

COVID-19 - Infection Prevention and Control Guidelines in Acute Care

Site Applicability

PHC Acute Care

Practice Level

- Physicians, NPs, Nursing, CNLs, CMLs, Allied Health, Support Services and Clinical Site Coordinators

Need to Know

Admitted patients are assigned a colour to indicate COVID-19 status.

- **Red:** patients who are actively infectious with known COVID-19
- **Yellow:** patients who are under investigation (PUI) due to known exposure in a shared hospital room and/or household contacts or as determined by IPAC; patients under investigation (PUI) due to symptoms pending COVID-19 results
- **Green:** patients who have no known COVID-19 symptoms or recent exposures
- **Green Plus:** patients who have recovered from COVID-19 in the last 90 days

Standards

In addition to Routine Practices, [Airborne, Droplet and Contact Precautions](#) will be initiated for all patients with confirmed or suspected COVID-19 illness for the duration of their infectious period while in hospital.

Precautions can be discontinued once patient has completed their isolation period and tested negative on a Rapid Antigen Test (RAT).

In PHC acute care facilities, a COVID-19 Polymerase Chain Reaction (PCR) test should be ordered for all patients with symptoms compatible with COVID-19 or as per unit policies for new admissions.

PowerChart will auto-trigger Droplet & Contact precautions for all COVID-19 PCR tests. To discontinue precautions, refer to the [Discontinuing Droplet & Contact Precautions](#) Education Practice Pointer.

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Description of the Disease

Coronaviruses have been identified as human pathogens since the 1960s. To date, seven coronaviruses are associated with disease in humans. COVID-19 is caused by the SARS-CoV-2 virus.

There are a number of emerging variants of SARS-CoV-2 with varying degrees of severity and transmissibility. Five COVID-19 variants of concern have been detected in B.C.: Alpha, Beta, Gamma, Delta, and Omicron. Currently Omicron is the most commonly detected variant in BC. In Canada, COVID-19 vaccination began in December 2020.

Preventing transmission of COVID-19 is essential to minimizing the risks for vulnerable individuals and those with underlying chronic conditions who are at most risk for serious or fatal illness. Preventing transmission of COVID-19 in health care facilities is also important in minimizing the potential of post-acute sequelae of COVID-19 (PASC).

Signs & Symptoms

Many symptoms of COVID-19 are present in other viral respiratory infections and may be mild or severe. Be observant for new or worsening symptoms:

- Fever* or chills
- Cough
- Loss of sense of smell or taste
- Difficulty breathing
- Sore throat
- Loss of appetite
- Runny nose
- Sneezing
- Extreme fatigue or tiredness
- Headache
- Body aches
- Nausea or vomiting
- Diarrhea

* **Note:** In the elderly, fever may be reduced or not present

Incubation Period

The incubation period for COVID-19 is believed to be 2 to 14 days, with a median of 4 to 7 days from exposure to symptom onset. The Omicron variant of concern (VOC), which is currently the dominant strain in BC has a shorter median incubation period of 2 to 4 days.

Period of Communicability

In the hospital setting, the infectious period is considered to start 48 hours before symptom onset or test date to generally 10 days after onset of symptoms for both vaccinated and unvaccinated patients. Potentially longer duration of viral shedding, up to 20 days or longer, can occur in individuals who are immunocompromised.

Detection of COVID-19 RNA through PCR testing does not necessarily mean that a patient is actively infectious/can transmit the virus. Recovered patients can continue to have COVID-19 RNA detected in their respiratory specimens for up to 12 weeks or longer. Rapid Antigen Tests (RATs) measure the presence of a COVID-19 viral protein, and is the best available surrogate marker to determine infectivity at the time of the test. Once a patient with COVID-19 tests negative on a RAT, they can be deemed non-infectious.

Routes of Transmission

SARS-CoV-2 primarily spreads from an infected person to others through respiratory aerosols and droplets when an infected person breathes, coughs, sneezes, sings, shouts, or talks. The particles vary in size, from large droplets that fall to the ground rapidly (within seconds or minutes), to aerosols which linger in the air for hours and can travel long distances. Infectious droplets or aerosols may come into direct contact with the mucous membranes of a person's nose, mouth or eyes, or they may be inhaled. Improving ventilation will decrease the concentration of aerosols that may be suspended

in the air. In addition to facility HVAC systems at PHC, filtration is further improved by the use of air handling units (AHUs) with HEPA filters. These units will be placed upon requests by IPAC.

[Fomite](#) transmission has not been shown to contribute to the spread of COVID-19.

