"Treatment of tuberculosis is not only a matter of individual health it is also a matter of public health". This statement by Tuberculosis Coalition for Technical Assistance speaks to the public health responsibility of health care providers to ensure adequate treatment is provided and adherence to treatment regimens is ensured to protect the health of the patient and the public.

All cases of active TB must be treated. The treating physician (usually the Internal Medicine/ Pediatrics or Infectious Disease Specialist) has the responsibility of prescribing an appropriate regimen ideally *within 24 hours* of diagnosis especially for an infectious case.

To increase patient adherence to and completion of treatment, **directly observed treatment (DOT)** is a process by which a health care practitioner watches the patient swallow each dose of medication to help ensure higher treatment completion rates. DOT also has a component of patient specific case management which is carried out under the collaboration of the physician, TB Program Coordinator (OCPHO) and public or community health nurse. In the NWT, DOT is the primary process for administering TB medication for all active cases of TB, especially respiratory. Any deviation from this regimen would require approval of the OCPHO.

Treatment completion is a fundamental principle in TB control. The most common reason for treatment failure, relapse, and drug resistance is inadequate treatment.

When the treating practitioner does not have the expertise or extra training in respirology or infectious disease, they should consult with a TB Specialist or Internal Medicine Specialist for case management. These specialists should be involved in all cases of TB.

Depending on social or medical circumstances, TB treatment regimens may need to be modified. Changes in drug regimens should be made by the attending physician in consultation with a designated TB Specialist and/or the CPHO. The OCPHO shall be kept informed of all changes in drug treatment and adverse effects. This information is maintained in the NWT TB Registry and provides patient drug profiles for future reference.

Treatment of active TB disease and LTBI are **publicly funded** in the NWT. This includes first-line, second-line drugs and pyridoxine (vitamin B6).

TB antibiotics are supplied by the hospital pharmacist while the patient is an in-patient.

The public health unit/health centre is responsible for providing all necessary TB medications free of charge when the patient is discharged from the hospital

Under no circumstance should TB medication be dispensed by a pharmacist directly to a patient.

Non-respiratory TB

TB can affect any organ or organ system (eye, brain, lymph, heart, etc.) of the body, including the skin, non-nodal glandular tissue (i.e. breast), great vessels and bone marrow.

The terms non-respiratory TB and extra-pulmonary TB are often used interchangeably. In Canada, extra-pulmonary TB refers to everything but pulmonary TB. Non-respiratory tuberculosis accounted for 25% of cases of TB in Canada in 2010. Isolated non-respiratory TB is more commonly seen in females and foreign-born people.

Disseminated disease (concurrent involvement of at least two non-contiguous organ sites of the body or the involvement of the blood or bone marrow) is associated with immunodeficiency.

Diagnosis of Non-respiratory TB

A diagnosis of non-respiratory TB often requires biopsy of the affected organ, and samples must be sent for AFB smear and culture. The clinical specimens obtained for diagnostic purposes will depend upon the suspected anatomic site of involvement. In general, tissue biopsy yields positive culture results more often than fluid aspiration; both are superior to swabs. Biopsy material for mycobacterial culture should be submitted fresh or in a small amount of sterile saline.

All suspected cases of non-respiratory TB should be assessed for concomitant respiratory TB to determine whether the case is infectious and to assist with diagnosis. Pulmonary involvement in patients with non-respiratory TB disease can range from 10% to 50%.

A diagnosis of non-respiratory TB, as with all cases of respiratory TB, should prompt an HIV test.

Treatment of Non-respiratory TB

The fundamental principles that apply to the treatment of respiratory TB are also applicable to non-respiratory TB. The same treatment regimens are used unless there is drug resistance to first line treatment. In some cases, longer therapies are used in specific sites of non-respiratory TB. Six months of standard anti-TB medical therapy is considered adequate for most forms of non-respiratory TB.

Treatment for **CNS TB** (including TB meningitis, TB myelitis, or brain and meningeal TB) is highly effective when duration is at least 12 months. TB meningitis should be treated as a medical emergency; time is of the essence in achieving a good outcome, as the condition is frequently associated with devastating consequences: 25% morbidity (i.e. permanent neurologic deficit) and 15% to 40% mortality despite available treatment. In meningitis, empiric therapy with standard quadruple therapy should be initiated immediately on suspicion of the diagnosis to prevent complications. Corticosteroids might also be used to help reduce the risk of complications and death. If complications do happen, neurosurgery might be needed.

Miliary TB/Disseminated TB implies there is widespread distribution of TB bacteria to most organs of the body. Longer treatment (12 months) is recommended especially for those who are:

- Immunocompromised
- Have a slow response to treatment
- Have drug-resistant disease

Mortality from miliary TB is high (about 20%). The disease may manifest as a miliary pattern on the chest radiograph, which is characterized by 1–5mm nodules, or, among those without a miliary pattern on chest radiograph, as a bone marrow aspirate/biopsy or a blood culture positive for *M. tuberculosis*, or as generalized TB at postmortem examination. A significant proportion present with fever of unknown origin. Most often, the presentation is subacute or chronic, though acute fulminant presentations can occur, with shock and acute respiratory distress syndrome. The nonspecific and often variable presentation frequently leads to a delay or lack of diagnosis and thus the high mortality rate.

Treatment regimens for ***bone and joint TB*** in complicated patients are more successful if longer regimens (12 months) are used.