Coronavirus Disease (COVID-19)

SARS-CoV-2

CHAPTER CONTENT

The following chapter is adapted with permission from Alberta Health, for additional guidance related to the management of Coronavirus – COVID-19 see Alberta Public Health Disease Management Guidelines: Coronavirus – COVID-19.

1. CASE DEFINITION

Confirmed Case

This case definition is taken from the Public Health Agency of Canada (PHAC), please see: National case definition: Coronavirus disease (COVID-19)

A person infected with the virus (SARS-CoV-2) that causes COVID-19 confirmed by:

- The detection of at least 1 specific gene target by a validated laboratory-based nucleic acid amplification test (NAAT) assay (e.g., real-time PCR or nucleic acid sequencing) performed at a community, hospital, or reference laboratory (the National Microbiology Laboratory or a provincial public health laboratory)

  OR

- The detection of at least 1 specific gene target by a validated point-of-care (POC) or other NAAT that has been deemed acceptable to provide a final result (i.e. does not require confirmatory testing)

  OR

- Demonstrated seroconversion or diagnostic rise (**at least four-fold or greater from baseline**) in viral specific antibody titre in serum or plasma using a validated laboratory-based serological assay for SARS-CoV-2.

Probable Case (Outbreak* situation only)

A person who in the last seven days had close contact with a confirmed COVID-19 case **OR** was exposed to a known outbreak of COVID-19 **OR** had laboratory exposure to biological material (e.g., primary clinical specimens, virus culture isolates) known to contain SARS-CoV-2.

WITH

- Clinical illness** and **NO** molecular test or rapid antigen test, or the result is inconclusive:

An inconclusive result on a real-time PCR assay is defined as:

- An indeterminate result on a single or multiple real-time PCR target(s) without sequencing confirmation **OR**
- A positive result from an assay that has limited performance data available **OR**

OR

- No clinical illness** and one positive rapid antigen test with **NO** second rapid antigen test or molecular test completed.

Note: All symptomatic close contacts in high-risk settings should be tested where feasible to confirm diagnosis. The probable case definition should only be used in the rare circumstances when molecular test or rapid antigen test cannot be done or is inconclusive but clinical suspicion is high.

Outbreak*: "Two or more confirmed cases of COVID-19 epidemiologically linked to a specific setting and/or location. Excluding household, since household cases may not be declared or managed as an outbreak if the risk of transmission is contained. This definition also excludes cases that are geographically clustered (e.g., in a large institution, region, city, or town) but no epidemiologically linked, and cases attributed to community transmission" (PHAC, 2023).

Clinical illness:** Any one or more of the following: new or worsening cough, shortness of breath (SOB), sore throat, loss or altered sense of taste/smell, runny nose/nasal congestion, fever/chills, fatigue (significant and unusual), muscle ache/joint pain, headache, and/or nausea/diarrhea.

2. DIAGNOSIS

Hospitalized patients with COVID-19 symptoms should be diagnosed using an NP swab and full respiratory panel (RPP).

COVID-19 is ideally diagnosed using a nucleic acid amplification test (NAAT) that detects viral genetic material. Appropriate specimen types for COVID-19 testing include nasopharyngeal (NP) swab, throat swab, nasal swab, NP aspirate, endotracheal tube (ETT) suction/sputum, or bronchoalveolar lavage/bronchial wash (BAL/BW).

For more information, refer to the Alberta Provincial Laboratory Guide to Services and NTHSSA for laboratory guidance:

- Alberta Public Health Laboratory (ProvLab)
- NTHSSA Lab Memos
- NTHSSA: How to link POCT COVID-19 results through EMR manual entry

3. REPORTING

All HCPs must follow the NWT *Public Health Act*. Measures for contact tracing and legislative requirements are laid out within the *Reportable Disease Control Regulations* and reporting timelines are found in the *Disease Surveillance Regulations*.

