If the client is not interested in preventative therapy, this form has an option to communicate refusal.

For the client that is agreeable to preventative therapy, it is necessary for the CHN to do the following:

- **Request baseline liver function blood work**
- **Gather list of current medications (prescribed, over-the-counter, herbal)**

Once all of this information is available to the TBSAC physician, a prescription will be written and faxed to the CHN and the physician. All prescriptions for TB medications in BC are written by the TBSAC physician and are dispensed by the BCCDC pharmacy with no cost to the client. The BCCDC pharmacy will courier the medication directly to the Health Centre.

Reporting Treatment Completed for LTBI

When a client completes their LTBI therapy the form "Completion: Treatment of LTBI" is submitted to TB Control (Appendix H). This form is used to communicate end of treatment, due to successful completion or due to NOT completing therapy (eg. Adverse event, lost to follow-up, etc.)

NOTE:

It is very important to rule out active TB disease prior to starting treatment for LTBI. Assessment includes:

- ***Signs & Symptoms follow-up***
- ***CXR***
- ***Sputum if symptomatic***
- ***Other investigations as recommended***

Initiating Treatment for TB Disease

Many clients with TB disease will have had their treatment initiated in hospital. If **DOT** is anticipated or recommended, attempts should be made to initiate treatment plan prior to discharge from hospital. If the case was admitted to the TB ward at the Vancouver General Hospital, the TBSAC Nurse Consultant will inform the CHN that the client is returning home prior to discharge from the hospital. The TBSAC Nurse Consultant will fax the prescription for the TB medications ordered by the TBSAC physician to the Health Centre and the BCCDC pharmacy will mail the medications. The family doctor will also receive a copy of the client's prescription and required follow up. For clients who start treatment for TB disease in their home community, TB Control will work closely with the CHN to initiate treatment.

Completing Treatment for TB Disease

When a client being treated for TB disease is approaching the treatment end date, TBSAC requires an exit chest x-ray to be done and forwarded to the TBSAC physician for review. The TBSAC physician will assess the result of the chest x-ray, the client's medication adherence, their health status and other relevant clinical information before discontinuing treatment.

Re-ordering Medications

The **HLTH 832** form (Appendix I) is used to reorder medications. After a month of therapy is completed, the form can be copied and the original mailed to TB Control or the form can be faxed. The TBSAC Nurse Consultant will enter the adherence information and any reports on side effects into the TB database. BCCDC pharmacy will process the order and ship 2 more months of medications to the Health Centre.

NOTE:
For emergency situations, it is acceptable to FAX the HLTH 832 form to TBSAC if medication is needed urgently.

Setting Up & Delivering DOT

DOT is the TBSAC standard for providing medication to all clients taking TB medications (disease or latent TB infection). It is advised that before treatment starts, the nurse and **DOT** Lay Worker meet with the client and explain the details of **DOT** if possible. The following three points should be considered for meetings with the client:

- **Set up a place and time to meet the client that works for both the client and the worker.**
- **Be flexible with the time and place.**
- **Ensure client confidentiality is maintained.**

The 1st and 2nd month of TB treatment are critical for success!

The 5 R's

The CHN is responsible for dispensing the medication the **DOT** Lay Worker delivers to the client. This means it is the CHN's role to place the TB medication in the individual dose packaging (if medication is not yet in a blister pack). This could be envelopes, dosettes or other methods clearly labeled with client identifiers. It is important for the **DOT** Lay Worker to also be aware of the principles of medication dispensing and administration, also known as the 5 Rs. These include:

- **Right patient**
- **Right medication**
- **Right dose**
- **Right route**
- **Right time**

Frequency DOT

Most **DOT** is twice weekly. A Monday/Thursday schedule is recommended as it allows some leeway in the work week to still give both doses required should the client miss the first (Monday) dose. There should be at least a 72 hour interval between twice weekly doses. There may be circumstances when **DOT** is daily, or 5 times weekly, or 3 times weekly, usually when beginning treatment of disease or if a client is unable to tolerate twice weekly doses. The direction for frequency of medication will come from TB Control, BC Center for Disease Control (BCCDC).

NOTE:
There should be at least a 72 hour interval between twice weekly doses.

Administering Medication

Before the client starts their therapy, the CHN reviews the medication and any possible side effects or drug interactions with the client. The **DOT** worker must also be aware of possible side effects of each client's medications. The first 2 or 3 doses should be delivered and observed by the supervising nurse to allow the opportunity for teaching and observation for reactions and side effects. While the **DOT** Lay Worker is being trained, the nurse and **DOT** Lay Worker should visit the client together until the nurse is confident the **DOT** Lay Worker is comfortable and competent with the skills. Once training is complete, subsequent doses may be delivered by the trained **DOT** Lay Worker.

All doses of medication must be observed.
It is NEVER acceptable practice to leave a dose of medication with a client to take on their own at a later time.

Having flexibility in providing **DOT** is essential. For example, if a client is unable to take a dose of medication at the time of **DOT** Lay Worker's visit, the worker should problem-solve to set another time for the dose within the required time frame (72 hours). If an alternative time cannot be found, the **DOT** Lay Worker must mark the dose as missed and report the missed dose to the supervising nurse. **Do not leave TB medication with the client.**

Strong communication and good planning will also help the client adhere to their therapy. For example, the client should be encouraged to inform the nurse or **DOT** Lay Worker well ahead of time about any travel plans. Arrangements for medication can be made while the client is away – this should be discussed with TB Control. It is important to maintain flexibility with the client's schedule as the TB team is there to support and ensure a successful treatment course for the client.

Documenting Medication Administration

TB Control requires completion of the **HLTH 832** form "Record of Supervised TB Medication" (Appendix I) for **DOT**. This form serves three purposes:

- **It allows the DOT Lay Worker to document medication administration and adherence;**
- **It provides an effective method to communicate this information to the CHN and TB Control**
- **It initiates a reorder of medications from TB Control.**

This document is found in the TB Forms packages at local Health Centres, through TB Control and online at http://www.bccdc.ca/dis-cond/a-z/_t/Tuberculosis/guideform/default.htm.

All side effects, missed doses and concerns or questions from the client or about client care need to be forwarded directly to the nurse as soon as possible. Additionally, the CHN will need to document information on the client's status in the Health Centre's files. The details of Health Centre charting are unique to each centre so it is very important for the CHN to review the expectations and procedures for the **DOT** Lay Worker. Some TB teams use a checklist to guide their work **Tuberculosis DOT Checklist and Record (see Appendix D).** This document is available through the TB Services for Aboriginal Communities program at BCCDC. The form acts as a checklist to ensure the required activities of **DOT** were completed. It reminds the **DOT** Lay Worker to:

- Review side effects since last dose
- Document presence or absence of side effects:
    - ◊ If side effects are present report them to the CHN & **hold** medication until advised by the CHN to restart. The nurse should be available for the **DOT** Lay Worker to consult.
    - ◊ If no side effects, give medication and observe dose being swallowed
- Record findings and actions on field notes
- Document time client swallowed pills by signing **DOT** record
- Inform client of required follow up tests as needed
- Report any missed dose to supervising nurse

In delivering **DOT**, proper documentation and strong communication is critical. It is very important to remember to:

- **Ensure confidentiality during each visit with the client.**
- **Maintain confidentiality of client records and personal information at all times.**
- **Maintain safe and secure storage of medication. See 'medication section' for special storage and handling information.**

Monitoring Client

The CHN is required to review each client's progress with the **DOT** Lay Worker on a weekly basis and the client should be assessed (signs & symptoms of TB, side effects of medications, general health) directly by the CHN on a monthly basis, but, possibly more often at the beginning of therapy.

