



Coronavirus Disease (COVID-19)

CHAPTER CONTENT

1. [Case Definition](#)
2. [Diagnosis](#)
3. [Reporting](#)
4. [Overview](#)
5. [Public Health Measures](#)
6. [Education](#)
7. [Epidemiology](#)
8. [References](#)

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

A person with confirmation of infection with the virus (SARS-CoV-2) that causes COVID-19 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

- A positive result on a Health Canada approved rapid/point-of-care (POC) antigen test* in a person with COVID-19 symptoms

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

A person who:

- Has symptoms compatible with COVID-19

AND

- Had a high-risk exposure to a confirmed COVID-19 case in the last 10 days

OR

- Was exposed in a known cluster or outbreak of COVID-19

AND

- Has not had a Health Canada approved* test for SARS-CoV-2 completed or the result is inconclusive

OR

- Had SARS-CoV-2 antibodies detected in a single serum, plasma, or whole blood sample using a validated laboratory-based serological assay for SARS-CoV-2 collected within 4 weeks of symptom onset

2. DIAGNOSIS

A diagnosis of SARS-CoV-2 infection is based on testing. Acceptable specimen types for COVID-19 testing include nasopharyngeal (NP) swab, throat swab, nasal swab, NP aspirate, endotracheal tube (ETT) suction/sputum, saline gargle or bronchoalveolar lavage/bronchial wash (BAL/BW), though specimen selection is dependent on the specific test being used and how the test was validated and/or its Health Canada authorization for different specimen types.

NP and throat swabs are recommended over nasal swabs for COVID-19 testing. If unable to collect a NP swab or throat swab, a deep nasal swab can be collected instead, though sensitivity may be reduced.

It is recommended that hospitalized patients with COVID-19 symptoms be tested with an NP swab; this is to enhance sensitivity and to ensure that the sample is appropriate for the testing of other respiratory viruses, if applicable, since NP swabs are the standard for detecting other viruses such as influenza and respiratory syncytial virus.

For patients who have a lower respiratory tract infection and are intubated, also submit an ETT suction or BAL/BW.

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

- [Alberta Precision Labs Testing Directory](#)
- [Laboratory Bulletins](#)
- [NTHSSA Lab Memos](#)
- [NTHSSA: How to link POCT COVID-19 results through EMR manual entry](#)



3. REPORTING

As set out in the [NWT Public Health Act, Reportable Disease Control Regulations \(Section 4\) and Disease Surveillance Regulations \(Sections 6-10 and Schedule 3\)](#) health care professionals and laboratories are legally required to report a diagnosis or formed opinion of a reportable disease to the Chief Public Health Officer (CPHO) or designate **within the timeframe identified in the regulations**.

Health Care Professionals

- Confirmed cases are to be reported to the Office of the Chief Public Health Officer (OCPHO) by telephone (867) 920-8646 **immediately** after diagnosis is made or opinion is formed, **AND**
- Complete and fax (867) 873-0442 the [COVID-19 or Influenza Reinfections and Severe Outcome Surveillance](#) report form to the OCPHO within **24 hours** for the following cases:
 - [Reinfection](#)
 - Confirmed case in a long-term care facility or other congregate living setting (i.e., prison or shelter)
 - Suspected or confirmed [Multi-Inflammatory Syndrome in Children \(MIS-C\)](#)
 - Severe outcome including hospitalization and death
- Immediately report all [outbreaks](#) or suspect outbreaks in hospital, long-term care facility (LTCF) or congregate living by telephone (867) 920-8646 to the OCPHO
- Notify the OCPHO if you are noticing a significant increase in COVID-19 in your community, institution or school

Laboratories

- Report all positive results **immediately** to the OCPHO by telephone (867) 920-8646 and fax the laboratory report 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](#)
- The following are NOT reportable to the OCPHO
 - Individual positive results on rapid antigen tests used for the screening of asymptomatic persons by screening programs in the community (except in congregate settings)
 - At-home rapid antigen test results

NOTE: - Individuals who meet certain [high-risk criteria](#) should seek confirmatory PCR testing.



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 [Coroner's 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

Human coronaviruses are enveloped, ribonucleic acid (RNA) viruses that are part of the Coronaviridae family. There are 7 identified human coronaviruses known at present:

- Four types are responsible for generally mild illness- 229E, OC43, NL63 and HKU;
- Two types that can cause severe illness: Middle East respiratory syndrome coronavirus (MERS-CoV) and severe acute respiratory syndrome coronavirus (SARS-CoV); and
- SARS-CoV-2 is a coronavirus first identified in December 2019 that is responsible for COVID-19 illness.