Note: the only acceptable methods of reporting to the OCPHO are outlined below. Information provided outside of these methods will not be considered reported unless otherwise stated by a CPHO delegate.

Health Care Professionals

For **Part 2** written report within 24 hours

- Confirmed and probable cases are to be reported to the Office of the Chief Public Health Office (OCPHO) within **24 hours** after diagnosis is made or opinion is formed by completing and fax (867-873-0442) the following:
  - Viral Respiratory Illness Hospital Admission Or Death Reporting Form
  - Forms are required for cases that have been admitted to hospital and/or have died. All other cases are reported by lab only
- **Immediately** report all or suspect outbreaks in hospital, long-term care facility (LTCF), or congregate living by telephone (867) 920-8646 to the OCPHO.

Laboratories

- Fax all positive laboratory reports to (867) 873-0442 within **24 hours.**

Rapid/Point of Care Testing (POCT) Reporting

POCT performed in clinics and health centers are to be documented in the Electronic Medical Record as per NTHSSA guidelines but are NOT reportable to the OCPHO unless part of an outbreak investigation.

Notes:

- Reporting is **NOT** required for individuals with positive rapid/POCT results that have subsequent confirmatory testing performed at a hospital or reference laboratory that is negative.
- The following are **NOT** reportable to the OCPHO: Positive rapid/POCT test results (antigen or molecular) in symptomatic individuals that are done via private testing and/or at-home rapid antigen test results.

Reportable Death

- A death due to COVID-19 may be attributed when COVID-19 is the cause of death or is a contributing factor.
- Health care workers should follow best practices when completing death certification (for example they should follow guidance published by regulatory or professional medical organizations) or should notify the Coroner's office as per NWT's *Coroners Act* when a death is reportable.
- A death due to COVID-19 is to be reported to the OCPHO by telephone (867) 920-8646 within **24 hours** and fax (867) 873-0442 the death certificate within **24 hours.**

4. OVERVIEW

Causative Agent

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) is an enveloped, ribonucleic acid (RNA) virus that is part of the Coronaviridae family. The virus was first identified in Wuhan, China in December 2019. COVID-19 is an illness caused by the SARS-CoV-2 virus.

- Mutations commonly occur during the process of viral replication and viable new variants of a virus are expected to occur from time to time. A variant of concern (VOC) is a variant that has one or more of the following characteristics: increased transmissibility, evades natural or vaccine-related immunity, increased virulence, evades detection by available diagnostic tests, or is less responsive to treatment.
- For more information including designated VOC's in Canada, refer to the SARS-CoV-2 variants: National definitions, classifications and public health actions. Information on VOCs in Alberta is available here.
- The OCPHO is continuously monitoring wastewater and assessing the impact of all circulating variants of concern in the Northwest Territories. Wastewater monitoring is the primary surveillance tool used in the NWT.

Clinical Presentation

Infection with SARS-CoV-2 virus can be asymptomatic, mild, moderate, or severe and can lead to death. Symptoms can vary depending on factors such as age, underlying health conditions, and immunization status.

Clinical illness signs and symptoms of COVID-19 include any one or more of the following:

- New or worsening cough,
- Shortness of breath (SOB),
- Sore throat,
- Loss or altered sense of taste/smell,
- Runny nose/nasal congestion,
- Fever/chills,
- Fatigue (significant and unusual),
- Muscle ache/joint pain,
- Headache,
- Nausea/diarrhea.

Generally, most individuals with asymptomatic infection or mild illness do not need medical care and those with mild to moderate illness can be managed as outpatients. Most people make a full recovery from COVID-19 infection; however, the duration of illness varies.

Major Complications

Post-COVID-19 condition (PCC) (i.e., long-COVID) is a wide range of new, returning, or ongoing health problems such as physical and/or psychological symptoms that last more than 12 weeks after an initial COVID-19 infection. For more information, refer to the Government of Canada's Post-COVID condition (long COVID-19) website.

