Section 1: Introduction

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Introduction

The purpose of this Tuberculosis Manual is to provide background information and clear protocols on the prevention and management of tuberculosis (TB) in Labrador.

Managing and eliminating tuberculosis from Labrador Inuit communities is a priority for the Nunatsiavut Department of Health and Social Development and Labrador-Grenfell Health. This is in keeping with the targets for TB Elimination in Inuit Nunangat announced by the federal Minister of Indigenous Services and the President of Inuit Tapiriit Kanatami (ITK) in late March 2018. The target is elimination of TB across Inuit Nunangat by 2030 with reduction of at least 50% of active TB by 2025. The 2018 federal budget provided funding to support this target.

History of TB in Labrador

Tuberculosis has been a long-standing issue in Labrador Inuit communities. TB was introduced by Europeans likely in the 17th and 18th centuries and was widespread throughout the population of Newfoundland and Labrador. Many cases went undetected. Once a case was identified, treatment consisted of bedrest in sanatorium in St. John's or St. Anthony, Newfoundland (NL). Following relocation for treatment, not all Labrador patients returned to their home community and not all families learned the fate of their loved ones. Diagnosis in isolated coastal communities was aided by chest x-ray surveys using portable chest x-ray (CXR) machines on the hospital boat.

In 1948 the death rate from TB in the province was 154 per 100,000 population. While significant progress was made, in 1954 Newfoundland and Labrador had the highest death rate for pulmonary tuberculosis of any province of Canada and TB was the leading cause of death with a recorded death rate for the province in 1953 of 46.8 per 100,000 population. Labrador had the highest rate in the province. By this time the initial treatment of bedrest in a sanatorium along with surgery, if required, was largely replaced by anti-tuberculous drugs (Thomas, 1954).

In the 1950s when TB drugs became available, they were purchased in Labrador by holding fundraising events and through donations from a drug company before later being funded by government. These measures aided the significant decline in the population of Inuit and Innu. At that time, Dr. Paddon of Labrador, however prematurely, described tuberculosis as being eradicated (Paddon, 1989).

Despite the efforts of government and anti-TB groups, tuberculosis continued to be a major cause of illness and death for the people of Newfoundland and Labrador until well after Confederation in 1949. It was not until the 1970s, after the triumph of pharmaceutical treatments and prevention techniques, that TB was felt to have been beaten in

Newfoundland and Labrador according to Dr. Gordon Thomas of St. Anthony (Thomas, 1962). However, despite this optimism, there continues to be a high incidence of TB in northern Labrador communities to this day.

The Current Situation

There have seen several tuberculosis outbreaks in Labrador communities in the past several years. Nain has had large outbreaks in 2015 and 2018. The 2018 outbreak included one death, resulting in significant anxiety in the community. Hopedale has had two outbreaks in the last 12 years (2006 and 2016/17). During the most recent outbreaks, several hundred individuals were named as contacts, often by more than one case.

These outbreaks are not new to Labrador Inuit communities but happen periodically against a backdrop of sporadic cases. A similar picture is seen in the other three Inuit regions in Canada. In 2016, the incidence of TB among Inuit in Inuit Nunangat (comprised of the four Inuit regions) was more than 300 times higher than in the Canadian-born, non-Indigenous population (Vachon, Gallant, & Siu, 2018). An infographic produced by Indigenous Services Canada (ISC) in March 2018 showed the average rate of TB per 100,000 population for the years 2006-2016 in each Inuit region as follows:

- Inuvialuit Settlement Region 1.5 per 100,000
- Nunavut 179.1 per 100,000
- Nunavik 234.5 per 100,000
- Nunatsiavut 248.4 per 100,000

Nunatsiavut has the highest average rate for this ten-year period. This high rate in Nunatsiavut is usually masked by the standard reporting of rates by province or territory i.e. the Labrador Inuit numbers get lost in the bulk of the NL population which has fewer cases. Key factors contributing to TB in Inuit communities include the social determinants of health such as inadequate housing with overcrowding, food insecurity leading to hunger and malnutrition along with poverty (Tam, 2018).

TB Prevention, Care and Control Program Components

There are many components to a comprehensive “Tuberculosis Prevention, Care and Control Program”. They fall under two categories:

1. Health system infrastructure required to support all programs/services including TB.
2. TB program-specific components.

Infrastructure necessary to support the TB program

- Governance of the health system:
    - Structure and organization of the health system.
    - Collaboration (internal and external) between different components of the health system including referrals.
    - Public health legislation.
    - Funding.

