



## TUBERCULOSIS SERVICES TO ABORIGINALS

Tuberculosis Services to Aboriginals (TBSA) is a section of Tuberculosis Control, a division of the BC Centre for Disease Control Society. Its purpose is to offer consultative services to Physicians and Nurses providing health care to First Nations individuals living on reserves covered by Health Canada, First Nations Inuit Health Branch (FNIHB) and Band Health Councils in the province of British Columbia.

This section of the Communicable Disease Control Manual presents program policies and standards of tuberculosis (TB) control that are distinctive and specific to First Nations communities in British Columbia. All other policies, standards, and procedures for the control of tuberculosis in British Columbia are presented in earlier sections of the manual.

Historically, high rates of latent tuberculosis infection and active TB disease in First Nations communities have created an environment at increased risk for the transmission of TB. Despite active case management and screening programs that have led to an overall decline in rates of TB in First Nations communities, TB remains an ongoing public health concern in First Nations Communities with incidence of TB disease more than ten times that of Canadian-born/non-Aboriginal persons.

The objective of the TBSA program is the elimination of TB in First Nations communities. For all active TB cases, directly observed therapy (DOT) is recommended for the duration of treatment. Preventive programs include enhanced surveillance of children  $\leq 5$  years of age, annual screening of individuals, groups, and communities at risk for developing active TB disease, ongoing school screening and consideration of DOT for individuals taking INH prophylaxis.

It is hoped that these measures will prevent the transmission of TB and decrease morbidity, family disruption and the social stigma of TB in First Nations families.

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## TBSA PROGRAM

The following recommendations for surveillance activities in First Nations communities are directed by the level of risk for the individual, group or community of developing active TB disease.

### **ANNUAL SCREENING RECOMMENDED FOR ALL COMMUNITIES (See Appendix E-13)**

#### **I. Employees**

Health Centre employees, Band School teachers, day care and preschool teachers should be screened upon employment. Employees with a negative TST should receive a two-step TST at baseline (Repeat TST within 2-4 weeks following the initial TST), followed by annual TST screening and symptom enquiry. For management of employees with a positive TST, see *Appendix E-5, Follow-up of Adults with a Positive TST*.

Persons with a previous positive TST should be sent for a baseline chest x-ray. Thereafter, follow-up should include documentation of annual symptom enquiry and repeat chest x-ray, only if symptoms suggestive of TB occur or in contact with an active case of TB disease.

The responsibility to enforce this employment requirement lies with Band or Health Centre administration.

#### **II. School Tuberculin Screening**

It is recommended that tuberculin skin testing be offered to school children entering grade 1 and grade 6, attending Band schools, as a minimum surveillance measure. In communities with one or more cases of infectious TB disease in the past five years, screening is recommended for all students attending Band schools every two years. Written or verbal informed consent by a parent or legal guardian is a prerequisite to giving TSTs.



### III. High Risk Groups

Individuals at increased risk for developing active TB disease should be screened annually. This includes, but is not limited to, persons with:

- HIV/AIDS
- Diabetes
- Immune deficiencies due to disease processes or medication
- Renal failure
- Lymphoma
- Leukemia
- Transplantation
- Cancer
- Below ideal body weight
- Silicosis
- Substance abuse
- X-ray findings consistent with prior untreated TB
- Tuberculin skin test converted to positive within the past two years

Symptom enquiry should be carried out and documented for persons with previous positive TSTs on an annual basis. All clients with symptoms of active TB disease should be referred for a chest x-ray and have three sputa submitted to the Mycobacteriology Laboratory for AFB smears and culture.

### **RECOMMENDED SCREENING FOR COMMUNITIES WITH ONE OR MORE CASES OF INFECTIOUS TB DISEASE IN THE PAST FIVE YEARS (See Appendix E-14)**

#### I. Community Tuberculin Surveys

The goal of community surveys is to identify and offer INH prophylaxis to individuals who have recently become infected with latent TB. High rates of tuberculosis infection in First Nations Communities still warrant periodic comprehensive screening. Community tuberculin screening should be conducted every two years in communities that have had one or more infectious case in the past five years. Community surveys may also be planned to provide an opportunity for the Nurse Consultant to orient new staff and provide inservice education concerning tuberculosis control.