SYMPTOMS OF LIVER TOXICITY:

Rash	Headache	Nausea
Vomiting	Diarrhoea	Jaundice
Malaise	Fever	Abdominal Pain

Regular communication between **DOT** team members is vital for the smooth and safe delivery of **DOT**. A plan for communication should be set in place. The CHN must be available in person or by telephone to the **DOT** Lay Worker in case of client side effects or other questions and concerns. If the CHN for any reason is not available, a designate nurse must be identified (TBSAC Nurse Consultants telephone numbers should be provided to **DOT** Lay Workers). The designate must agree to take on the supervising role and to be available to the **DOT** worker.

Should the client forget or choose NOT to take the medication, this can lead to treatment failure & the development of resistant TB.

Other Tuberculosis Follow-up for DOT Clients

Regular blood work is essential for safe management of tuberculosis treatment to be sure the body is tolerating the medication. Blood work, chest x-rays and other follow up tests are required throughout the client's therapy. It is the CHN's responsibility to ensure these tests are done and to report the results to TB Control. However, the **DOT** Worker can remind the client and help to make arrangements to complete the tests. When **DOT** Workers are trained and assigned the task, they may also gather sputum samples.

Blood Work:

- Done monthly for clients 16 years of age or older.
- Normal results do not have to be reported to TB Control, but TB Control needs to know that it has been done.
- Abnormal results are reported immediately to TB Control. For clients on preventative treatment the CHN can use the form "Prophylaxis: Notification of Abnormal AST" (see Appendix F). For clients on treatment for TB disease, the CHN must call the TBSAC Nurse Consultant to report and receive direction from TBSAC.
- TB Control should be contacted immediately for all clients who are showing signs and symptoms of liver toxicity.

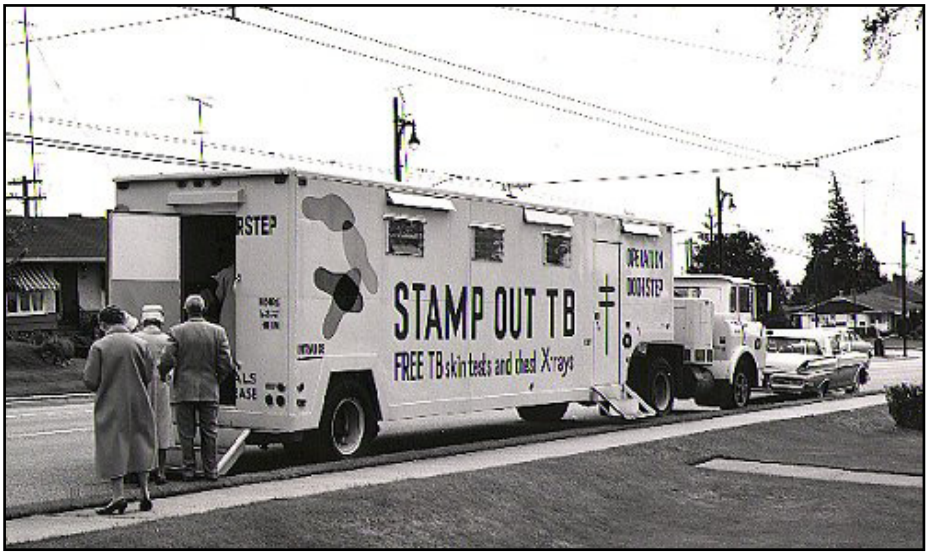
Chest X-Rays:

- When a client needs a CXR the 939 is used as a CXR requisition.

Sputum Samples:

- Required for any client that presents with productive cough.
- 3 sputa are required; at least one should be collected in the morning.
- Sputum collection is described in more detail in Chapter 9.

All forms necessary for delivering Aboriginal TB programs on-reserve are available in a forms package from the BC Center for Disease Control – TB Services for Aboriginal Communities.



Citizens of Vancouver come out to be x-rayed at a mobile x-ray unit during Operation Doorstep, mass survey in the early 1960s (Canadian Lung Association).

For assistance with DOT Worker training and education, please contact

The BC Center for Disease Control – TB Services for Aboriginal Communities.

Toll Free: 1-888-569-2299

TEST	PURPOSE	HOW OFTEN	NOTES
Sputum for AFB (Acid Fast Bacilli) **Smear –** a sample of the sputum is put on a slide and checked under the microscope to look for TB germs. **Culture/Sensitivity –** the sample is put in special medium with everything the germ needs to thrive. If there are TB germs in the sample, they will grow.	**To see if TB germs are present in the sputum for diagnosis of TB disease.** **A measure of how contagious a person is.** **Used to test which TB medications work on the clients particular TB organism.**	**As directed by TB Control:** • For diagnosis • At beginning of treatment for LTBI to be sure the person does not have TB disease. • Follow smear counts that decrease during treatment	• Collection procedures in Chapter 9 • Done in community • Keep samples in fridge • Send samples to lab as soon as possible • Smear Positive can mean that the client has contagious TB disease • Numbers of germs are measured by scant, 1+, 2+, 3+, 4+. Scant means few germs seen. 4+ many germs seen and therefore very infectious. The greater the number of germs seen on the smear the more contagious they will be • Culture positive means TB germs are alive and growing. The client has TB disease
Blood Work Tests required depend on which medications the client is taking. • CBC – complete blood count • AST – Aspartate aminotransferase (liver function) • Others as requested, i.e. HIV or Hepatitis B/C	To measure the body's response to the medication.	As directed by TB Control: • At baseline and repeated monthly. • For LTBI: if normal AST for first 3 months then every other month until end of treatment. • Repeated more often if client has side effects	• Done in lab • Nurse or Family Doctor completes requisition to be given to client or makes arrangements with local lab for client to go for test • Nurse ensures abnormal test results are forwarded to TB Control and local family physician

TEST	PURPOSE	HOW OFTEN	NOTES
Chest X-ray Adults: usually posterior-anterior (PA) view. Children: younger than 14 PA and lateral view.	A picture of lungs to see if there are signs of disease or of healing.	As directed by TB Control: • At beginning of treatment for disease and for LTBI • At the end of treatment if abnormal at initiation. • Occasionally during the course of treatment for disease to assess treatment response	• Done in radiology lab or hospital • Nurse completes requisition to be given to client or makes arrangements with local radiology lab for client to go for test. • Nurse ensures test results are forwarded to TB Control.
Vision Testing Acuity & color discrimination	To monitor possible changes to vision when taking Ethambutol	Prior to beginning EMB and monthly while taking the drug.	Nurse ensures that results are forwarded to TB Control.