- Sufficient and well-trained workforce:
    - Appropriate mix of health human resources.
    - Ongoing training and certification.

- Information and knowledge management:
    - Health information systems (electronic where possible).
    - Monitoring and evaluation.

Tuberculosis Program Components

- Case finding and management of cases of active TB disease:
    - Prompt identification and treatment of cases of active TB including the TB patient care pathway.
    - TB treatment protocols and practice guidelines (TB Manual).
    - Availability of publicly funded TB drugs.
    - Directly observed therapy (DOT) for all cases.

- Contact tracing:
    - Identify all contacts of infectious active cases in order to identify the source case, any new active cases and those with latent infection.
    - Follow up as appropriate including treatment for LTBI.
    - Contact tracing and Latent Tuberculosis Infection (LTBI) treatment protocols.
    - Availability of publicly funded prophylaxis.

- Outbreak identification and management:
    - Surge capacity.

- Screening for Latent Tuberculosis Infection (LTBI) and active TB disease:
    - Screening program for high risk populations including those with medical risk factors such as diabetes or Human Immunodeficiency Virus (HIV).
    - Occupational health screening program.
    - Monitor the infection rate in the community.

- Surveillance and data management:
    - Track cases and contacts and monitor trends.
    - Produce reports on TB epidemiology and program performance.
    - Manage the large amounts of information required for each case, contact and outbreak.

- Diagnostic capacity:
    - Tuberculin Skin Test (TST) and/or Interferon Gamma Release Assay (IGRA).
    - Specimen collection (sputum induction, gastric aspirates, lumbar punctures biopsies etc.).
    - Sputum smear, culture, Nucleic Acid Amplification Test (NAAT), TB genotyping.
    - GeneXpert.
    - Digital radiology.

- Health human resources:
    - Health care providers with the awareness, knowledge and skills required to carry out the TB program.
    - Education and training.
    - Access to the Canadian TB standards and all appropriate policy and protocol documents (e.g. TB Manual) as well as TB expert support (clinical and community health).

- Community mobilization and reduction of stigma:
    - Increase the awareness of community members about TB and its transmission.
    - Resources that are appropriate for culture and language (e.g. posters, health fairs, World TB day events, etc.).

- Monitoring and evaluation:
    - Assessment of the performance of the TB program using appropriate indicators.

- High risk settings:
    - Surveillance and management of cases and contacts in special settings like the hospital and the Correctional Centre.

- Infection prevention and control:
    - By Setting - Health Centre, Hospital, during transport, etc.

Roles and Responsibilities of Program Partners

The Tuberculosis program in Labrador is currently a collaborative effort between Labrador-Grenfell Health, the Nunatsiavut government, Innu First Nations, the Newfoundland and Labrador Department of Health and Community Services and the Provincial Public Health Laboratory.

Table 1.1: Roles and Responsibilities

Community Level

Role	Responsibilities
Regional Nurse	○ Review and be familiar with the TB manual. ○ Refer clients to Community Health Nurse (CHN) for screening when appropriate. ○ Assess clients who have been referred by the Communicable Disease Control Nurse (CDCN) or the CHN. ○ Report suspect and/or confirmed TB cases to the CDCN (or designate) within 24 hours. ○ Be familiar with and support adherence to applicable public health legislation. ○ Order diagnostic tests as appropriate. ○ Assess clients for treatment failure or adverse reaction to medication. ○ Collect bloodwork related to TB as ordered. ○ Support the CHN with sputum collection. ○ Collect induced sputum as required. ○ Prepare specimens for shipment. ○ In collaboration with the CHN and Community Health staff provide TB education to clients and families. ○ Support the CHN in contact investigation as required. ○ Administer TB medications as required in the absence of the Community Health Nurse. ○ Participate in TB workshops/in-services. ○ Notify clients of, and arrange, appointments for TB clinics.
Community Health Nurse (CHN)	○ Review and be familiar with the TB manual. ○ Work with the CDCN to ensure all laboratory-confirmed, clinically confirmed and suspected cases started on treatment have been reported to the Regional Medical Officer of Health.