Viruses constantly change through mutation, and new variants of a virus are expected to occur.

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 VOCs in Canada, refer to the [SARS-CoV-2 variants: National definitions, classifications and public health actions](#).

OCPHO and NTHSSA are continuously monitoring and assessing the impact of all circulating variants of concern on viral transmission, disease severity, diagnostic testing, therapeutics, and vaccine effectiveness in the territory.

Clinical Presentation

Individuals infected with the virus that causes COVID-19 may have few or no symptoms and symptoms may range from mild to severe.

COVID-19 symptoms include



- cough,
- fever,
- headache,
- sore throat,
- shortness of breath,
- nasal congestion,
- new loss of sense of taste or smell,
- fatigue,
- muscle aches,
- vomiting or diarrhea.

Current evidence suggests that vaccinated individuals infected with COVID-19 may present with milder symptoms.

Research is ongoing to determine any differences in clinical presentation in individuals infected with Omicron compared to other variants.

The duration of illness may vary depending on the variant but can be prolonged for critical cases and in immunocompromised individuals.

Alpha, Beta, Gamma and Delta variants are associated with an increased secondary attack rate and hospitalizations. The Delta variant is associated with increased risk for severe outcomes such as hospitalization, ICU admission and death compared to non-VOCs or Alpha variant. The Omicron variant is reported to have higher transmissibility than previous variants and the original non-VOC strain. Current evidence shows the Omicron variant has increased ability to escape immunity from previous infection or vaccines. Emerging evidence suggests a reduced risk of hospitalization for Omicron compared to Delta. The risk of hospitalization is only one aspect of disease severity and the data may be impacted by admission practice. To further understand disease severity, information on clinical indicators of severity such as mechanical ventilation, the use of oxygen and deaths is needed. It is important to note that the current evidence on severity and hospitalization has been largely from countries with high levels of population immunity. Understanding the severity of Omicron in populations with different prior exposure to other variants and with different vaccination coverage is required.

Major Complications

Complications of COVID-19 include

- severe pneumonia,
- acute respiratory distress syndrome,
- sepsis,
- septic shock,
- multi-organ failure or death.



HCPs should be aware of the potential for some patients to rapidly deteriorate, and this often occurs approximately one week after illness onset.

The following vulnerable populations are at risk of more severe outcomes:

- Increasing age - the risk of dying (case-fatality rate) from COVID-19 increases with age greater than 60.
- People [high-risk](#) medical conditions.
- Those living with suppressed immune systems may be more vulnerable to complications of the disease.

All COVID-19 vaccines approved in Canada offer significant protection against severe disease. A booster dose after an initial primary series offers improved protection against infection with Omicron and greatly reduces risk of severe illness. Some high-risk populations are encouraged to get a 2nd booster six months later such as those 70 and older as well as seniors (60 years and older) living in long term facilities, congregate settings or retirement homes as well as those who are moderately to severely immunocompromised.

Multi-Inflammatory Syndrome in Children (MIS-C)

Since April 2020, there have been reports of children and adolescents presenting with acute illness with a hyper inflammatory syndrome, leading to shock and multi-organ failure. This has been termed Multi-System Inflammatory Syndrome in children and adolescents (MIS-C). Cases of MIS-C have often been associated with COVID-19 (several weeks following a SARS-CoV-2 infection or epi linked to COVID-19 cases). The risk factors associated with developing MIS-C are currently unknown.

[WHO Preliminary Case Definition](#): Children and adolescents 0–19 years of age with fever ≥ 3 days

AND two of the following:

- Rash or bilateral non-purulent conjunctivitis or muco-cutaneous inflammation signs (oral, hands or feet);
- Hypotension or shock;
- Features of myocardial dysfunction, or pericarditis, or valvulitis, or coronary abnormalities (ECHO findings or elevated Troponin/NT-proBNP);
- Evidence of coagulopathy (abnormal PT, PTT, elevated d-Dimers);
- Acute gastrointestinal problems (diarrhea, vomiting or abdominal pain);

AND

- Elevated markers of inflammation such as ESR, C-reactive protein or procalcitonin

AND



- No other obvious microbial cause of inflammation, including bacterial sepsis, staphylococcal or streptococcal shock syndromes

WITH OR WITHOUT*

- Evidence of COVID-19 (RT-PCR, antigen test or serology positive);

OR

- COVID-19 exposure

Complete and fax (867) 873-0442 the [COVID-19 or Influenza Reinfections and Severe Outcome Surveillance](#) to the OCPHO within **24 hours** for suspected or confirmed cases of MIS-C as well as completing all MIS-C reporting documentation as per [NTHSSA guidelines](#).