Populations at Risk

Severe disease occurs more often in older age and in those with underlying medical conditions, and the risk increases with the number of underlying medical conditions. Examples of underlying medical conditions associated with more severe COVID-19 disease include:

- Cancer
- Cerebrovascular disease
- Chronic kidney, liver or lung diseases
- Cystic fibrosis
- Diabetes mellitus, type 1 and type 2
- Heart conditions
- HIV infection
- Obesity
- Pregnancy and recent pregnancy
- Primary immunodeficiency diseases
- Smoking, current or former
- Solid organ transplant
- Bone marrow or stem cell transplant
- Use of corticosteroids or immunosuppressive medication
- Use of anti-CD20 agents or B-cell depleting agents used for some autoimmune conditions

Refer to the BC Centre for Disease Control's (BCCDC) [Risk Factors for Severe COVID-19 Disease](#) for populations considered at higher risk of developing severe illness or complications.

Assessment and Intervention

Infection Control Precautions

- **Additional Precautions:** In addition to Routine Practices, [Airborne, Droplet and Contact Precautions](#) must be initiated on all patients with suspected or confirmed COVID-19.

The most responsible nurse will ensure Additional Precautions are ordered in Cerner and post the appropriate sign on the door (i.e., Airborne, Droplet and Contact).

For confirmed COVID-19 cases, Airborne, Droplet and Contact Precautions should be maintained for 10 days since symptom onset or test date (20 days for immunocompromised patients), where the symptom onset/test date is day 0. Refer to Table 1 below for guidelines on discontinuing COVID-19 precautions. In cases where symptom onset date cannot be determined, and only the test date is available, IPAC will help determine date for repeat RAT to help expedite clearance (to ensure optimal use of private and airborne infection isolation rooms).

Table 1: Discontinuing COVID-19 Precautions

Patient Status	Criteria for Discontinuing Precautions
Immunocompetent Patients	<ul style="list-style-type: none"> Maintain Airborne, Droplet and Contact Precautions for 10 days since symptom onset or positive test date. For patients in whom symptom onset date is not known, IPAC will help ensure timely testing to ensure optimal use of Red beds. Perform RAT on day 10. Discontinue COVID-19 precautions if RAT negative. If RAT is positive on Day 10, continue testing daily until day 15. If still positive on day 15, consult IPAC.
Immunocompromised Patients	<ul style="list-style-type: none"> Maintain Airborne, Droplet and Contact Precautions for 20 days since symptom onset or positive test date For patients in whom symptom onset date is not known, IPAC will help ensure timely testing to ensure optimal use of Red beds. Perform RAT on day 20. Discontinue COVID-19 precautions if RAT negative. If RAT is positive on Day 20, consult IPAC.

For any patient suspected of COVID-19 due to symptoms/exposure history, healthcare workers may choose to wear fit-tested N95 respirator for enhanced respiratory protection based on a point of care risk assessment. If the PCR results are negative, precautions can be discontinued using clinical judgement.

- **Hand hygiene:** Hands should be cleaned before and after every patient contact, as well as after touching potentially contaminated items in the environment. Using an alcohol based hand rub solution is preferred if hands are not visibly soiled.
- **Respiratory Etiquette:** Respiratory etiquette should be encouraged for all patients who have signs and symptoms of an acute respiratory infection. This should include:
 - Wearing a mask when in common areas (e.g., in hallways during transport and in waiting areas).
 - Using tissues to contain respiratory secretions and disposing used tissues promptly.
 - Coughing or sneezing into the upper sleeve/elbow if a tissue is not available.
 - Maintaining a spatial distance of two meters from other patients.
- **Patient Placement:** Patients with confirmed COVID-19 should be placed in an [airborne infection isolation room \(AIIR\)](#) or equivalent. Ensure the negative pressure is functioning and keep room door closed. If an AIIR is not available, COVID-19 patients may be [cohorted](#) with other patients who also have COVID-19 [OR](#) as a second option with patients who have recently recovered from



the disease (i.e., “Green Plus”; see Table 2 below). “Red” patients can be cohorted in multi-bedrooms that have an AHU.

Table 2: Cohorting* COVID-19 Patients in Acute Care if a Single-Patient AIIR is Unavailable

COVID-19 Status	Red	Yellow	Green	Green Plus
Red	Yes	No	No	Yes
Yellow	No	Yes	No	Yes
Green	No	No	Yes	Yes
Green Plus	Yes	Yes	Yes	Yes

*Patients with other infections requiring Airborne Precautions (e.g., tuberculosis, chicken pox, disseminated herpes zoster, and measles) or those with known CPO *always* require placement in a single-patient room and should not be cohorted.