	○ Identify and manage TB contacts in accordance with the TB manual. ○ Administer and read TSTs. ○ Refer clients (or client information) to appropriate clinician or MOH. ○ Refer as appropriate to the CDCN or regional nurse for chest x-ray, blood work, sputum induction, etc. ○ Collect sputum as per the TB manual. ○ Coordinate referral activity with CDCN. ○ Arrange for follow-up as recommended by CDCN (video conference, TB clinic, etc.). ○ Order monthly medication refill from pharmacy until treatment completion. ○ Administer and document treatment for Active TB, LTBI and Window Period Prophylaxis (WPP) in the community in accordance with the TB manual. ○ Regularly assess clients for signs of treatment failure and adverse reactions from medication (symptom inquiry, arranging for routine lab work, etc.). ○ Routinely monitor blood work results as per the TB manual and report abnormal results to the CDCN. ○ Report medication non-compliance to the CDCN as per the TB manual. ○ Identify client behaviors that might lead to poor adherence and work with the client to develop strategies to encourage completion of treatment. ○ Submit completed TB forms (as required to the CDCN). ○ Work with the CDCN to ensure adherence to treatment and follow-up plan. ○ Support and supervise Community Health Aides (CHAs) and/or Licenced Practical Nurses (LPNs). ○ Implement the TB program at the community level (prevention, screening, contact investigation, treatment, referral and surveillance). ○ Provide education to TB clients and their families. ○ Provide education to the CHAs/LPNs as per the Tuberculosis Program. ○ Provide community education and awareness. ○ Complete employee health screening if required at your location.

Community Health Aide (CHA) or Licenced Practical Nurse (LPN)	○ Review and be familiar with your CHA/LPN role. ○ Complete the CHA TB program orientation (NG only). ○ Complete the learning module for TST reading. ○ Assemble TB charts and file as required (NG only). ○ Help complete TB histories on clients and contacts and assist with contact investigation. ○ Arrange appointments for clients with the CHN. ○ Read TSTs and document results. ○ Collect sputum as directed by the CHN. ○ Following approval from the CHN, administer TB drugs as directed. ○ Administer and document treatment for active TB, LTBI and Window Period Prophylaxis (WPP) in the community in accordance with the TB manual. ○ Report side effects and missed doses to the CHN and document immediately in the client's chart. ○ Provide TB education to clients, families, and communities with the support of the CHN.
All health care workers (Regional nurses, CHNs, CHAs, LPNs etc.)	○ Comply with the TB manual. ○ Maintain awareness of current TST status. ○ Take appropriate precautions to prevent exposure to TB. ○ Report TB exposures promptly to supervisor.

Regional Level

Role	Responsibilities
Communicable Disease Control Nurse (CDCN)	○ Review and be familiar with the TB manual. ○ Provide input into Labrador-Grenfell Health's Regional TB standards, policies, procedures and guidelines. ○ Provides TB program direction to health care providers at the community and regional level. ○ Act as case manager for all cases of TB. ○ Work with CHNs and physicians to ensure all laboratory-confirmed, clinical, and suspected cases are reported to the MOH or designate. ○ Conduct TB case interview to identify contacts.

	○ Assist with monitoring and reporting of contact investigation activities, and medication administration and adherence/compliance issues. ○ Provide information and recommendations to support CHNs, LPNs, CHAs and physicians in the investigation and management of TB. ○ Receive and review TB forms and contact lists from CHNs. ○ Coordinate consultation with MOH and TB physician. ○ Coordinate prescriptions for active TB and LTBI as required. ○ Meet regularly with TB physician for case management, prescriptions, adherence issues, adverse events and any other TB-related issues. ○ Organize and participate in outbreak case conferences with MOH and community partners. ○ Provide education, direction, and support to front-line TB program staff. ○ Provide guidance to community programs in TB case and LTBI treatment management (e.g. client reviews as needed). ○ Provide guidance to community programs on contact investigations/source case investigations and screening & surveillance programs. ○ Maintain databases, regional files, and correspondence. ○ Liaise with hospitals, health centres, community clinics, and regional referral centres. ○ Coordinate DOT for patients who are traveling, within and outside the region, including ensuring that patients meet airline criteria for travel. ○ Provide advice for the follow-up of clients being assessed for LTBI. ○ Receive prescription from TB physician and send a fax to the pharmacy. ○ Assist with monitoring and reporting of medication administration and compliance. ○ Communicate with MOH and local CHN as needed regarding adverse effects and monitoring. ○ Assist with arrangements to carry out a detention order for non-compliant patients. ○ Liaise with province for out of province/region contacts ○ Meet with clients during TB clinic. ○ Ensure client TB file is up to date with all relevant diagnostic information. ○ Refer contacts and other clients as appropriate to physicians/nurses/nurse practitioners for clinical assessment. ○ Maintain a client list for on-going TB clinic follow-up.