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](#).

Post COVID-19 Condition

Post COVID-19 condition is a term used for a wide range of new, returning, or ongoing health problems people can experience more than four weeks after their COVID-19 infection. Post COVID-19 condition occurs in individuals with a history of probable or confirmed SARS-CoV-2 infection, usually 3 months from the onset of COVID-19 with symptoms that last for at least 2 months and cannot be explained by an alternative diagnosis. Common symptoms include, but are not limited to,

- fatigue,
- shortness of breath,
- cognitive dysfunction

Symptoms generally have an impact on everyday functioning. Symptoms may be new onset following initial recovery from an acute COVID-19 episode or persist from the initial illness. Symptoms may also fluctuate or relapse over time.

Research is ongoing to better understand all the health impacts associated with COVID-19. For more information refer to the [CDC](#) and [WHO](#).

Transmission

- SARS-CoV-2 is primarily transmitted person to person via respiratory droplet (i.e. coughing, sneezing, or talking) or direct contact (e.g. hugging or kissing).
- Airborne transmission can occur during aerosol-generating medical procedures (AGMPs), e.g. cardio-pulmonary resuscitation, sputum induction, nebulized treatments, intubation, dental procedures, etc.
- Airborne (or “Aerosol”) transmission can occur in specific settings outside of medical facilities, particularly in indoor, crowded and inadequately ventilated spaces, where infected person(s) spend long periods of time with others.



- SARS-CoV-2 may be transmitted from indirect contact via contaminated objects or surfaces (fomites) and then touching one's own mouth, nose, or eyes. Transmission risk from surfaces, however, is low.
- The virus can survive on some surfaces for days but is easily inactivated by disinfectants.
- Although there is detection of viral RNA in breast milk samples, there is no evidence of transmission during breast feeding.
- Research indicates that some [variants](#) are associated with increased transmissibility.

Communicable Period

There is evidence of transmission occurring up to 48 – 72 hours before symptom onset or from individuals who are asymptomatic. Highest risk of transmission is 48 hours before and up to 3 days after onset of illness viral load decreases proportionately to negligible after 10 days after onset of illness.

For mild cases that do not require hospitalization, evidence from observational and laboratory studies suggest they are no longer communicable 10 days after the onset of illness, as long as they have improved clinically. Severe and critical cases are communicable for longer periods. Experience from other respiratory viral infections suggests that immunocompromised individuals with COVID-19 may be infectious for longer periods.

There is no current evidence suggesting that VOCs cause infection beyond the communicable period of wild-type SARS-CoV-2.

The communicable period of the confirmed or probable case is:

- **Symptomatic:** Two days before until a minimum of 10 days after symptom onset in a confirmed or probable case in those with mild illness. Critical cases are likely communicable for up to 20 days after symptom onset. *
- **Asymptomatic:** Two days before until a minimum of 10 days after the date the lab sample was collected from a confirmed case
- The communicable period may be longer in those with progressive or severe illness
- NAAT positivity from respiratory samples or cough may persist for prolonged periods after an infection and does not necessarily infer communicability

Risk of transmission is likely highest during the early symptomatic period as viral shedding is greatest at that time.

*Critical illness is defined as requiring ICU level of care for COVID-19 illness (e.g., respiratory dysfunction, hypoxia, shock and/or multi-system organ dysfunction).

Incubation Period

The incubation period ranges from 1-14 days with median estimates of 5-6 days for non-VOC. Some studies estimated the median incubation period for Alpha and Delta variant to be about



two days shorter (e.g. 3-4 days). Early studies suggest incubation period may be shorter for the Omicron variant with a median of 3 days. Public Health recommendations in the posted guideline is for the current Omicron context.

Clinical Guidance

- For patient-specific clinical management follow [NTHSSA clinical practice guidelines, directives, protocols and procedures](#)
- Alberta Health Services [current guidance for the management of adult hospitalized patients with COVID-19](#)

Reinfection

The Public Health Agency of Canada (PHAC) defines reinfection as laboratory-based or time-based.

Laboratory-based Reinfection

A previously confirmed case that has a subsequent infection of SARS-CoV-2 where there is laboratory evidence supporting two different infections.

Laboratory evidence includes:

- Genome sequencing or variant of concern (VOC) screening PCR testing indicates two distinct SARS-CoV-2 infections
- OR**
- One of the infections was confirmed to be a variant of interest (VOI)/VOC or mutations associated with VOI/VOC based on genome sequencing or VOC screening PCR testing
- AND**
- The other infection occurred when the VOI/VOC was not circulating in Canada

Time-based Reinfection

- A previously confirmed case that has a subsequent confirmed infection of SARS-CoV-2 at least 90 days after the previous infection using episode date**

AND

- Does not meet the laboratory-based reinfection case definition

Notes

*Public health or clinical judgement should be used to rule out situations where a possible reinfection has been attributed to prolonged viral shedding (i.e., consider if prolonged viral shedding is more likely than reinfection).