- **Equipment:** Dedicate equipment whenever possible. Clean and disinfect shared equipment routinely and between different patients.
- **Environment:** All high touch surfaces in the patient’s room must be cleaned and disinfected with a hospital grade disinfectant at least twice a day and when visibly soiled. Following discharge of the patient, the room/bed should have a terminal clean carried out prior to the next patient being admitted.
- **Visitors:** Staff should instruct visitors to perform diligent hand hygiene with ABHR or soap and water before and after patient visit. Assist visitors to wear PPE as well as a non-fitted N95 respirator if they want one (instead of a surgical mask). Gown and gloves are not required. For the latest Ministry of Health visitation policy, refer the [BCCDC’s Overview of Visitors in Acute Care](#).
- **Patient Transport:** When the patient is required to leave the room for diagnostic or rehabilitative purposes:
 - Notify receiving department prior to transport of the precautions in place.
 - Assist the patient to wear a medical mask and encourage hand hygiene upon return to the unit.

Management of Susceptible Contacts

Patients who have had a high risk exposure to COVID-19 should be maintained on Airborne, Droplet and Contact Precautions for 5 days from the date of last exposure with testing as per instructions in [Appendix B](#). For all exposed patients, complete the COVID-19 Symptom Assessment once a shift and record results under I-View. Exposed patients can be placed in a private room, cohorted with other exposed patients from the same exposure event, or cohorted with Green Plus patients (see Table 2 above). Temporary AHUs can be installed which provide additional air filtration. If a high risk exposure patient tests positive, they must be moved to a private room or airborne infection isolation room (AIIR).

COVID-19 Outbreaks

For preliminary guidance for prevention, detection and management viral respiratory infections, including COVID-19, refer to the [Influenza-Like Illness or Viral Respiratory Infections Cluster or Outbreak Management protocol](#).

COVID-19 Testing

- **PCR Testing:** PCR tests detect COVID-19 RNA. A PCR test should be ordered for any patient with symptoms compatible with COVID-19.
 - Nasopharyngeal (NP) swabs are the preferred specimen type for COVID-19 diagnosis. In certain cases (e.g., patients who are unable or unwilling to do an NP swab) alternate specimen types, such as saline gargle testing, may be ordered.
 - COVID-19-like symptoms are generally non-specific and, when appropriate, testing for other viral respiratory infections may need to be considered.
 - Refer to SHOP for details on specimen collection:
 - NP swabs: [Influenza-Like Illness \(ILI\) – Specimen Collection: Nasopharyngeal Swabs \(NPS\)](#)
 - Saline gargle and other specimen types: [COVID-19 PCR Testing: Collection of Alternate Samples](#)
- **Interpreting PCR Results:** See [Appendix A](#) for interpreting PCR results and assigning COVID-19 colours.
 - **Positive:** viral RNA is detected by PCR and this means the patient is confirmed for COVID-19 virus. However, a positive result does **not** necessarily mean patient has an active infection. Viral RNA can be detected by PCR platforms for up to 12 weeks post-infection; interpret results in correlation with patient's symptoms and clinical status and history of recent infection.



- **Negative:** viral RNA is not detected by PCR. However, a negative result does not totally rule out an incubating infection. Given the incubation period of COVID-19, it may take days before the virus becomes detectable on PCR after exposure.
- **Indeterminate:** viral RNA concentration is very low *or* sample is of poor quality. When clinically relevant, indeterminate samples should be investigated further, as they can indicate an old, resolved infection or a new infection during the incubation period:
 - In patients with a history of recent COVID-19 illness, repeat testing is not necessary.
 - In patients with no known history of COVID-19, repeat sample should be collected at least 12 hours from the initial sample.
- **Rapid Antigen Testing:** RATs detect the viral proteins found on the surface of the SARS-CoV-2 virus. RATs are less sensitive than PCR tests, but can detect current viral shedding and can assist in determining best bed placement while PCR results are pending.
 - RATs may be used as a marker of infectivity/viral shedding to determine if a patient is currently infectious.
 - For any symptomatic patient, a PCR test is required even if a RAT is negative.
 - For any positive RAT, a second RAT must be done for confirmation before moving patient to a shared room with other COVID-19 patients. Patients testing positive on a RAT require a PCR as well.
 - See [IPAC web page](#) for instructions on collecting RATs.
- **Interpreting Rapid Antigen Test Results**
 - **Positive:** The presence of the test line (T) and control line (C) within the result window indicates RAT is positive. The presence of any test line (T), no matter how faint, should be interpreted as positive. All positive RATs need to be confirmed by performing a second RAT and collecting a PCR specimen.
 - **Negative:** The presence of only the control line (C), and no test line (T) indicates a negative result. There is still the chance of an infection if the concentration of antigens in the sample is too low to be detected by the RAT. If performing RAT due to symptoms, proceed with collecting a PCR specimen.
 - **Invalid:** No lines or only a test line (T) and no control line (C) mean the results are invalid. Review the procedure and repeat the test with a new kit.