	○ Plan and coordinate TB clinics (e.g. travel arrangements) and notify appropriate partners. ○ Provide training/in-services for staff and or public when needed. ○ Circulate articles of interest whenever possible. ○ Attend TB related meetings and disseminate information to regional health staff.
Medical Officer of Health (MOH)	○ Review and be familiar with the TB manual. ○ Provide direction and leadership for provincial TB standards and policies. ○ Provide support to provincial and regional level staff for the TB Program. ○ Receive reports of active TB from Physicians or the laboratory. ○ Review case reports of all laboratory-confirmed, clinically confirmed and suspected cases started on treatment. ○ Advocate for the availability of adequate resources for the TB Program. ○ Conduct risk assessments and arrange for appropriate orders as per public health legislation. ○ Act as a spokesperson as requested for the TB Program. ○ Consult on TB-related issues. ○ Review TB-related reports and make program recommendations. ○ Support and participate in TB health promotion initiatives throughout the region with various healthcare providers. ○ Monitor and analyze TB surveillance reports. ○ Provide leadership and collaboration on TB research. ○ Manage TB outbreaks. ○ Participate in TB case conferences.
TB Physician	○ Review and be familiar with the TB manual. ○ Act as TB consultant for physicians, CDCN and CHN on diagnosis, assessment, treatment and clinical follow up issues relating to TB. ○ Coordinate and oversee management of patients admitted to the hospital for suspect or confirmed TB. ○ Diagnose TB. ○ Report to the regional MOH all cases of active and suspect cases of active TB.

	○ Review the drug regimens and culture and sensitivity results for each case to ensure their appropriateness and adequacy. ○ Collaborate with the regional MOH to ensure the client's care plan is being followed and that treatment is successful. ○ Identify ineffective drug therapy regimens and drug toxicities and report to the regional MOH. ○ Write prescriptions for treatment of active TB, latent TB infection (LTBI) and WPP. ○ Monitor the ongoing chest x-rays, sputum reports and laboratory results from patients on treatment. ○ Consult with specialist when needed on complex TB cases. ○ Attend case management meetings with the CHN and CDCN. ○ Lead the TB clinic which includes case management, clinical assessment and follow-up. ○ Participate in public relations. ○ Lead community meetings as requested in collaboration with key public health stakeholders. ○ Assess clients for treatment failure and/or adverse reaction to medication. ○ Encourage HIV testing of all patients with active TB. ○ Work with Community Health staff to educate clients regarding need for compliance with treatment and to remove barriers to compliance. ○ Support the regional MOH and Community Health staff when there is a need for enforcement under public health legislation. ○ Assess any concern with interaction between TB drugs and other medications. ○ Assist with monitoring for adverse effects. ○ Participate where possible in regional workshops/in-services to become more familiar with provincial and regional TB program. ○ Provide education regarding TB to clients as needed.
Community Physician	○ Review and be familiar with the TB manual. ○ Report all laboratory-confirmed, clinical and suspected cases of active TB started on treatment to the regional MOH. ○ Consult with TB physician regarding treatment for laboratory-confirmed, clinical or suspected cases of active TB as necessary. ○ Refer clients to CHNs for screening when appropriate. ○ Refer clients to TB clinic as required.

	○ Order diagnostic tests as appropriate. ○ Order blood work panel for TB including HIV serology. ○ Assist with client education as necessary.
Epidemiologist/Public Health Information Analyst	○ Review and be familiar with the TB manual. ○ Participate in the development of TB surveillance systems and the reporting of surveillance data to key informants. ○ Collect, analyze, and interpret TB data. ○ Act as custodian of data repository and TB database systems (i.e. staff training, system maintenance, etc.). ○ Support outbreak investigation and information management.
Labrador Health Centre Laboratory	○ Receive and prepare specimens for shipment to the public health laboratory.
Diagnostic Imaging	○ Receive, process, and compete referrals for chest x-ray or CT scan from CDCN/TB physician. ○ Notify the CDCN or TB physician of suspicious results.
Labrador Health Centre Outpatient Department	○ Book designated time for TB clinic in TB physician schedule in consultation with the CDCN. ○ Register clients on TB clinic day.
Infection Control	○ Review and be familiar with the TB manual. ○ Ensure all care of suspect/confirmed TB client is done under airborne isolation (i.e. collection of AFB samples). ○ Ensure all staff adhere to current policy for care of suspect/confirmed TB Clients while admitted to an LGH Facility. ○ Collaborate with Environmental Services (EVS) staff to ensure proper cleaning materials are being used to manage Tuberculosis.
Staff Health	○ Review and be familiar with the TB manual. ○ Receive reports of Health Care Worker (HCW) TB exposures.