Surveys should be held during time periods when the maximum number of community members are available for screening. It is essential for the CHN and CHR to promote and advertise the survey to maximize turn out. Utilizing posters, school lectures, speaking at Band council meetings, or advertising through local radio are methods of increasing community awareness. Draw prizes are effective at increasing numbers of



consents returned at schools and can be used in the general community to increase turnout as well.

## II. Surveillance of Children $\leq$ 5 Years of Age

Children under 5 years of age with Latent Tuberculosis Infection (LTBI) are at increased risk (up to 40 %) of developing active TB disease, including the development of severe forms of TB, such as Miliary TB and TB Meningitis. Diagnosis of TB in children can be difficult because they are less likely to have the obvious symptoms of TB. For this reason, prompt diagnosis and immediate treatment of both TB infection and TB disease are essential in pediatric cases. Treatment of LTBI in this age group is extremely safe and effective in reducing the risk of severe disease by 70 – 80 %.

Annual TSTs should be promoted and provided for all children born after June 1, 2003, who live in communities that have had one or more cases of infectious TB disease in the past five years. Screening should occur at 10 months, 2, 3, 4, and 5 years of age. Treatment with Isoniazid (INH) is strongly recommended for all children diagnosed by the TBSA physician with Latent Tuberculosis Infection (see *Appendix E-13*).

## III. Travel Assistance to X-ray Facility

Clients in the following categories should be provided travel assistance to the nearest x-ray facility as needed:

- New converters: Previous TST was negative and the current TST is positive.
- Converted TST within the past two years, which was not followed with an x-ray.
- Clients with signs or symptoms suggestive of active TB disease regardless of TST status. A chest x-ray and submission of three sputa are recommended.
- Clients considering INH for treatment of Latent Tuberculosis Infection (LTBI). An x-ray is required within the past six months before starting INH.
- Clients with newly diagnosed HIV should have a TST and a baseline chest x-ray.

## FOLLOW-UP OF CHILDREN WITH POSITIVE TSTs

Children with a positive PPD ( $\geq$ 10mm induration) should be sent for a chest x-ray using the *Tuberculosis Screening Program Form* (HLTH 939). If there has been an active case of TB disease in the community, a reaction of 5mm would be considered positive and a chest x-ray is recommended. The films are sent to TB Control and recommendations will be reported to the Health Centre. It is necessary to screen all close household contacts of TST positive children in order to identify the possible source of infection (reverse contact tracing).



## FOLLOW-UP OF ADULTS WITH POSITIVE TSTs

All individuals with a positive PPD ( $\geq 10$ mm) should have a *Tuberculosis Screening Program Form* (HLTH 939) completed and be sent for a chest x-ray. Symptomatic individuals and persons with a TST of  $\geq 5$ mm, who are immunocompromised or contacts of an active case, should be sent for a chest x-ray. Chest x-rays are reviewed by a physician at TB Control and a report is forwarded to the Health Centre who initiated the form and the family physician. Three sputum specimens should be collected and sent to the provincial Mycobacteriology Laboratory on all individuals who report a cough or sputum production.

## REPORTING TO TBSA

Results for **all** TSTs should be recorded and a copy sent to TBSA. Results can be reported using the *Aboriginal TB Program Tuberculin Monthly Report (HLTH 877I)*, or the *Tuberculosis Screening Program Form (HLTH 939)*.

## COMMUNITY PROFILES

Profiles for each First Nations community, which include name, birthdate and all previous TST results, are available to CHNs upon request from TBSA.

## DIRECTLY OBSERVED THERAPY (DOT)

The TBSA program strongly recommends the use of DOT for cases of active tuberculosis disease, following recommendations from the World Health Organization and the Canadian Tuberculosis Standards. DOT should also be considered for clients taking INH for treatment of LTBI.