Prevention and Treatment

- Patients should be offered COVID-19 vaccination when eligible to prevent severe illness.
- For the latest treatment guidelines for healthcare professionals, please refer to [BCCDC treatment resources](#).

Transfer/Discharge Planning

- Before discharge from hospital, notify the receiving unit/facility, nursing home or community agency involved in the patient's care of their COVID-19 status and precautions in place.
- Patients who have tested positive for COVID-19 or had an exposure in the hospital may be discharged to the community and advised to follow Public Health guidelines. Refer to the [BCCDC isolation guidelines](#).

Related Documents

- [B-00-07-13028](#) - Airborne Precautions - Infection Control
- [B-00-07-13079](#) - Droplet and Contact Precautions - Infection Control
- [B-00-07-13017](#) - Influenza-Like Illness (ILI) – Specimen Collection: Nasopharyngeal Swabs (NPS)
- [B-00-12-13001](#) - COVID-19 PCR Testing: Collection of Alternative Samples
- [B-00-13-13001](#) - Influenza-Like Illness or Viral Respiratory Infections Cluster or Outbreak Management Protocol

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Definitions

“Airborne Infection Isolation Rooms (AIIR)” are single-occupancy, negative pressure rooms specifically designed to safely accommodate patients with active respiratory infections requiring Airborne or Airborne and Contact Precautions.

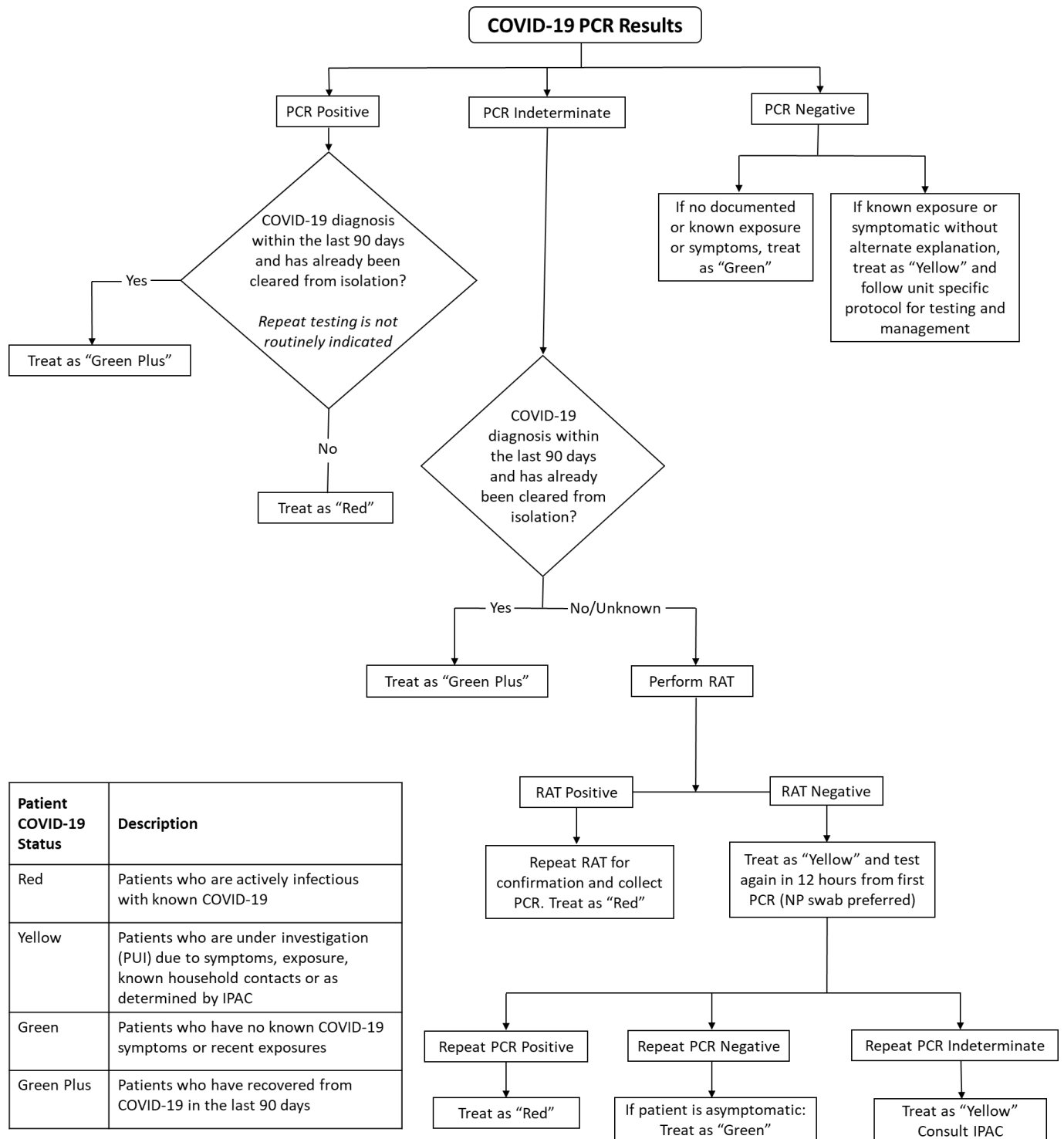
“Cohorting” refers to the practice of placing patients who have the same infection or colonization (but no other infections) in the same shared room.