Most children and adolescents infected with COVID-19 typically are asymptomatic or have mild symptoms. However, they can also experience severe illness which may require hospitalization or admission to intensive care unit (ICU) and may result in death.

Some children and adolescents with recent COVID-19 infection (several weeks following an infection or epi-linked to COVID-19 cases) may present with acute illness with a hyper-inflammatory syndrome termed Multi-System Inflammatory Syndrome in children and adolescents (MIS-C), that can lead to shock and multi-organ failure. For more information on MIS-C in Canada refer to Multisystem inflammatory syndrome in children in Canada and the Alberta Health MIS-C Public Health Disease Management Guideline. Multisystem inflammatory syndrome has also been reported in adults (MIS-A) and can also lead to serious outcomes with multi-organ failure.

Transmission

- SARS-CoV-2 virus is transmitted person-to-person primarily via respiratory droplets and aerosols that are generated when a person coughs, sneezes, talks, or sings.
- The droplets range in size from large droplets that spread at close range (i.e., less than two metres) to smaller droplets (or aerosols) that can be infectious over longer distances and may be suspended for longer periods of time.
- There is increased risk of transmission in poorly ventilated, crowded indoor settings or where gatherings are taking place for prolonged periods, or where heavy breathing or exertion is occurring.
- COVID-19 can also spread via direct physical contact with another person (e.g., handshake) or by indirect transmission through touching contaminated objects/fomites, however this is not considered the main route of transmission.
- Infected individuals can transmit the virus 48 hours before symptom onset (i.e., pre-symptomatic), or even if they have an asymptomatic infection or when their symptoms went unnoticed.

Incubation Period

- The incubation period for SARS-CoV-2 may differ depending on the VOC.
- Prior to emergence of the Omicron variant of SARS-CoV-2 in late 2021, the incubation period ranged from 2-14 days with median 4-7 days.
- The incubation period for the Omicron variant appears to be shorter with a median of 2-4 days and a range of 0-8 days, with the greatest majority falling between 1 to 6 days.
- Given the current context in the Northwest Territories, the guidance in this document is based on an incubation period of 7 days.

Communicable Period

- The period of communicability may begin up to 48 hours before symptom onset and may last up to 10 days after symptom onset.
- Studies from prior to the emergence of the Omicron variant in late 2021 showed that communicability peaked just before symptom onset and most of the SARS-CoV-2 transmission occurred early in the course of illness, generally in the 1- 2 days prior to onset of symptoms and the 2-3 days after symptom onset. Evidence for the Omicron variant of SARS-CoV-2 suggests that infectious viral shedding may occur for 3-6 days after onset of symptoms.
- People with more severe disease or who are immunocompromised may shed virus for longer and are therefore likely to be infectious for longer.

Host Susceptibility

Serosurvey studies conducted in the Northwest Territories over 3 collection points from March 2022 to January 2023 showed a progressive increase in naturally acquired immunity in all age groups from 47 % to 80% seroprevalence. The rates were lowest in 60 and older at ~75% seroprevalence. Reference: https://www.covid19immunitytaskforce.ca

COVID-19 vaccines are effective at preventing severe outcomes such as hospitalization and death related to COVID-19 infection especially in high-risk populations. For more information on COVID-19 immunization and booster dose effectiveness, refer to the National Advisory Committee on Immunization statements and publications and the Canadian Immunization Guide. Some populations are at increased risk of exposure to SARS-CoV-2 virus due to occupational or living conditions. Others are at increased risk of severe disease, hospitalization and/or death associated with to the following factors that may intersect:

- Having pre-existing medical conditions,
- Advanced age,
- Lower socioeconomic status,
- Varying access to health care services,
- Belonging to a racialized group.

Clinical Guidance

- For patient-specific clinical management consult your local healthcare professional, paediatrician, or infectious disease specialist and NTHSSA clinical practice guidelines, directives, protocols and procedures.
- For more information on COVID-19 refer to Alberta Health Services: COVID-19 Resources for AHS Staff & Health Professionals.