By definition, **DOT involves observing clients swallow each dose** of their prescribed anti-tuberculous medication by a health care worker. This ensures client adherence to the medication regimen and provides an opportunity to monitor for side effects. Poor compliance in persons with **active** disease may lead to drug resistant tuberculosis. Pills can be blister packed upon request to allow trained CHRs or lay dispensers to dispense medications without requiring a nurse present *to pour medication*.

It is essential to establish a good rapport with the client so that the individual will believe that the CHN/CHR supervising treatment is acting in his/her best interest. It should be emphasized to the client that supervised treatment is not recommended due to lack of trust of the client, but rather, to provide support in a lengthy medication regimen.



Individuals receiving DOT should have their medications recorded by the CHN or CHR on the *Record of Supervised TB Medication Form* (HLTH 832) (see *Appendix J – 11*). This duplicates as a record of treatment and the medication reorder form. At the end of each calendar month, the **original copy** of the HLTH 832 should be mailed to TB Control, TBSA. A photocopy of the HLTH 832 should be kept in the client's chart. The number of doses recorded as given that month will be replaced by Pharmacy.

For active cases of tuberculosis on DOT, medication is usually given daily for the first two months and then may be switched to twice-weekly DOT, with a new prescription from TB Control. Individuals receiving INH for treatment of LTBI are initiated on a twice-weekly DOT regimen from the start. Twice weekly doses should be given three days apart (72 hours), usually given Monday and Thursday, leaving Tuesday and Friday to locate the client if either dose is missed. There should be a minimum of two days (48 hours) between twice weekly doses.



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## DESCRIPTION OF ROLES

The following role descriptions reflect current contracts between FNIHB, BCCDC, Health Centres and Nursing Stations. Future changes such as transfer of Health Authority from FNIHB to Band Councils may result in changes in responsibility.

### I. The Role of the 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 TBSA 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 TB disease and Latent Tuberculosis Infection (LTBI).
- Reviews requests from the CHN regarding home conditions or obstacles that may impede the success of home treatment for clients with active TB disease. Facilitates admission to TB2 when required.
- Interprets and makes recommendations on chest x-rays referred from First Nations communities.
- Maintains a database, including records on clinically active and inactive cases of tuberculosis, contacts of active TB cases, and cases of latent TB infection .
- Provides an annual report of statistical data and program activity to the PMO.
- Provides consultation regarding epidemiological trends in TB among First Nations populations in BC to physicians, nurses and other health care workers.
- Provides inservice education to physicians throughout the province upon request.
- In cooperation with TBSA nurse consultants, assesses, plans, implements and evaluates effective educational programs pertaining to TB Control and policy manual.



## II. The Role of the TBSA Nurse Program Coordinator and Case Manager

- Provides direction to CHNs regarding diagnosis, treatment and contact tracing associated with active cases of tuberculosis.
- Reviews medication records submitted by CHNs.
- Facilitates patient admission to the TB hospital (TB2 Vancouver) when necessary.
- Acts as a resource person for the CHNs in the field, particularly with regard to treatment of active disease, treatment of LTBI, screening programs and TB education.
- Facilitates the orientation of new CHNs and Community Health Representatives (CHRs) concerning the tuberculosis control program.
- Provides onsite consultative services and assists with community TB skin testing surveys. The CHN for the community must be present and take an active part in screening.
- Provides inservice education and workshops in field locations to CHNs and CHRs upon request. Develops educational tools and quick reference guides for CHNs regarding the TB program.
- Develops and distributes culturally appropriate educational materials for use at the community level.
- In consultation with the TBSA physician consultant, reviews and revises the TBSA section of the Policy Manual.
- Evaluates effectiveness of TBSA screening programs and suggests revisions accordingly to the PMO and TBSA Physician consultant.