Influencing Adherence to TB-DOT

A Guide for DOT Workers

Research from **DOT** studies reveal many barriers for clients that are encountered by **DOT** Lay Workers when providing **DOT**. The best predictor of non-adherence is a previous history of non-adherence. However, these following barriers were associated with client non-adherence to **DOT**:

- Substance abuse or misuse
- Homelessness or housing issues
- Transient lifestyle
- HIV
- Mental illness
- Intellectual ability
- Length of treatment duration
- Treatment observation deemed unnecessary
- Inadequate knowledge or understanding of the disease and its treatment
- Lack of awareness of TB treatment programs
- Language barriers
- Cultural differences
- Side effects and concerns related to liver problems
- Difficulty swallowing pills
- Social stigma
- Inadequate treatment supervision/poor quality of care
- Perceptions of staffing or facilities
- Interpretation of **DOT** as "distrust"
- Delay in treatment

Once barriers are identified, modifications and steps can be taken to address improving adherence for those experiencing difficulty with **DOT**.

Some key components that can facilitate client adherence to tuberculosis treatment are outlined:

- Clients need clear concepts of tuberculosis education and what treatment entails.
- Clients need helpful support to modify behaviors.

- Barriers to adherence must be identified and modified, preferably before treatment.
- Clients should have direct and continual feedback in order to reinforce positive behavior modification.
- Social support for the client is extremely beneficial. A client-centered approach to **DOT** is most successful.
- TB treatment regimens that are planned with client's existing lifestyle tend to be more respectful and acceptable to patients.
- Be creative and flexible, and commit to working together.

Communication Tips:

To get a sense of what a client knows, or does not know about tuberculosis and treatment, it is always helpful to enter conversations with "open ended" questions. Open-ended questions allow you to probe and get more information, especially using words "when, how, where, why, what".

Examples:

- Tell me what happened to you when you were first told you had tuberculosis. How did you feel? How were you told about it?
- What have you been told about tuberculosis?
- What do you know about the **DOT** program?
- How did you get this information?
- What have you been told about your medication?
- What were you told would happen if you missed some of your medications?
- How involved are friends and family in your care and treatment of tuberculosis?
- What was most helpful? Why?
- What can you tell me about your health needs or health beliefs?
- Is there anything that can make it easier for you to take your medication?

CHAPTER 8

Professional Practice Tools

- **Safety and Home Visits**
- **Client Confidentiality**
- **Client's Charter for Tuberculosis Care**

Safety and Home Visiting

The **DOT** worker should never put himself/herself in danger. If a worker is in doubt about his or her safety he or she should withdraw from the situation. A new meeting place may need to be arranged with the client.

- Discuss home visiting safety with the **DOT** team and Nurse in Charge. Your health center may have safety policies in place.
- Ensure access to safety equipment & supplies such as N95 masks.
- Document and report all incidents to supervising nurse and health director.
- Safety should be carefully considered when setting up the meeting place for **DOT**.

Things to consider in assessing for safety are:

- Surroundings for animals
- Unpredictable situations (where alcohol or drug use may be happening)
- Physical hazards
- Weather hazards
- Isolation
- Vehicle safety – mechanically sound, windows, risk of TB transmission if driving clients to appointments

Client Confidentiality

DOT Lay Workers have a legal and moral obligation to ensure every client's confidentiality.

Confidentiality is important for a variety of reasons:

- Ensures that clients who seek care will not have to fear that their personal information will be used inappropriately
- Preserves the clients right to self-determination
- Helps to build strong and trusting interactions for provider-client relationships

Measures to Protect Client Confidentiality

Any situation:

- Confirm the client's identity at the first encounter
- Never discuss a client's case with anyone without the client's permission (including family or friends at anytime)
- Do not leave hard copies of forms or records where unauthorized persons may access them
- Use only secure routes to send client information and always mark sealed envelope "confidential"
- If using an interpreter, ensure that the interpreter understands the importance of confidentiality before using these services. Avoid using a family member as an interpreter if at all possible.

When in an office or clinic:

- Conduct client interviews in private room or area
- Never discuss cases or use clients name in a public area
- If a staff member or health care provider requests client information, establish and ensure that he/she has the authority to do so before disclosing anything
- Keep records that have client names and other identifying information in closed locked files
- Restrict access to electronic databases to designated staff only

- Carefully protect computer passwords or keys; never give these to unauthorized persons
- Keep printouts of electronic information in a restricted locked area; printouts that are no longer needed should be destroyed
- Ensure that phone calls to clients are done in private

When in the field:

- Be discreet when making client visits
- Conduct client interviews in private
- Do not discuss client cases in a public area
- Do not leave sensitive or confidential information in messages for the client on a door, and if one must be left, ensure it is sealed and marked "confidential", and addressed to the client
- Do not leave sensitive or confidential information on an answering machine that other people may access
- Consider client privacy when making your arrangements to deliver the medications (let client choose how they wish these medications delivered)
- Consider cell phone usage, and sensitivity with client names when using cell phones in public areas
- Name tags of **DOT** Lay Workers advertising TB may be sensitive to clients in a public place, consider "Outreach Health" or "Outreach Team" if appropriate
- If paper has been used to make client notes, ensure that at the end of the day these papers are safely secured in office.

(Source: Self-Study Modules on Tuberculosis: Confidentiality in Tuberculosis Control. Atlanta Centers for Disease Control and Prevention; 1999, p.53).

DOT Lay Worker may be required to complete an oath of confidentiality, according to health center policy.

Personal Information is protected by the **Personal Information Protection Act** and **Health Information Act.**

The Client's Charter for Tuberculosis Care

The Client's Charter for Tuberculosis Care outlines the rights and responsibilities of people with tuberculosis (TB).

CLIENT'S RIGHTS

Care:

- The right to free and equitable access to TB care, from diagnosis to completion of treatment, regardless of resources, race, gender, age, language, legal status, religious beliefs, sexual orientation, culture or health status.
- The right to receive medical advice and treatment that fully meets the new International Standards for Tuberculosis Care, centering on patient needs, including those of patients with MDR-TB or TB-HIV co-infection, and preventative treatment for young children and others considered to be at high risk.
- The right to benefit from proactive health sector community outreach, education and prevention campaigns as part of comprehensive health care programs.

Dignity:

- The right to be treated with respect and dignity, including the delivery of services, without stigma, prejudice or discrimination by health care providers and authorities.
- The right to high-quality health care in a dignified environment, with moral support from family, friends and the community.

Information:

- The right to information about the availability of health care services for TB, and the responsibilities, engagements and direct or indirect costs involved.
- The right to receive a timely, concise and clear description of the medical condition, with diagnosis, prognosis (an option to the likely future course of the illness) and treatment proposed, with communication of common risks and appropriate alternatives.
- The right to know the names and dosages of any medications or interventions to be prescribed, its normal actions and potential side effects, and its possible impact on other conditions or treatments.
- The right to access medical information relating to the patient or a person authorized by the patient.
- The right to meet, share experiences with peers and other patients and access to voluntary counseling at any time from diagnosis to completion of treatment.

Choice:

- The right to a second medical opinion, with access to past medical records.
- The right to accept or refuse surgical interventions if chemotherapy is possible and to be informed of the likely medical and statutory consequences within the context of a communicable disease.
- The right to choose whether or not to take part in research programs without compromising care.

Confidence:

- The right to respect for personal privacy, dignity, religious beliefs and culture.
- The right to confidentiality relating to the medical condition, with information released to other authorities contingent upon the patient's consent.