5. PUBLIC HEALTH MEASURES

To help prevent or reduce the spread of COVID-19 in the NWT, the OCPHO advises that the NWT population:

- Follow all current recommendations,

- Stay home when sick, use healthy respiratory practices and perform frequent hand hygiene,
- Do not visit individuals at high-risk for COVID-19 complications while symptomatic.

Investigation

- Ensure appropriate clinical specimen(s) have been collected (see Diagnosis).
- Obtain history of illness including date of onset of signs and symptoms.
- Determine spectrum of illness and if case is severe.
- Provide the individual with information about disease transmission and measures to minimize transmission including practicing proper hand hygiene, healthy respiratory practices, physical distancing, and the use of medical/non-medical masks (NMM) as per organizational directives, protocols and procedures.
- Determine any underlying chronic or immunocompromising condition(s) that may contribute to risk for severe outcomes and coordinate care with appropriate practitioners.

Management of Cases

- Individuals with symptoms of respiratory illness should stay home. If symptoms worsen, they should seek medical guidance or care. Because of the high false negative results from COVID testing, it is important that individuals who have active respiratory symptoms stay home regardless of test results until symptoms have improved.
- General guidance in high-risk settings should include infection prevention and control precautions to prevent disease transmission. Refer to the facility's infection, prevention, and control policies.
- For clinical management of all cases, follow organizational NTHSSA clinical practice guidelines, directives, protocols and procedures.

Management of Contacts

- Individual management of close contacts is **NOT** required and testing through the public health system is **NOT** indicated for close contacts. For recommendations for contacts refer to Information for Close Contacts of a COVID-19 Case website.
- Close contacts* may choose to use at home rapid tests after an exposure. For more information refer to the rapid testing at home website or the GNWT Self-Assessment Tool.

***Close contacts:** Someone exposed to a case while they were infectious. For close contact identification purposes, the infectious period is from two days before onset of symptoms in the case (or if asymptomatic, two days before test date) to 7 days after **OR** for as long as the case has a fever, whichever is longer. Close contacts include:

- An individual who had direct contact with infectious body fluids of a case i.e., was coughed or sneezed on while unprotected or who, for example, shared cigarettes, glasses/bottles, eating utensils with a case **OR**
- A health care worker (HCW) who provided unprotected direct care for the case, **OR**
- An individual and/or family member or other care givers who provided direct care to the case or who had other similar direct physical contact (e.g., intimate partner, hug, kiss, handshake). **OR**
- An individual who lived with or otherwise had unprotected, prolonged contact with a case for 10 minutes or more over a 24-hour period (may be cumulative, i.e., multiple interactions) and within two metres. **OR**

- An individual who had unprotected contact with a case within two meters for one minute or longer where the case engaged in activities that generate increased aerosols such as speaking, singing, shouting, or breathing heavily (e.g., exercise).
- **Unprotected**: An individual may be considered unprotected if at the time of the exposure they did not consistently and appropriately use personal protective equipment (PPE).
- **NOTE:** Transmission can happen beyond two metres when sharing a confined, crowded and/or poorly ventilated air space with a case while unprotected.
- **NOTE:** Household contacts are a type of close contact that have the highest infection rate. A household contact is defined as a person who lives in the same residence as the case **OR** who has been in frequent, long-duration, close-range interaction with the person who tested positive. For example, someone who is a caregiver, an intimate or sexual partner.
- **NOTE:** As part of the individual risk assessment, consider the duration of the contact's exposure (e.g., a longer exposure time likely increases the risk), the case's symptoms (coughing or severe illness likely increases exposure risk), and whether exposure occurred in a health care setting.

Outbreak Management in a Facility

An **outbreak** is defined as two or more confirmed cases where transmission is assessed to have most probably been acquired within the facility by best assessment.