### III. The Role of the Community Health Nurses

- Participates in case finding and reports promptly to the TBSA 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.
- With the assistance of the CHR or lay dispenser, directly supervises the treatment for all active cases of tuberculosis and persons on INH for treatment of LTBI. Ensures that routine blood work is completed and symptoms monitored as recommended in the TB manual (sections 3-4 to 3-5 for treatment of active cases and section 4-3 for those on treatment for LTBI). Reports abnormal blood work and symptoms of drug intolerance to the TBSA Nurse Consultant.
- Submits a monthly report on individuals taking anti-tuberculous medications to the TBSA nurse consultant.
- Participates in tuberculosis education with individuals with active TB disease, communicating the importance of adherence to the medication regimen and compliance with recommendations for isolation.
- With the assistance of the CHR and key people on reserve, organizes, advertises and participates in community-wide tuberculosis skin testing surveys (see *Appendix E-3*). Arranges supplies, personnel and physical space for the survey.
- Annually conducts the following screening in all communities:
  - Tuberculin skin testing (TST) for children attending grades 1 and 6 in Band schools
  - Health Centre employees, schoolteachers, day care and preschool teachers
  - Individuals at high risk factor for developing active TB disease
- Promotes and provides annual TSTs for children  $\leq 5$  years of age in communities which have had one or more cases of infectious TB disease in the past five years.
- Provides tuberculosis education to First Nations Communities.



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#### IV. The Role of the Community Health Representative (CHR)

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 individuals who are missing doses of anti-tuberculous medication.
- Reports promptly to the CHN individuals who show signs or symptoms of side effects to the anti-tuberculous medication.
- Assists the CHN in the planning, organization and advertising of tuberculosis surveys, and provides onsite support to the CHN and TBSA Nurse Consultant during a survey.
- Participates in the tuberculosis education within the community.
- For CHRs 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.



## **ACUTE ISONIAZID TOXICITY FROM OVERDOSE (*Protocol for nursing stations which are the only local provider of acute emergency care*)**

Symptoms of INH overdose have occurred with doses as low as 3 gm (10x300mg tablets). The mortality rate from a single acute ingestion of INH can be as high as 20%.

### **I. Symptoms**

Apparent 30 minutes to three hours after ingestion of Isoniazid:

- Nausea and vomiting, dizziness, slurred speech, blurred vision, atropine-like effects (dilated pupils, increased visual sensitivity to light, tachycardia, possible urinary retention).
- May proceed to stupor and deep coma.
- Tonic/clonic grand mal or localized seizures may occur within one to three hours after the ingestion of Isoniazid.

### **II. Clinical and Laboratory Findings**

- Convulsions that cannot be controlled, marked hyperreflexia or complete absence of reflexes, Babinski's sign, severe hypotension, cyanosis and death.
- Hyperpyrexia, increased pulse rate, hypotension, oliguria progressing to anuria.
- Severe metabolic acidosis, albuminuria, hyperglycemia, mild hyperkalemia, increased urinary excretion of Pyridoxine, serum INH concentration up to 93.3 micro gm/ml, urine concentration up to 100 micro gm/ml.

### **III. Emergency Treatment**

- In any patient with an overdose, the first priority is the assessment and stabilization of the patient's airway, breathing, and circulation.
- In the event of an early presentation, prior to the onset of seizures, gastric lavage with a large-bore orogastric tube should be performed, followed by the administration of activated charcoal (1 gm/kg). **NOTE: Syrup of ipecac-induced emesis is not recommended for INH poisoning because of the risk for early seizure activity and the associated high risk for aspiration pneumonia.**



- Pyridoxine IV immediately:

Give 1 gram Pyridoxine IV for each gram (1000 mg) of Isoniazid ingested.

If the amount of ingested Isoniazid is not known, give **5 gm** of Pyridoxine IV immediately to adults and **70mg/kg** should be given to a child.

Repeat the same dosage in two to six hours if the patient has not responded to earlier injections. In the first 12 hours of treatment, up to 25 grams of Pyridoxine can be given.