** If case is symptomatic, then episode date uses symptom onset date and if symptom onset date is unavailable or the case is asymptomatic, then the earliest of the following dates could be used as proxy for classification: laboratory specimen collection date, laboratory testing date or reported date.

The judgement of a relevant public health authority may be used to identify reinfection cases based on new exposures or symptoms if the above criteria are not met.

It is recommended that previously positive cases who are newly symptomatic and have a positive rapid antigen test or point of care test greater than 90 days from the date of initial infection receive confirmatory PCR testing for re-infection confirmation and potential variant screening.



5. PUBLIC HEALTH MEASURES

In an effort to help prevent or reduce the spread of COVID-19 in the NWT, OCPHO advises that the NWT population:

- Follow all [current recommendations](#);
- Stay home when sick;
- Use healthy [respiratory practices](#) and perform frequent [hand hygiene](#);
- Consider wearing a mask in indoor public places;
- Practice [physical distancing](#);
- Minimize number of contacts;
- Not visiting those at [high-risk](#) while symptomatic;
- Work from home (remotely) or alone if the option is available;
- Avoid high risk activities

Public Health Measures for Symptomatic Individuals

If an individual has complaints of [signs or symptoms consistent with COVID-19](#):

- Review the NWT Office of the Chief Public Health Officer [Public Health Management of COVID-19 algorithm](#)
- Advise the use of the [Self-Assessment Tool](#) to determine if testing or clinical assessment is recommended
- If testing or clinical assessment is indicated and the individual tests **positive**
 - Use [NTHSSA clinical algorithms](#) to manage the case
 - Consider [public health measures](#) for 10 days from symptom onset
 - Follow all [reporting guidelines](#) as applicable
- If testing or clinical assessment is indicated and the individual tests **negative**
 - No further COVID-19 testing is required
 - Consider if there are other areas of concern and manage appropriately
 - Consider [public health measures](#) for 10 days from symptom onset
- If testing or clinical assessment is not indicated
 - Consider [public health measures](#) for 10 days from symptom onset

Key Investigation

Confirm the diagnosis and that individual meets case definition and reporting requirements.

- Ensure appropriate clinical specimen(s) have been collected (see Diagnosis Section).
- Obtain history of illness including date of onset of signs and symptoms.
- Determine immunization status



- Determine previous COVID-19 infection and assess for potential [reinfection](#).
- Determine spectrum of illness and if case requires hospitalization or if they can be managed at home
- Determine any underlying chronic or immunocompromising condition(s)
- Determine possible source of infection:
 - Identify recent travel/residence history inside and outside Canada including dates of travel, itineraries and mode of transportation (e.g., airplane, train, etc.);
 - Identify type of contact within health care settings with known COVID-19 cases (e.g., work, visiting patient, etc.), if applicable;
 - Recent contact with a known COVID-19 case or a person with COVID-19-like illness
 - Assess if other members in the household have similar symptoms or have had any contact with a known COVID-19 case/person with COVID-19 symptoms.
- Determine occupation (e.g., healthcare worker or works with vulnerable individuals i.e., long-term care facilities/continuing care/group homes/shelters)
- Determine possible transmission settings (e.g., acute care or congregate care/living settings)
- For public health management of a laboratory confirmed asymptomatic case at testing (not meeting the criteria of having two or more of the symptoms listed in clinical illness for at least 24 hours in the seven days prior to specimen collection), the period of communicability that may be used is 48 hours before laboratory specimen was collected to 10 days after the date of specimen collection. (NOTE: The period of communicability may be longer if they develop symptoms during the 10 days after lab specimen collection date)

NOTE: Due to the changes in quarantine recommendations:

- In high-risk settings such as LTCFs or congregate living settings, the facility's IPC and exposure control plan should be consulted for contact management

Management of Cases

- For clinical management of all cases, follow organizational/[NTHSSA clinical practice guidelines, directives, protocols and procedures](#)
- Provide the case with information about disease transmission and measures to minimize transmission, including [practicing proper hand hygiene](#) and [respiratory practices, physical distancing](#) and use of medical/non-medical masks (NMM) as per organizational/HSSAs directives, protocols and procedures.
- Follow these links for information for people with COVID-19 in the home:
 - [Enhanced Cleaning Guidelines](#)
 - [Current Recommendations](#)



- Healthcare providers, individuals working in congregate settings, and employees in areas with high risk for transmission who are confirmed or probable COVID-19 cases should follow employer guidance and their facility's Infection Prevention and Control (IPC) guidance.