Justice:

- The right to make a complaint through channels provided for this purpose by the health authority and to have any complaint dealt with promptly and fairly.
- The right to appeal to a higher authority if the above is not respected and to be informed in writing of the outcome.

Organization:

- The right to join, or to establish, organizations of people with or affected by TB, and to seek support for the development of these clubs and community based associations through health care providers, authorities and civil society.

Security:

- The right to job security after diagnosis or appropriate rehabilitation upon completion of treatment.
- The right to nutritional security or food supplements if needed to meet treatment requirements.

Client's Responsibilities

Share Information

- The responsibility to provide as much information as possible to health care providers about present health, past illness, any allergies and any other relevant details.
- The responsibility to provide information to health care providers about contacts with immediate family, friends and others who may be vulnerable to TB or who may have been infected.

Follow Treatment

- The responsibility to follow the prescribed and agreed treatment regimen and to conscientiously comply with the instructions given to protect the patient's health and that of others.
- The responsibility to inform health care providers of any difficulties or problems in following treatment, or if any part of the treatment is not clearly understood.

Contribute to Community Health

- The responsibility to contribute to community well-being by encouraging others to seek medical advice if they exhibit symptoms of TB.
- The responsibility to show consideration for the rights of other patients and health care providers, understanding that this is the dignified basis and respectful foundation of the TB community.

Solidarity

- The moral responsibility to show solidarity with other patients, marching together towards a cure.
- The moral responsibility to share information and knowledge gained during treatment, and to share this expertise with others in the community, making empowerment contagious.
- The moral responsibility to join in efforts to make the community free of TB.

(Source: Patient's Charter for Tuberculosis Care, 2006 World Care Council)

CHAPTER 9

Additional Procedures

- **Sputum Collection**
- **TB Skin Testing (TST) Procedures**

Procedure for Sputum Collection for Acid Fast Bacilli (AFB)

Equipment

- **Sputum collection kit from Provincial lab:**
    - **Instructions for client for collecting sample**
    - **Sterile specimen containers (x 3)**
    - **Laboratory requisitions (x 3)**
    - **Sealable plastic bio-hazard bag (x 3)**
- **Vinyl gloves**
- **Tissues**
- **Separate room well ventilated to the outside**
- **N95 mask ***

In a public health setting you may be leaving specimen containers with the client to provide specimens over 2-3 days. Attempt to collect at least one sputum at the time of meeting with client. Remind your client to close lids tightly and to keep samples refrigerated – provide a bag to keep specimens separate from fridge contents. Emphasize that the sample must be mucus from as deep in the lungs as possible. Saliva from the mouth is not an appropriate sample. When assisting your client to collect a sample be sure to provide privacy and a well ventilated area. Go outside if necessary to provide ventilation.

*** If your client is at high risk for having active TB (have symptoms of TB, and/or in high risk group) you should protect yourself by wearing an N95 mask.**

SPUTUM COLLECTION

PROCEDURE STEPS	RATIONALE
Plan to collect specimen in the early morning (before eating).	Bacteria are concentrated in bronchial secretions that accumulate overnight. Sputum collected prior to eating is less likely to be contaminated with food.
Label all containers with client's name and Personal Health Number. Complete requisition forms.	Ensures correct identification of specimen. Unlabeled samples will not be processed by the lab.
Explain procedure and reason for collecting sample to client.	Promotes client comfort and understanding.
PROCEDURE STEPS	**RATIONALE**
Wash hands and put on disposable vinyl gloves.	Minimizes transmission of other pathogens. Protects health worker.
Open sterile container, keeping the lid and give only the bottom to the client, asking client to take care not to touch the inside of the cup.	Minimize contamination of specimen.
Have client inhale and exhale deeply 3 times, then inhale quickly, cough forcefully, and expectorate (spit) the mucus into the cup.	Promotes deep coughing.
Check quality and quantity of sputum. Have client repeat procedure if needed to ensure sufficient quantity.	Specimen of at least 3 – 5 ml containing solid or purulent material is needed. It may take several efforts and up to 15 minutes to produce a large enough sample.
Close labeled sputum container securely. Wrap in absorbent material and place into bio-hazard zip lock bag. Place bag in designated transport container.	Specimens that have leaked will not be opened by the lab and will need to be repeated. Minimize spillage and exposure of health workers during transport.
Enclose **completed** requisition in the sleeve of bag designed for this purpose.	Assures identification and proper testing of specimen.
Refrigerate specimen. Forward to lab as soon as possible using health center policy and procedure.	Refrigeration and prompt delivery reduce opportunity for organisms which are normally present in sputum to overgrow and contaminate the specimen.
Remove gloves and wash hands.	Minimizes transmission of other pathogens. Protects health worker.
Consult with TB control (or ordering physician) if collection was unsuccessful.	Client may require referral for further procedures to collect a specimen.

References: 1) 'Alberta TB Control Manual', p.6-9, 6-10.; 2) Practical Skills Manual, Community Health Representative Program, Portage College, p.26.

Additional Methods of Gathering Samples For Acid Fast Bacilli

For Sputum

Gastric Wash:

If an individual cannot cough strongly enough to spit out their sputum they may swallow it.

The gastric wash collects stomach contents to test for AFB (TB germs).

- **Usually done in hospital outpatients for children**
- **A tube is passed through the nose into the stomach**
- **Saline is put down through the tube and pulled out again along with the contents of the stomach**
- **The contents are then tested as above for smear and culture**

Sputum induction:

Done to help the person cough sputum up from lungs

- **With a nebulizer the person inhales about 30 cc saline and then coughs the sample up for testing**
- **Usually done in hospital outpatients**

Auger suction:

Sputum is gently suctioned from the back of the throat

- **Usually done in hospital outpatients**

Other samples for AFB:

Any tissue or fluid may be tested for AFB, depending on where the disease is suspected in the body; e.g. urine – when kidney or bladder TB is suspected – these samples can be collected in the community; lymph node – sampled in hospital.

Client Directions

How to Collect Sputum Samples

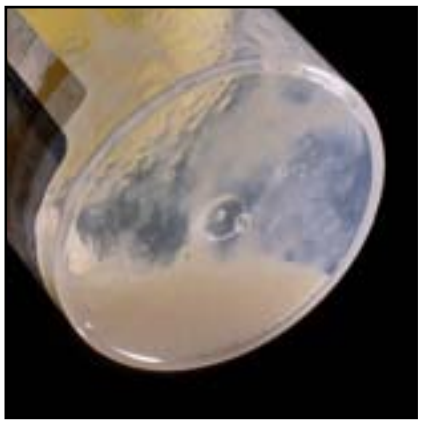
- **Plan to collect specimen in the early morning (before eating).**
- **Write your name on the container.**
- **Wash hands.**
- **Open the sterile container.**
- **Place the lid on a clean surface with the inside surface facing up. Be careful not to touch the inside of the lid or the cup.**

Breathe in and out deeply 3 times, then breath in quickly, cough forcefully, and expectorate (spit) the mucus into the cup. Do not give saliva from your mouth. The sputum needs to be from your lungs.