#### IV. Treatment of Convulsions

- Diazepam (Valium) 5-10 mg IV which may be repeated in two to four hours if necessary
- If Valium is not available, use Sodium Phenobarbital injections slowly, IM.

ADULTS – 120mg  
UNDER 12 YEARS OF AGE – 60mg or less

#### V. Supportive Measures

- Oxygen
- IV Sodium Bicarbonate to correct metabolic acidosis
- IV fluids and Mannitol
- Intubation if the patient is drowsy

#### VI. Preventive Measures

Try to ascertain emotional stability (depression or suicide tendency) of patients for whom Isoniazid is recommended.

Caution patients about keeping their supply of Isoniazid out of reach of children.

Have IV Pyridoxine and 50cc syringes available for emergency treatment.

Give small (weekly) supplies of INH and check frequently if the drug is taken regularly in persons who are emotionally unstable.

**NOTE: Report overdose cases To Tuberculosis Control**



**TABLE E-1: ANNUAL SCREENING FOR ALL COMMUNITIES**

	<b>Grades 1 &amp; 6</b>	<b>Employees</b>	<b>High Risk Group</b>
	Band Schools	Health Centre, Band Schools, Daycare & Preschool	HIV/AIDS, prednisone, kidney dialysis, cancer, lymphoma, leukemia transplantation, low body weight, diabetes
<b>Tuberculin Skin Test (TST)</b>	All children with previous negative TST	All employees with previous negative TST  Two-step TST at baseline	All clients with previous negative TST
<b>Symptom Enquiry Document Results</b>	All children with positive TSTs	All employees with positive TSTs	All clients in high risk group
<b>Chest x-ray (CXR)</b>	Children with a new positive TST or symptoms of TB	Positive TST: Baseline CXR at employment and 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.
<b>Sputum for AFB</b>		Productive cough > 2 weeks	Productive cough > 2 weeks



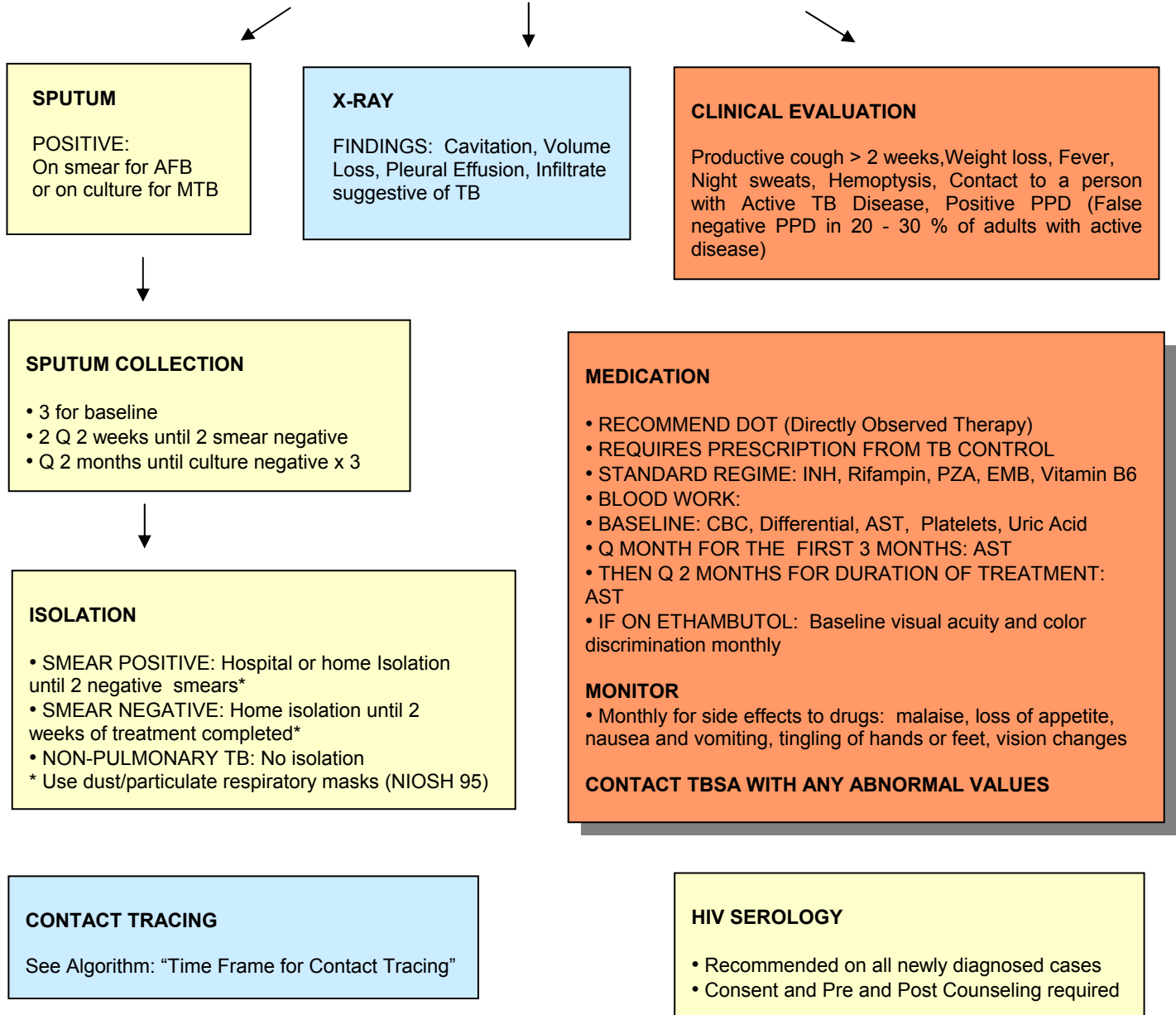
**TABLE E-2: COMMUNITIES WITH ONE OR MORE CASES OF INFECTIOUS TB DISEASE IN THE PAST FIVE YEARS**