	○ Follow up of all possible exposures within hospitals, health centres, and regional community clinics. ○ Investigate and manage HCW TB exposures from the time of incident until file is closed. ○ Review HCW TB exposures from a staff health viewpoint and act to prevent recurrence. ○ Educate staff on airborne precautions and appropriate use of personal protective equipment. ○ Ensure availability of personal protective equipment (e.g., disposable N95 particulate respirators). ○ Ensure staff have baseline, annual (if applicable) and post-exposure TB screening in accordance with recommendations.
TB Case Management team (MOH, CDCN, TB physician & Community Health staff)	○ Review individual TB care plans and potential challenges. ○ Conduct comprehensive review of TB contact tracing list. ○ Identify and address challenges within the TB program.
Communications Advisors (LGH or NG as appropriate)	○ Act as direct link for media inquiries. ○ Coordinate all media requests. ○ Liaise with regional and provincial media contacts. ○ Review and edit TB information and promotional material. ○ Disseminate TB information and coordinate publicity. ○ Develop, in consultation with the Nunatsiavut TB regional staff, communications strategy with key messages. ○ Help coordinate community meetings and consultations. ○ Liaise with the MOH to disseminate accurate TB information.
LGH Clinical Manager and NG Director of Health Services, NG Community Health Nursing Coordinator	○ Review and be familiar with the TB manual. ○ Provide supervision and management for the community health program and staff, which includes TB care. ○ Monitor staffing requirements, provide support as needed and respond as necessary. ○ Attend and provide input at regional, provincial, and national TB meetings. ○ Provide and support opportunities in staff education. ○ Review to ensure policies are current and up-to-date. ○ Participate in TB related research.

	○ Mentor and support students within the region. ○ Complete required reports, collect and participate in surveillance. ○ Ensure HCWs receive follow up for TB exposures in accordance with guidelines and policies. ○ Ensure appropriate incident reports are completed. ○ Review HCW TB exposure incidents and act to prevent recurrence.
Non-Insured Health Benefits (NIHB) (Nunatsiavut only)	○ Arrange local transportation from the airport to the TB clinic. ○ Cover the cost and arrange meal vouchers and accommodations if required. ○ Arrange and cover the cost for interpreter if required.

Provincial Level

Role	Responsibilities
Department of Health and Community Services	○ Ensure up to date public health legislation and regulations pertaining to TB. ○ Establish provincial guidelines to standardize TB Control Programs. ○ Provide financial resources for the TB drug program. ○ Administer the surveillance program for TB. ○ Monitor and analyze the epidemiology of TB in the province and provide reports to the Public Health Agency of Canada (PHAC). ○ Facilitate education and training for healthcare professionals. ○ Coordinate and support interprovincial TB control efforts. ○ Facilitate follow-up of cases of inactive TB in immigrants and refugees. ○ Participate in meetings as requested.
Infection Control Nurse Specialist	○ Review and be familiar with the Nunatsiavut TB manual. ○ Provide support and direction for Infection Prevention and Control. ○ Provide support to the MOH and CDCN. ○ Provide advice to health care providers on a provincial basis for the investigation and management of TB.

	○ Ensure TB reports are included in the communicable disease information system. ○ Monitor TB prevention, treatment and control activities from a provincial perspective. ○ Receive and review reports of all laboratory-confirmed, clinically confirmed and suspected cases started on treatment. ○ Maintain TB information within the SEINET and Communicable Disease Control (CDC) system for all TB cases that have been committed to treatment. ○ Report all TB cases annually to PHAC. ○ Work with provincial staff to ensure appropriate interventions with non-compliant and challenging patients. ○ Ensure coordination across regions during case and contact investigations. ○ Liaise with and act as point of contact for Federal and Provincial/Territorial relations.
Public Health Laboratory	○ Review and be familiar with Labrador-Grenfell Health's TB manual. ○ Test and confirm all cases of active TB disease in the province. ○ Report positive results to the attending physician/designate and the appropriate MOH. ○ Provide expert consultative advice and education on diagnostic and other laboratory tests for TB and the interpretation of test results. ○ Provide the data on TB drug resistance. ○ Attend TB meetings as requested.

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