Immediately report any increased COVID-19 activity within a facility to the IPAC designate for management guidance. Facilities should ensure IPAC outbreak policies, procedures and protocols are implemented under the guidance of their current outbreak management policies in place and in consultation with their facility manager or their IPAC designate. Facilities are expected to continually update IPAC policies, procedures and protocols related to outbreak management within their facility to match the most current IPAC guidance on COVID-19.

AND

Immediately report to the OCPHO (867) 920-8646 any outbreak of COVID-19 in a hospital, congregate living setting (i.e., prison/correctional facility) or LTCF. The OCPHO does not provide IPAC facility recommendations on the management of COVID-19 and no longer requires line lists of COVID-19 positive individuals.

Declaring an Outbreak Over

An outbreak may be declared over by the facility when no new cases, which were reasonably acquired in the setting, have occurred for 14 days, and there is no evidence of ongoing transmission. Declaration of the end of an outbreak must be reported to the OCPHO by phone (867) 920-8646 or email to outbreak@gov.nt.ca.

- Communicable Disease Control Unit (CDCU) staff are responsible to collect the following outbreak information to inform Epidemiology: Outbreak status, date declared, date ended, outbreak site, outbreak setting, community, number of cases, severe outcomes, and pathogens involved.

Prevention

- The most current COVID-19 vaccines offer significant protection against severe disease and are publicly funded in the NWT. Please see the NWT Immunization Schedule for current guidelines.

- Current COVID-19 vaccine guidelines can be found within the Canadian Immunization Guide COVID Chapter.

Vaccination

- COVID-19 vaccines are publicly funded in the NWT as per the NWT Immunization Schedule.
- For more information on COVID-19 vaccines, see the Canadian Immunization Guide and NTHSSA COVID-19 vaccine resources.

6. PUBLIC & HEALTH PROFESSIONAL EDUCATION

- Centers for Disease Control and Prevention (CDC): CDC/COVID-19
- Government of Canada: Canada/COVID-19
- Government of Canada. National case definition: Coronavirus disease (COVID-19): https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/health-professionals/national-case-definition.html#conf for more information.
- Government of the NWT Public: GNWT/COVID-19
- Northwest Territories Health & Social Services Authority Resources: NTHSSA/COVID-19
- World Health Organization (WHO): WHO/COVID-19

7. EPIDEMIOLOGY

For more information on the epidemiology of COVID-19 in the Northwest Territories see:

- Wastewater Monitoring Dashboard and
- Epidemiological Summary of Communicable Diseases HSS Professionals.

8. REFERENCES

1. Alberta Health Services
   a. Alberta public health disease management guidelines: coronavirus, COVID-19: https://open.alberta.ca/publications/coronavirus-covid-19
   b. Alberta public health disease management guidelines: multisystem inflammatory syndrome in children and adolescents (MIS-C): Alberta public health disease management guidelines : multisystem inflammatory syndrome in children and adolescents (MIS-C) - Open Government
   c. COVID-19 variants of concern: COVID-19 variants of concern | Alberta.ca

2. Government of Canada
   a. Authorized medical devices for uses related to COVID-19: List of authorized testing devices: https://www.canada.ca/en/health-canada/services/drugs-health-products/covid19-industry/medical-devices/authorized/list.html
   b. Canadian children with multisystem inflammatory syndrome: Multisystem inflammatory syndrome in children (MIS-C) in Canada, CCDR 47(11) - Canada.ca
   c. Reducing COVID-19 risk in community settings: A tool for operators: Reducing COVID-19 risk in community settings: A tool for operators (canada.ca)
   d. SARS-CoV-2 variants: National definitions, designations, and public health actions: SARS-CoV-2 variants: National definitions, designations and public

health actions - Canada.ca

3. World Health Organization:
   a. World Health Organization – Coronavirus disease (COVID-19) pandemic https://www.who.int/emergencies/diseases/novel-coronavirus-2019
   b. Expanding our understanding of post COVID-19 condition: report of a WHO webinar 9 February 2021: https://www.who.int/publications/i/item/9789240025035