<b>Community-wide screening every two years</b>	<b>Children born after June 1, 2003 *</b>
<ul style="list-style-type: none"><li>• Tuberculin Skin Test (TST) screening for entire community and should include screening of all grades in Band Schools.</li><li>• Discuss treatment with Isoniazid (INH) for all clients with positive TSTs (Latent Tuberculosis Infection).</li></ul>	<ul style="list-style-type: none"><li>• Annual TST screening of children at 10 months, and 2, 3, 4, &amp; 5 years of age.</li><li>• TST is positive if <math>\geq 10</math> mm or <math>\geq 5</math>mm for contacts of an active case or if immune compromised children.</li></ul>
<ul style="list-style-type: none"><li>• Symptom inquiry for all clients with previous positive TST. CXR not required if asymptomatic.</li><li>• CXR and sputum collection for clients with new positive TST or symptoms of TB.</li></ul>	<ul style="list-style-type: none"><li>• Treatment of Latent Tuberculosis Infection (LTBI) with Isoniazid (INH) is safe and strongly recommended.</li></ul>
<ul style="list-style-type: none"><li>• Reverse contact tracing should happen for all new positive TSTs in children.</li></ul>	<ul style="list-style-type: none"><li>• Reverse contact tracing should happen for all new positive TSTs in children.</li></ul>