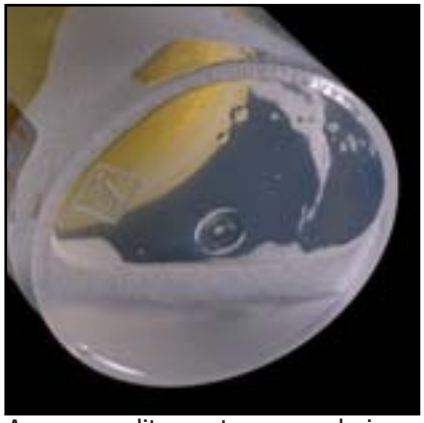
Check the sample. There should be 15 mls (one tablespoon) or enough to cover the bottom of the jar. Repeat the procedure if needed to get a large enough sample. Sometimes this can take a few coughs. (A smaller sample may be enough to test so, even if you are not able to get the full 15 mls, still save the sample to send to the lab.)

Close lid of the sputum container tightly. Write the day and time sample was taken on the label. Put into the zip-lock bag and place in refrigerator. Return sample to health center as soon as you have finished. The nurse from the health center will ensure that the specimen is delivered to the laboratory.

If you are asked to collect more than one sample, give one sample per day taken in the morning.



A good quality sputum sample is usually thicker and is coughed up from deep within the lung.



A poor quality sputum sample is often thin and watery, mostly spit from the mouth.

Tuberculin Skin Test Reading Procedure

TB skin testing is a very specific and particular skill, requiring special training to ensure accuracy of results.

Other names for the TB skin test are: Mantoux, PPD (purified protein derivative – refers to the product), tuberculin, tuberculin skin test (TST).

TB skin test is done to:

- Identify people who have been infected with ***Mycobacterium tuberculosis***
- Determine the prevalence of risk of infection in certain population groups

Skin tests must be read by a health professional that has been trained specifically in skin testing skills. The supervising nurse may assign this task to the **DOT** Lay Worker when the nurse is confident that the **DOT** Lay Worker has the knowledge and skills to accurately read the tests. As the RN is ultimately responsible for the reading, it is up to each RN whether she assigns the task to the **DOT** Lay Worker.

The consequences of misreading a TST can result in unnecessary stress to clients and a further burden to health care resources.

Interpreting a Positive Skin Test

TST Reaction Size (mm)	Reaction is considered positive if:
0 – 4 mm	Client has HIV infection with immune suppression AND the expected likelihood of TB infection is high (e.g. patient is from a population with a high prevalence of TB infection, is a close contact of an active contagious case, or has an abnormal x-ray)
5 – 9 mm	HIV infected client Close contact of active contagious case Children suspected of having TB disease Abnormal chest x-ray with fibronodular disease Other immune suppression: TNF-alpha inhibitors, chemotherapy
Greater than 10 mm	All others

Source: Canadian Tuberculosis Standards 6th Edition. 2007

PROCEDURE FOR READING

- **Discuss the process for reading the test with your client**
- **Skin test is read 48 – 72 hours after test is planted**
- **Provide privacy for confidentiality**
- **Provide good lighting**
- **Wash hands**
- **Have flexible ruler or caliper, pen, client record or list of who needs to have reading**
- **Have client slightly flex their arm, and feel the area**
- **Determine if there is any induration – a raised hardened area. *Disregard redness or bruising.* Make a note if there is any blistering present.**
- **Inspect the site from the side against the light as well as by direct light and palpation**
- **A pen can be used to mark the edges of induration**
- **Some people like to use the ballpoint pen method of finding the edge of induration.**

Ballpoint Method: Run a ballpoint pen at a 45 degree angle toward the edge and the pen will stop at the edge of the induration. Some find this works well for them and others do not

- Measure only the horizontal or transverse axis of the induration; e.g. parallel with the watch strap
- Measure the width in millimeters. Repeat measurement
- **Record** the measurement on the client's file

REPORTING

DOT Lay Worker:

- Report results of tests to CHN for interpretation; the CHN should confirm a positive induration or review any questionable ones.
- Record your referral to CHN in nurses' notes

CHN :

- Report any positives as per TB services protocol and initiate appropriate follow up
- Report results of screening on appropriate 939 forms to BC Center for Disease Control, TB Services for Aboriginal Communities (TBSAC)

FORMS TO USE:

- **HLTH 939:** Tuberculosis Screening Program (also used for referral for x-ray)
- **HLTH 8771:** Aboriginal TB Program Monthly Report

AFTER CARE FOR THE TB SKIN TEST:

Do:

- Keep the area clean and dry
- Lightly dab site with a cotton ball if scant bleeding occurs
- Shower or bathe as usual
- Cover blisters with gauze. The area may be red and tender and in some cases, blisters may form
- Apply a cold damp cloth to the area
- Talk to your nurse if you have questions or concerns

Don't

- Tightly cover the test site with a Band-Aid
- Scratch or pick at the test site
- Apply creams or lotions

CHAPTER 10

Community Health Nurse Resources

- **Nurse Checklist for TB Screening**
- **TB Disease Information for Nurses**
- **Interviewing DOT Lay Worker Candidate**

NURSES CHECK LIST FOR TB SCREENING

- ☐ **Consent forms for children must be signed**
- ☐ **Anaphylaxis kit**
- ☐ **Tuberculin PPD (purified protein derivative) for TB skin testing**
- ☐ **Cooler for storage of PPD while not in use**
- ☐ **Syringes (1 cc/ml)**
- ☐ **Alcohol wipes**
- ☐ **Cotton balls**
- ☐ **Gloves**
- ☐ **HLTH 939 Forms**
- ☐ **HLTH 8771 Aboriginal TB Program Monthly Report**
- ☐ **Sputum containers**
- ☐ **TB Ruler (mm)**
- ☐ **Other:** _____

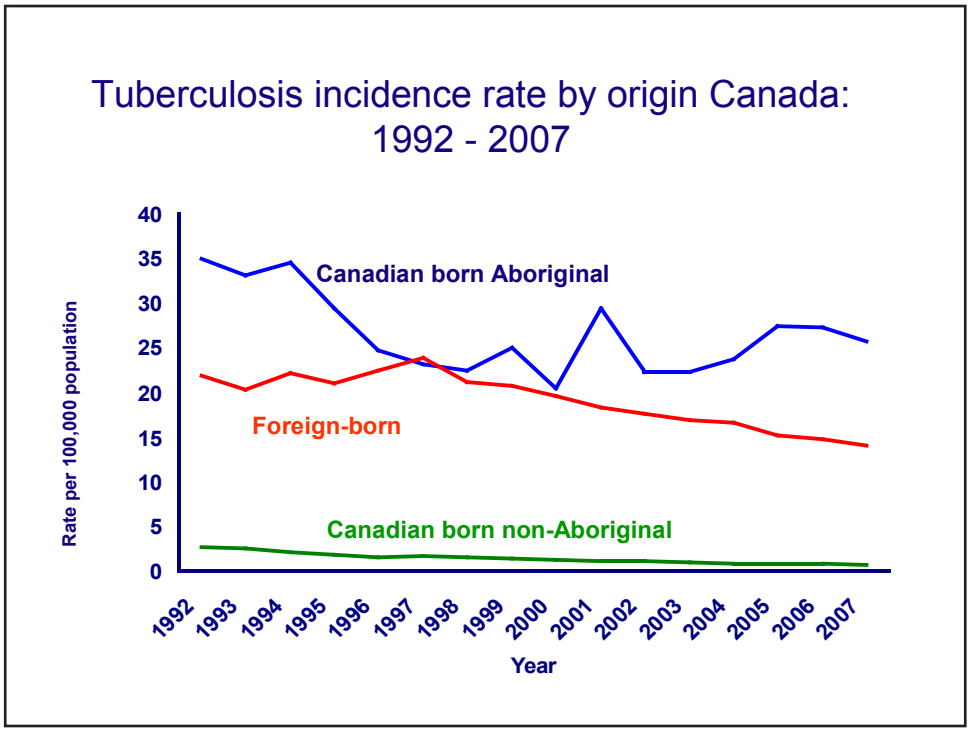
_____

TB Disease

TB infection may progress to TB **disease** if the immune system cannot keep the bacilli dormant.