“Direct care” includes providing hands-on care, such as bathing, washing, turning the patient, changing clothing, continence care, dressing changes, care of open wounds/lesions or toileting. Feeding and pushing a wheelchair are not classified as direct care.

“Fomite” is an object (such as a dish, doorknob, or article of clothing) that may be contaminated with infectious agents (such as bacteria or viruses) and serve in their transmission.

“Immunocompromised” patients are those on chemotherapy for cancer; within one year of hematopoietic stem cell or solid organ transplant; untreated HIV infection with CD4 T lymphocyte count less than 200 cells/mm³ ; combined primary immunodeficiency disorder; on prednisone more than 20 mg/day for more than 14 days; on immunosuppressive biologics such as mycophenolate, sirolimus, cyclosporine, tacrolimus, etanercept or rituximab.

Appendix A: Interpretation of PCR Results



Appendix B: Contact Management of Exposed Patients

Description of Exposure	Precautions and Recommendations
Patient shared a room with a laboratory-confirmed COVID-19 patient who was in their infectious period	<ol style="list-style-type: none"> 1. Place exposed patients on Airborne, Droplet and Contact precautions. 2. Perform a RAT for exposed patients on Day 0 and Day 5 post-exposure. Collect a PCR specimen at any point the patient becomes symptomatic. 3. Complete the COVID-19 Symptom Assessment once a shift for 5 days post-exposure and record results in I-View. 4. Consult with IPAC to determine if additional measures are required or if the above recommendations should be modified.
Patient was exposed to a COVID-19 case in their household or another facility within 5 days prior to admission	<ol style="list-style-type: none"> 1. Place patient on Airborne, Droplet and Contact precautions. 2. Perform a RAT on admission and Day 5 post-exposure. Collect a PCR specimen at any point the patient becomes symptomatic. 3. Complete the COVID-19 Symptom Assessment once a shift for 5 days post-exposure and record results in I-View. 4. Consult with IPAC to determine if additional measures are required or if the above recommendations should be modified.
Patient was exposed to visitor who has tested positive for COVID-19	<ol style="list-style-type: none"> 1. Determine when the last exposure occurred: <ul style="list-style-type: none"> • If visitor saw the patient more than 5 days ago, no action required. Continue normal COVID-19 screening and standard precautions. • If visitor saw the patient in the last 48 hours prior to testing positive: <ol style="list-style-type: none"> i. Place patient on Airborne, Droplet and Contact precautions for 5 days from the last exposure. ii. Perform a RAT on day exposure identified and Day 5 post-exposure. Collect a PCR specimen at any point the patient becomes symptomatic. iii. Complete the COVID-19 Symptom Assessment once a shift for 5 days post-exposure and record results in I-View. iv. Consult with IPAC to determine if additional measures are required or if the above recommendations should be modified.

First Released Date:	16-MAR-2023
Posted Date:	26-FEB-2024
Last Revised:	26-FEB-2024
Last Reviewed:	26-FEB-2024
Approved By: <i>(committee or position)</i>	PHC
	IPAC Standards Committee
Owners: <i>(optional)</i>	PHC
	IPAC