\* Starting June 1, 2004



## MANAGEMENT OF AN ACTIVE OR SUSPECTED CASE OF TB

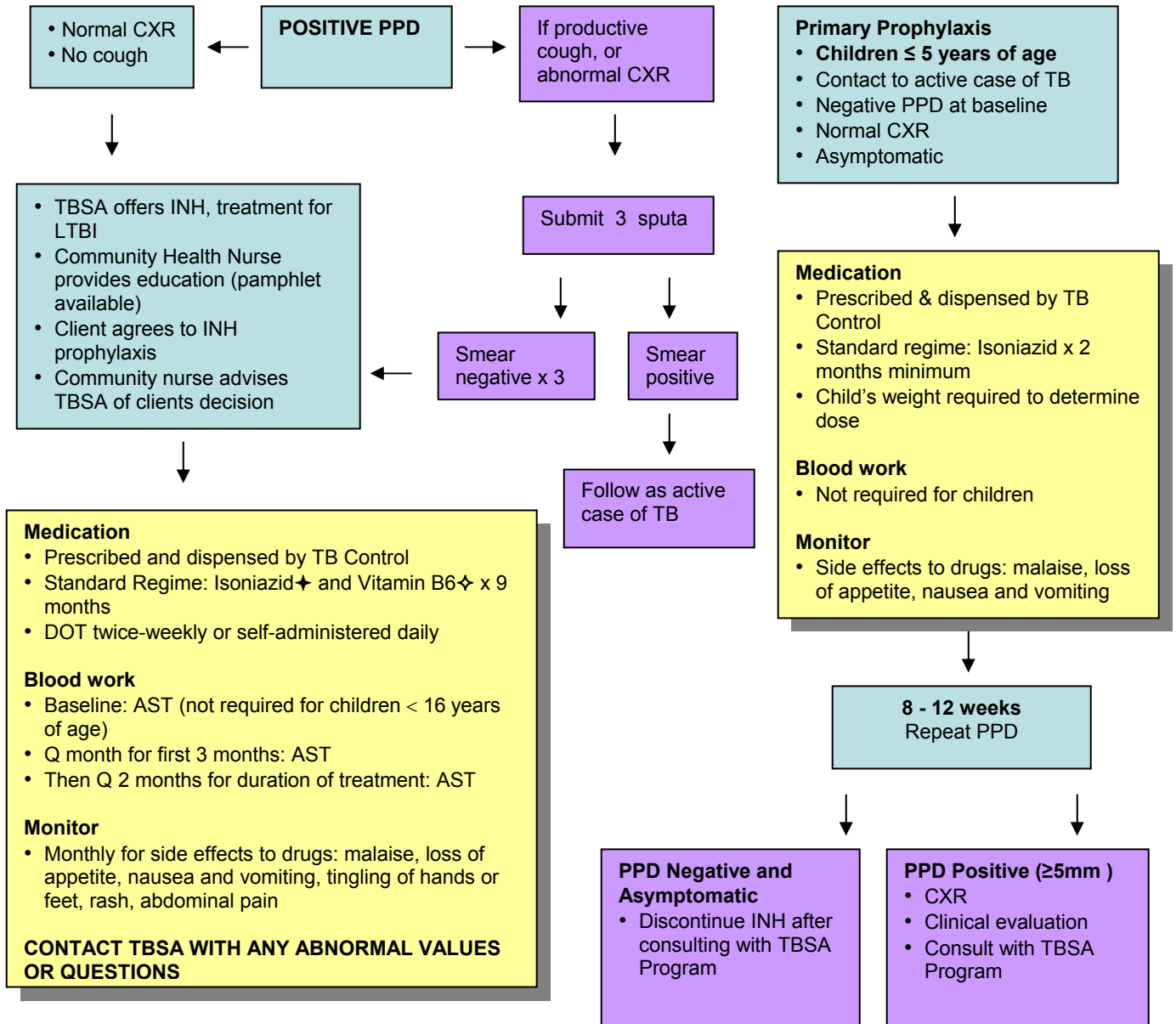


QUESTIONS? CALL : 604-660-9998  
TB SERVICES TO ABORIGINALS

See Treatment, Section 3, for details.