Any organ site that has previously been seeded may be the organ site of disease. During TB disease progression, the bacilli replicate in large numbers within the macrophage. The hard shell encasing the bacilli breaks down and bacilli escape and multiply. If tubercle bacilli continue to divide, massive tissue damage and cavitations may result. Cavitations in the lung increase the infectiousness of the case. Because cavities are extra cellular, host defenses have no effect against them.

Bacilli multiply in great numbers and form a large pool of bacteria that may be dispensed into the surrounding air when the patient coughs. Pulmonary TB is the most common site of TB disease in adults. The lungs are the most important site of TB disease from both the public health standpoint and the organism's ability to survive. Patients with pulmonary TB (especially those that are smear positive) are capable of spreading the organism to the lungs of others by coughing, laughing or sneezing. Patients with TB disease in organs other than the lung are very unlikely to infect others. The same is true for children.



Source: Public Health Agency of Canada

Diagnosis of TB Disease

Diagnosis of TB is made using medical history, physical examination, chest x-ray and laboratory tests. When x-rays are reviewed, the following terms are most suggestive of active or current disease: **upper lung zone pneumonitis, cavitations, and pleural effusion**; and in younger patients and those who are severely immunocompromised: **mediastinal or hilar node adenopathy.** If any of these are present, or if the patient is symptomatic for pulmonary TB, three sputum samples should be collected. Specimens from other sites may also be collected if symptoms warrant.

Smear for AFB – a small sample of specimen (sputum or other body fluid or tissue) is smeared on a plate, stained and examined under a microscope. The high lipid content of the mycobacteria makes the addition and removal of the stain difficult. As acid and alcohol solution fails to wash the stain out, these organisms are referred to as acid-fast bacilli (AFB). Sputum smear positive cases are the most infectious.

Culture for AFB - involves allowing the germs to grow in a culture medium and is considered the 'gold standard' of TB diagnosis. M. tuberculosis may have a characteristic serpentine 'cording' appearance which is due to micro-colonies of aligned organisms adherent to one another. Recovery of the organism in culture is important as it is the definitive diagnostic test and allows drug susceptibility tests to be performed.

Treatment of TB Disease

TB has been a curable disease since the 1950s. Treatment is achieved using several antibiotics; it usually lasts 6 to 9 months, but might be longer in some situations (e.g. client is resistant to or cannot tolerate one or more of the first line TB antibiotics or client has a certain type of TB disease such as TB meningitis). The first line antibiotics are:

- **Isoniazid**
- **Rifampin**
- **Pyrazinamide**
- **Ethambutol**

Medication for TB disease is administered by directly observed therapy **(DOT)**. **DOT** is the World Health Organization and TBSAC/FNIH standard for treatment of TB disease. Directly observed therapy means that a health professional (or designate) ensures that all doses are delivered and swallowed, assesses for side effects and documents client care.

Unlike the treatment for TB infection, treatment of TB disease is **mandatory** under the Public Health Act (See page 29). Nurses and CHRs who undertake providing **DOT** should **review the Directly Observed Therapy Manual**. CHRs or other workers providing **DOT** must complete the **DOT** training outlined in the manual before beginning to dispense TB medications.

The typical treatment regimen has 2 phases:

1) Initial Phase:

- **Also called intensive phase or 'front end loading'**
- **First 2 months of treatment**
- **All 4 antibiotics are given until drug susceptibility tests are done (if the organism is susceptible to all 4, ethambutol is discontinued from the regimen for the duration of treatment)**

2) Continuation Phase:

- **Also called maintenance phase**
- **The subsequent 4-7 months of treatment**
- **Isoniazid and rifampin**

Monitoring Clients Receiving TB Treatment

While receiving treatment, individuals are watched closely for side effects. Before treatment begins, the following should be assessed:

- **Weight**
- **HIV Serology**
- **Hepatitis B and/or C screen if indicated**
- **CBC with differential (rifampin may cause thrombocytopenia)**
- **Hepatic enzymes (AST, ALT, bilirubin)**
- **Serum creatinine**
- **Serum glucose (INH and rifampin can cause hyperglycemia)**
- **For those on ethambutol, monthly visual acuity and color perception**

While on treatment, the following should be done:

Sputum: at time of diagnosis. If smear positive then every two weeks until 3 negative smears. Thereafter, continue collecting 3 sputums monthly until there are 3 negative cultures

Chest X-Ray: at time of diagnosis. Repeat every 3 months for pulmonary cases, or as otherwise recommended by TB Control

Blood Work: monthly throughout treatment, or as directed by TB Control

Suggested Questions for Interviewing Candidates for DOT Worker Position

1. Why did you apply for this position?
2. What qualities make you the right candidate for this position?
3. What factors contribute to the success of teamwork in any environment?
4. Tell me what you know about tuberculosis.
5. Describe an obstacle you have faced in a previous work environment and what you did to overcome that obstacle.
6. What qualities do you feel are important for any 'health' worker to possess?
7. Do you have a valid driver's license and a vehicle for work?
8. This position requires that you work with a variety of clients. Talk about your experience with members from a variety of age groups.
9. Describe your understanding of responsibilities for the TB **DOT** Lay Workers position.
10. What does "confidentiality" mean to you?

Prevent

future generations from having TB!

Appendices

APPENDIX A: Web Resources for TB Information

BC Center for Disease Control – TB Control

http://www.bccdc.org/division.php?item=4

The BC Lung Association – TB

http://www.bc.lung.ca/lungdiseases/tuberculosis.html

Public Health Agency of Canada

http://www.phac-aspc.gc.ca/index-eng.php

Health Canada

http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/diseases-maladies/tubercu-eng.php

Stop TB Canada

http://www.stoptb.ca/index.shtml

First Nations & Inuit Health

http://www.hc-sc.gc.ca/fniah-spnia/index-eng.php

Francis J. Curry National TB Center

http://www.nationaltbcenter.edu/

Division of Tuberculosis Elimination (DTBE) National Center for TB Education and Training Network

http://www.cdc.gov/tb/TBETN/default.htm

World Health Organization (WHO)

http://www.who.int/en/

International Union Against Tuberculosis and Lung Disease

http://www.theunion.org/

APPENDIX B: DOT Skills Assignment Checklist

EMPLOYEE NAME: _____

1. General TB Information

DOTW	CHN

- TB Infection and TB disease
- Transmission, diagnosis and treatment of TB
- Groups at risk
- Fears and beliefs about TB

2. Managing and Delivering DOT

DOTW	CHN

- Roles and responsibilities
- Principles of delivery of DOT
- Documenting doses, side effects, field notes
- Communication plans

3. Medication for TB

DOTW	CHN

- Medications used for treatment of TB
- Storage of medication
- Possible side effects
- Assessing for side effects
- Strategies for dealing with side effects
- Reporting procedures for side effects
- When to hold medications
- Standard medication schedule
- Using incentives and enablers

4. Administration

DOTW	CHN

- Confidentiality
- Home visits

Test Successfully Completed: **Date:**.....