Management of Hospitalized Cases

- Isolation precautions apply for hospitalized cases. Consult with hospital Infection Prevention and Control (IPC) for recommendations.
- Provide the case with information about disease transmission and measures to minimize transmission, including [practicing proper hand hygiene](#) and [respiratory practices, physical distancing](#) and use of medical/non-medical masks (NMM) as per organizational/HSSAs directives, protocols and procedures.
- Provide information on immunization as applicable
- For information on infection prevention and control precautions refer to the following:
 - [NTHSSA IPC Resources](#)
 - [Infection prevention and control for COVID-19: Interim guidance for acute healthcare settings.](#)

Discharge/Transfer of a Hospitalized Case

- Hospitalized cases being discharged/transferred to congregate care facilities i.e. long-term care facilities or congregate living settings such as shelters/corrections should follow facility protocol on receiving patients with COVID-19

Management of Non-Hospitalized Case

- Provide the case with information about disease transmission and measures to minimize transmission, including [practicing proper hand hygiene](#) and [respiratory practices, physical distancing](#) and use of medical/non-medical masks (NMM) as per organizational/HSSAs directives, protocols and procedures.
- If the case requires non-urgent medical attention, advise them to contact their health care provider
- If they require urgent attention, advise them to call 911 and to let 911 know they have COVID-19 so that appropriate precautions can be taken to care for the case safely

Management of an Immunocompromised Case

- Based on experience from other respiratory viruses, especially influenza virus, immunocompromised confirmed cases may shed SARS-CoV-2 for a longer period of time

NOTE: If a patient has been given additional instructions by their physician/specialist they should follow the instructions of their physician/specialist.



Outbreak Management

- 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 as defined as
 - Two or more confirmed cases (staff and/or clients) where transmission was acquired within the facility by best assessment
- Immediately report any increased COVID-19 activity within a facility to the infection prevention and control practitioner for management guidance
- An outbreak can be declared over 14 days after the last case's exposure during their communicable period to other residents/staff

Management of Contacts

- [Practice healthy respiratory practices](#)
- [Practice proper hand hygiene](#)
- Wear a mask when in the presence of a positive case
- Stay home if symptomatic
- Determine if testing is indicated with the [Self-Assessment Tool](#)

Prevention

- Follow [current recommendations](#)

Vaccination

- All COVID-19 vaccines approved in Canada offer significant protection against severe disease
- A booster dose after an initial primary series offers improved protection and greatly reduces risk of severe illness. Select high risk populations would benefit from a 2nd booster dose six months after first booster.
- COVID-19 vaccines are publicly funded in the NWT as per the [NWT Immunization Schedule](#)
- Employer vaccine mandates are individual to employer policies and the CPHO does not provide exemptions for these types of mandates

For more information on COVID-19 vaccines, see the [Canadian Immunization Guide](#) and [NTHSSA COVID-19 vaccine resources](#).

Workplace Health and Safety

NWT's *Safety Act* and *Occupational Health and Safety Regulations* are key measures to protect workers in NWT. Workers' Safety and Compensation Commission (WSCC) collaborates closely with employers to create safe working environments. Health centres, public health teams, HCPs, GNWT departments, and HSSAs should follow [WSCC guidance](#) and advocate for safe workplaces for their clients.



6. PUBLIC & HEALTH PROFESSIONAL EDUCATION

For more information about COVID-19:

- **Government of the NWT Public:** [GNWT/COVID-19](#)
Public Resources:
<https://www.gov.nt.ca/covid-19/en/resources>
- **Government of the NWT Healthcare Professional:** [GNWT HCP/COVID-19](#)
 - Emergency Response Documents
 - Reporting Documents
 - Department Resources (Public Health Management Algorithm, Outbreak management documents and additional resources)
- **Northwest Territories Health & Social Services Authority Resources:** [NTHSSA/COVID-19](#)
 - [NWT COVID-19 Self-Assessment Tool](#)
- The Government of Canada: [Canada/COVID-19](#)
 - [Health Canada Quarantine Act and Information](#)
- Centers for Disease Control and Prevention (CDC): [CDC/COVID-19](#)
- World Health Organization (WHO): [WHO/COVID-19](#)

7. EPIDEMIOLOGY

- For more information on the epidemiology of COVID-19 in the Northwest Territories (NWT) see: [Public Health Dashboard](#) and [Epidemiological Summary of Communicable Diseases HSS Professionals](#)

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