## ISONIAZID (INH) TREATMENT OF LATENT TUBERCULOSIS INFECTION (LTBI) \*



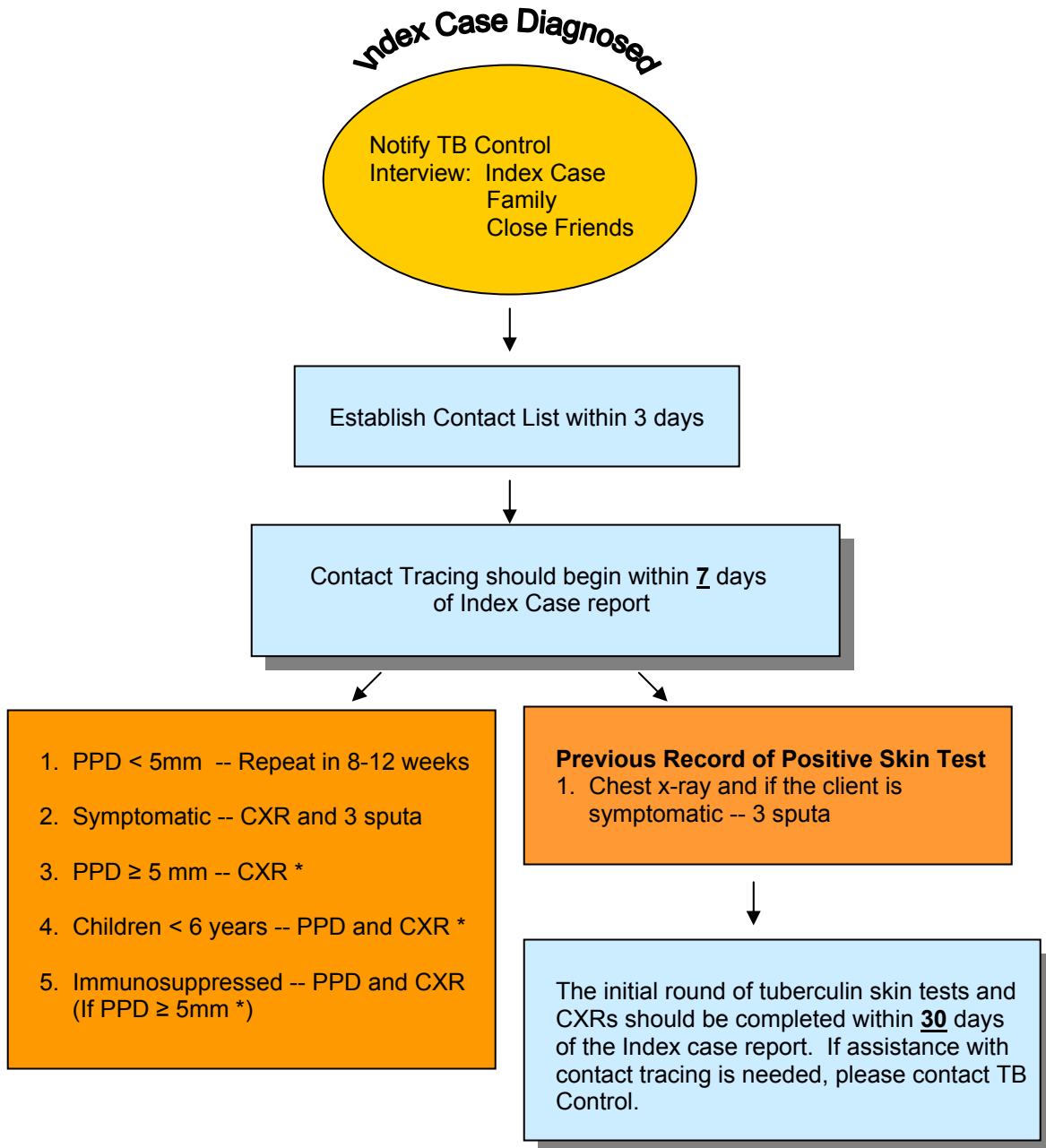
† Do not use starter kit, wait for pharmacy to send INH

‡ Children under 16 years of age do not require B6

\* INH Prophylaxis

**QUESTIONS? CALL : 604-660-9998  
TB SERVICES TO ABORIGINALS**

## TIME FRAME FOR CONTACT TRACING



\* Strongly consider INH chemoprophylaxis for these individuals once active disease is excluded. Consider primary INH prophylaxis for children < 6 years with negative PPD who are close contacts until repeat skin test is negative.