.....

DOT Lay Worker SIGNATURE:

.....

SUPERVISOR SIGNATURE:

DOT Practice Skills Checklist	DOT Practice Skills Demonstrated	
• **Checks that right medication at the right dose is provided to the right person on the right day**	**DOTW**	**CHN**
• **Visual recognition of medication**	**DOTW**	**CHN**
• **Inquires about side effects since previous dose**	**DOTW**	**CHN**
• **Observes dose being swallowed**	**DOTW**	**CHN**
• **Provides enablers or incentives as appropriate**	**DOTW**	**CHN**

• **Documents:**
  • **presence or absence of side effects**
  • **observation of dose being swallowed**
  • **details of client or worker concerns**
  • **action taken in field notes**
	DOTW	**CHN**

• **Answers client questions appropriately or refers to CHN**	**DOTW**	**CHN**

Date: .....

....

DOT Lay Worker SIGNATURE: **SUPERVISOR SIGNATURE:**

NIC: .....

Forward copy to:
BC Center for Disease Control
TB Control – TB Services for Aboriginal Communities
655 West 12th Ave.
Vancouver, BC V5Z 4R4

Appendix C: TB DOT Lay Worker Training Pre and Post Test

1. What is tuberculosis?

2. Describe how TB is spread.

3. What test is done to see if someone has been infected with the TB germ?

4. What does **DOT** mean?

5. What medication is offered to people who have TB infection?

6. How long must medication for TB infection be taken?

7. List three signs and symptoms of TB disease.

   1.

   2.

   3.

8. Explain the difference between TB infection and TB disease.

TB DOT Lay Worker Training Pre and Post Test/Continued/Page 2.

9. List two groups that are at greater risk for getting TB disease.

   1. _____

   2. _____

10. Name 4 medications commonly used to treat TB disease.

    1. _____

    2. _____

    3. _____

    4. _____

11. What can happen if TB medication is stopped too early or taken irregularly?

    _____

    _____

12. List 5 side effects of TB medication.

    1. _____

    2. _____

    3. _____

    4. _____

    5. _____

13. List the two special warnings about rifampin that clients need to know if they are taking this medication.

    1. _____

    2. _____

14. What part of the body can be damaged by drinking alcohol while taking TB medication?

    _____

    _____

15. List two barriers that a client may experience that may keep him/her from taking medication regularly.

    1. _____

    2. _____

TB DOT Lay Worker Training Pre and Post Test/Continued/Page 3.

16. List 5 incentives/enablers that could be used to help a client complete his/her treatment.

    1. _____
    2. _____
    3. _____
    4. _____
    5. _____

17. List 3 reasons documentation is a vital part of client care.

    1. _____
    2. _____
    3. _____

18. Under what circumstances would it be appropriate to leave medication with a client?

    _____

    _____

19. Whose responsibility is it to prepare the individual doses of client medication?

    _____

    _____

20. How often should DOT worker and nurse review client progress?

    _____

    _____

21. Someone from the community has asked you who is on your client list. What do you do?

    _____

    _____

Appendix D: Tuberculosis DOT Checklist and Record

TB File: _____ Primary DOT Worker: _____

Client Name: _____ Supervising Nurse: _____

Address: _____ Phone #: _____

Gender: ___M ___F

D.O.B. _ _ _ _ (yyyy) / _ _ (mm) / _ _ (dd) PHN: _____

Medication Prescription: 1. _____ 2. _____

3. _____ 4. _____ Date: _____

Side Effects Checklist: Y = Yes N = No

Date:							
Rash / Itching							
Fever, Chills or Aches							
Tired / Weak							
Nausea / Vomiting							
Yellow eyes or skin							
Dizzy / Unsteady							
Trouble Seeing (EMB)							
Tingling of Hands or Feet (INH)							
Joint Pain (PZA)							
Ringing in ears							
Nurse Notified							
Directly Observed Therapy:							
Observed client swallow pills							
Time							
DOTW Initials							
Nurse Review (weekly, initial)							

Follow Up Tests / Reminders:	
Chest X-ray Due:	Req. Given: ☐ Completed: ☐
Sputum (AFB) Due:	Req. Given: ☐ Completed: ☐
Blood Work Due:	Req. Given: ☐ Completed: ☐
Weight Due:	Req. Given: ☐ Completed: ☐
Incentives / Enablers:	Signature: _____ DOT Lay Worker Signature: _____ CHN

Appendix E: Dictionary Terms

AFB	Acid Fast Bacilli. Test for checking for TB germs.
Antibiotic	Medication able to kill or slow down the development of specific living organisms (i.e. bacteria) used to treat infections.
AST	One of the tests done to measure the health of the liver.
Barriers	Word to describe problems or reasons why a person cannot do something or make it difficult to do something.
CBC	Complete blood count. Measures health of the blood.
CHN	Community health nurse.
CHR	Community health representative.
Disease	A specific illness or disorder (characterized by a set of signs and symptoms).
DOT	Directly observed treatment: when a trained person watches a patient/client swallow their medication.
DOT Lay Worker	Lay person or health professional who takes on the role of giving Directly Observed Therapy medication.
Enzymes	A substance produced by the body which acts as a helper to promote a specific biochemical reaction. Liver enzymes, etc.
FNIH	First Nations and Inuit Health.
Germs	Disease producing organisms.
HIV	Human Immunodeficiency Virus: the virus that is associated with AIDS.
Inadequate	Not sufficient; not enough; incomplete.
Immune System	The body's natural defense system against disease and infection: the germ fighter.
Infection	Invasion of the body by germs.
Infectious	When a person is able to pass on an infection to another.
Interaction	Mixing, sometimes TB medication will interact with other medicine and cause undesirable effects.
Latent TB infection	The dormant stage of Tuberculosis. Latent TB is not contagious.
Lateral	Side. A chest x-ray taken from the side view.
Lay person	An individual not previously trained or educated in a particular area of knowledge.
Liver	The largest gland in the body. The liver has over 500 functions. This organ is essential for living.

Lymph nodes	Small oval structures throughout the body that help to fight infection. Most of these structures are found in the mouth, neck, under the arms and in the groin.
Macrophages	The immune system's fighter cells. When TB germs are inhaled macrophages wall the germs off to keep the germs from spreading and growing.
Nausea	Feeling like 'throwing up'; feeling 'sick to your stomach'.
Non-regulated health worker	A term used in the Health Professions Act that refers to workers in the health field that do not have their own registration and governing bodies.
Platelets	Part of the blood system. Platelets are one of the keys to blood clotting.
P-A	Posterior Anterior. The positioning of the body for a chest x-ray. The x-ray is taken from the back.
Public Health Act	The legislation which provides laws and regulations around public health. Every nurse in charge will have access to a copy of this Act.
Resistant	A germ that is difficult or impossible to treat with antibiotics.
Screening	A tool used to identify cases of diseases early so that treatment can be started promptly.
Side effect	A reaction that happens from taking a medication.
Sign	Something that can be observed or seen that may indicate a person is sick.
Sputum	Material coughed up from the lungs; phlegm; mucus.
Sputum culture	A sample of sputum is put into a germ friendly environment to see if the germs will grow. If there are TB germs in the sputum sample, they will grow and the sample will be called 'culture positive'. A specimen culture is the 'gold standard' or best way to TB diagnosis.
Sputum smear	A small sample of sputum is smeared on a plate, stained and examined under a microscope. When organisms are found on the smear the sample is 'smear positive' and the patient will be considered contagious.
Symptoms	Anything unusual or different that a client notices about himself or herself that may be a sign of disease or illness complaint (e.g. sleepiness, loss of appetite, nausea, pain).
TB	Tuberculosis.
TB Disease	TB disease means the TB germs are awake and causing harm to the body. TB disease of the lungs can be contagious and spread to others.
Therapy	The treatment of disease; prescribed medication that is usually taken over an extended period of time.
Transmission	The spread of infectious material from one person to another.

Appendix F: Notification of Abnormal AST Form

Patient name:_____

DOB: _____

TB#/PHN#: _____

BC Centre for Disease Control

An agency of the Provincial Health Services Authority

Prophylaxis: Notification of Abnormal AST

Current AST: _____ Date: _____

Previous AST: _____ Date: _____

Baseline AST: _____ Date: _____

Please check the following categories that apply:

1) Abnormal AST greater than 45 and less than 100 and NO symptoms of liver toxicity*

☐ No change to medication

☐ Will repeat AST in 2 weeks

2) Abnormal AST greater than 45 and less than 100 WITH symptoms of liver toxicity*

☐ Medication stopped: Date _____

☐ Will repeat AST weekly until less than 45

Contact TB Control

3) Abnormal AST equal to or greater than 100

☐ Medication stopped: Date _____

☐ Will repeat AST weekly until less than 45

Contact TB Control

Comments:_____

_____

Fax copy of form to TB Control
TB Vancouver: (604) 707-2690
TB New Westminster: (604) 707-2694

Contact TB Control for advice on re-starting medication.

***Symptoms of liver toxicity:**

Rash	Headache	Nausea
Vomiting	Diarrhea	Jaundice
Malaise	Fever	Abdominal Pain

Patient name: _____

DOB: _____

TB#/PHN#: _____

BC Centre for Disease Control
An agency of the Provincial Health Services Authority

Request for Preventative Therapy

☐ Client has been informed of the indications for preventative therapy and potential side effects of prescribed medications.

☐ Client accepts responsibility for taking medications as prescribed, and reporting side effects to the responsible health care provider.

☐ Client completes appropriate blood work as recommended by TB Control (TBC) and health care provider.

☐ Client authorizes TBC to request any or all information related to the medical condition including medication history from Pharmanet.

☐ Client has refused preventative therapy:

Client Signature: _____ Date: _____

Coordinating Health Unit:

- Responsible for dispensing medication, monitoring side effects and ensuring required blood work is completed.
- Responsible for reporting any abnormal AST/ALT (See TB Control manual) results and side effects to TBC.

Please include:

1). Result of most recent x-ray (within last 6 months): _____ Date _____

2). Result of most recent AST (within last 6 months): _____ Date _____

3). Medication allergies: _____

Comments: _____

_____

_____

Please fax completed form to TB Control
TB Vancouver: (604) 707-2690
TB New Westminster: (604) 707-2694

Patient name:_____

DOB: _____

TB#/PHN#: _____

BC Centre for Disease Control
An agency of the Provincial Health Services Authority

Completion: Treatment with TB Medications

Treatment **Start** Date (YYYYMMDD):_____

Treatment **End** Date (YYYYMMDD):_____

☐ Completed

☐ Did NOT complete

☐ Active

☐ Latent

Reason treatment not completed:

☐ Adverse event ☐ Lost to follow-up ☐ Non-compliance ☐ Other: _____

Major mode of treatment:

☐ DOT ☐ Self administered

Number of doses taken during treatment _____

Compliance:

☐ 100% ☐ Greater than 80% ☐ 50-80% ☐ Less than 50%

- Clients with an abnormal AST at end of treatment should have weekly ASTs done until within normal range.

Clarify with TB Control:

- Whether active pulmonary TB cases need an exit chest x-ray in the month prior to completion of TB medication.
- Whether latent TB clients who have an abnormal chest x-ray at the start of treatment need an exit chest x-ray after completion of treatment.

Please fax completed form to TB Control

TB Vancouver: (604) 707-2690
TB New Westminster: (604) 707-2694

Appendix I: Record of Supervised TB Medication – Health 832 Form

RECORD OF SUPERVISED TB MEDICATION(S) FOR THE MONTH OF: _____ **20** _____

HEALTH UNIT: _____

SURNAME: _____

GIVEN NAME(S): _____

GENDER: _____ **TB NUMBER:** _____

DOB: _____
YYYY / MM / DD

DELIVERY METHOD CODES:

H – Home Visit
T – Treatment Facility visit (to a clinic, office or health facility)
X – Patient did not keep appointment or not found on home visit
N – No medication given

Record in calendar the method used to supply the patient & the medication

Isoniazid (INH) tablets 300 mg Dosage: _____ mg each time Frequency: _____	1	2	3	4	5	6	7	8	9	10	11	
	12	13	14	15	16	17	18	19	20	21		
	22	23	24	25	26	27	28	29	30	31		
Pyridoxine (vit B6) tablets 25 mg Dosage: _____ mg each time Frequency: _____	1	2	3	4	5	6	7	8	9	10	11	
	12	13	14	15	16	17	18	19	20	21		
	22	23	24	25	26	27	28	29	30	31		
Rifampin (RMP) capsules 300 mg Dosage: _____ mg each time Frequency: _____	1	2	3	4	5	6	7	8	9	10	11	
	12	13	14	15	16	17	18	19	20	21		
	22	23	24	25	26	27	28	29	30	31		
Pyrazinamide (PZA) tablets 500 mg Dosage: _____ mg each time Frequency: _____	1	2	3	4	5	6	7	8	9	10	11	
	12	13	14	15	16	17	18	19	20	21		
	22	23	24	25	26	27	28	29	30	31		
Ethambutol (EMB) tablets 400 mg Dosage: _____ mg each time Frequency: _____	1	2	3	4	5	6	7	8	9	10	11	
	12	13	14	15	16	17	18	19	20	21		
	22	23	24	25	26	27	28	29	30	31		
Isoniazid (INH) Syrup 10 mg/mL: Dosage: _____ mg each time Frequency: _____	1	2	3	4	5	6	7	8	9	10	11	
	12	13	14	15	16	17	18	19	20	21		
	22	23	24	25	26	27	28	29	30	31		

HLTH 832 (rev: 03/10)

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Notes: