Infection prevention and control for coronavirus disease (COVID-19): Interim guidance for acute healthcare settings

Table of Contents

Introduction

The Public Health Agency of Canada (the Agency) develops infection prevention and control (IPC) guidelines to provide evidence-based recommendations to complement provincial/territorial public health efforts in monitoring, preventing, and controlling healthcare-associated infections.

This is the preliminary edition of IPC guidance on the coronavirus disease (COVID-19) that was first identified in Wuhan, China.

The intended use of this document, infection prevention and control for coronavirus disease (COVID-19): interim guidance for acute healthcare settings, is to provide interim IPC guidance to healthcare organizations and healthcare workers (HCW) for management of people with fever and/or cough presenting to acute healthcare settings in Canada, who, within 14 days before onset of illness, have:

- travelled to an affected area; or
- been in close contact with a probable or confirmed case of COVID-19; or
- been in close contact with someone who has signs and symptoms of acute respiratory illness and who has travelled to an affected area within 14 days prior to their onset of illness; or
- had laboratory exposure to biological material known to contain severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

This interim guidance is based upon Canadian guidance developed for previous coronavirus outbreaks (e.g. MERS and SARS), as well as interim guidance for COVID-19 published by the World Health Organization (WHO). It has been informed by technical advice provided by members of the Agency's National Advisory Committee on Infection Prevention and Control (NAC-IPC).

This guidance has been developed for Canadian healthcare settings and HCWs and may differ from guidance developed by other countries. It should be read in conjunction with relevant provincial, territorial and local legislation, regulations, and policies.

This guidance is informed by currently available scientific evidence and expert opinion, and is subject to change as new information on transmissibility and epidemiology becomes available.

Infection Prevention and Control Measures at a Glance

In the absence of effective drugs or vaccines, Infection Prevention and Control (IPC) strategies to prevent or limit transmission of COVID-19 in healthcare facilities include:

- Prompt identification of individuals with signs and symptoms and exposure criteria consistent with COVID-19;
- Institution of appropriate infection prevention and control (IPC) measures (e.g., contact and droplet precautions, patient isolation); and
- Determination of the etiologic diagnosis.

Early Recognition and Source Control

To facilitate early recognition and source control:

- Signage should be posted to instruct patients to alert HCWs of any signs and symptoms of acute respiratory illness, thus prompting completion of a patient screening questionnaire.
- Triage for identification and appropriate placement (e.g., isolation) of patients.
- Masks, tissues and alcohol-based hand rubs (AHBR) should be available at entrances.

If a person presents with fever and/or cough and within 14 days prior to the onset of illness, has a) traveled to an affected area; or b) been in close contact with a probable or confirmed case of COVID-19; or c) been in close contact with someone who has signs and symptoms of acute respiratory illness and who has travelled to an affected area within 14 days prior to their onset of illness; or d) had laboratory exposure to biological material known to contain SARS-CoV-2:

- Place the patient in a designated separate waiting area or space; do not cohort with other patients;
- Ask the patient and any accompanying individual(s) to put on a surgical/procedural mask (if possible);
- Encourage the patient to perform respiratory hygiene/cough etiquette, and provide surgical/procedural masks, tissues, alcohol-based hand rub and a waste receptacle; and
- Limit visitors to only those who are essential.

Application of Routine Practices and Additional Precautions

In addition to **Routine Practices**, HCWs at risk of exposure to an individual presenting with signs and symptoms and exposure criteria consistent with COVID-19 should follow **Contact and Droplet precautions.**

This includes the appropriate selection and use of personal protective equipment:

- Gloves; AND
- Gown; AND
- Facial protection: Surgical/procedural mask and eye protection, or face shield, or surgical/procedural mask with visor attachment.
- An N95 respirator (plus eye protection) when performing aerosol-generating medical procedures (AGMPs) on a person under investigation (PUI) for COVID-19.

Hand hygiene should be performed whenever indicated, paying particularly attention to during and after removal of PPE, and after leaving the patient care environment.

Refer to *Recommended Infection Prevention and Control Measures*, sections 1 to 18, for details.

For more information, HCWs can refer to the Agency's guidelines on *Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings* and *Infection Prevention and Control Guidance for Middle East Respiratory Syndrome Coronavirus (MERS-CoV) in Acute Care Settings*.

Background

On December 31, 2019 a cluster of cases of pneumonia of unknown origin was reported from Wuhan, Hubei Province in China. Many of these initial cases were reported to have exposure to a live animal market. Early laboratory investigations of these cases ruled out a number of respiratory pathogens, including human and avian influenza viruses, SARS coronavirus, and MERS coronavirus.

On January 10, 2020, a novel coronavirus, now referred to as SARS-CoV-2 was identified as the cause of the outbreak of pneumonia. Publication of the genetic sequencing of the SARS-CoV-2 has enabled the development of laboratory tests to specifically identify the virus.

The outbreak has since spread beyond the city of Wuhan, with laboratory-confirmed cases identified in multiple municipalities and provinces within China. Cases have also been confirmed outside of mainland China.

Although the initial cases were associated with exposure to a live animal market, suggesting a zoonotic (animal) source of infection, human-to-human transmission has since been documented, including to healthcare workers (HCWs).

The situation is evolving. Significant additional information is required to fully understand the cause of the outbreak, the virus' transmission dynamics, and the severity of illness in humans.

Recommended Infection Prevention and Control measures

Healthcare organizations minimize the risk of exposure to, and transmission of microorganisms within, healthcare settings by utilizing engineering controls (workplace design), administrative controls (IPC policies, procedures and programs), and the use of personal protective equipment (PPE).

1. Screening and Assessment

Signage to direct patients with signs and symptoms of COVID-19 (e.g., fever, cough, difficulty breathing) should be posted at entrances and triage/reception areas. The specific signs and symptoms should be clearly listed.

A physical barrier (e.g., partition at triage/reception desk) should be located between patients with signs and symptoms of acute respiratory illness and HCWs involved in initial screening and assessment.

Patients with fever (over 38 degrees Celsius) and/or new onset of (or exacerbation of chronic) cough presenting to triage/reception should be asked about:

1. Travel to an affected area within 14 days before the onset of their illness;
2. Close contact with a probable or confirmed case of COVID-19 within 14 days before the onset of their illness;
3. Close contact with a person with acute respiratory illness who has been to an affected area within 14 days prior to onset of their illness;
4. Laboratory exposure to biological material (e.g., primary clinical specimens, virus culture isolates) known to contain SARS-CoV-2.

Patients presenting with signs and symptoms and exposure criteria consistent with COVID-19 should be assessed in a timely manner and placed on contact and droplet precautions immediately. If aerosol-generating medical procedures are needed emergently, all HCWs should wear an N95 respirator (and eye protection).

Accompanying individuals should be screened for signs and symptoms of acute respiratory illness, referred for medical assessment where appropriate, and managed as per this document. If the accompanying individuals are asymptomatic, contact information should be collected so that local public health authorities can follow-up with them should the ill patient becomes a probable or confirmed case.

2. Public Health Surveillance and Notification

Provincial and territorial public health authorities should report probable and confirmed cases of COVID-19 nationally within 24 hours of notification in their own jurisdiction.

At this time, the primary surveillance objective for the COVID-19 outbreak is early detection and containment. The secondary objective is to characterize the clinical and epidemiologic features of COVID-19 in order

to better inform prevention and control efforts.

3. Laboratory Testing and Reporting

All specimens collected for laboratory investigations should be regarded as potentially infectious. Clinical specimens should be collected and transported in accordance with organizational policies and procedures. For proper laboratory biosafety procedures when handling samples from persons under investigation for COVID-19, refer to the Agency's biosafety advisory.

4. Immunization

No vaccine is available at this time.

5. Respiratory Hygiene / Cough Etiquette

Respiratory hygiene/cough etiquette should be encouraged for patients who have signs and symptoms and exposure criteria consistent with COVID-19, beginning with signage at the point of initial encounter in any healthcare setting (e.g., facility entrances, triage in Emergency Departments, reception areas in ambulatory clinics).

Respiratory hygiene/cough etiquette includes wearing a mask (surgical or procedural), and using tissues for coughing, sneezing and controlling nasal secretions, with immediate disposal of tissues into an appropriate receptacle, followed by hand hygiene.

6. Hand Hygiene

HCWs and visitors should perform hand hygiene whenever indicated, preferably using an ABHR (60-90%), or plain soap and water if hands are visibly soiled.

7. Patient Placement and Accommodation

A patient with signs and symptoms and exposure criteria consistent with COVID-19 should be cared for in a single room with a private toilet and sink for designated patient use. Infection prevention and control signage should be placed at the entrance to the room (or designated bed space if a private room is unavailable) to indicate contact and droplet precautions are required for all people upon entry.

If cohorting is necessary, only patients who are confirmed to have COVID-19 should be cohorted. Patients with signs and symptoms and exposure criteria consistent with COVID-19 should maintain at least a two-metre separation between all other patients and/or visitors.

If AGMPs are to be performed, the patient should be placed in an airborne infection isolation room (AIIR) with negative pressure ventilation.

8. Management of Visitors

The number of visitors should be minimized to those who are essential (e.g., immediate family member or parent, guardian, or primary caregiver), and limit their movement within the facility by visiting the patient directly and exiting the facility directly after their visit.

Visitors should be screened and managed if they have signs and symptoms and exposure criteria consistent with COVID-19.

Visitors should be instructed to speak with a nurse or physician before entering the room of a patient on contact and droplet precautions for COVID-19 to assess the risk to the visitor's health and ability to adhere to routine practices and additional precautions. They should be provided with instructions on and supervision with appropriate use of PPE for contact and droplet precautions, namely wearing a mask (surgical or procedural).

Visitation policies should be developed and implemented to balance the risk of infectious disease transmission and the promotion of patient and family-centered care.

9. Patient Flow and Activities

Patients with signs and symptoms and exposure criteria consistent with COVID-19 should be restricted to their room and should not participate in group activities until their symptoms have resolved. Patient movement and/or transport should be restricted to essential diagnostic tests and therapeutic treatments. **Transfer within and between facilities should be avoided unless medically indicated**, as this may place additional HCWs and patients at risk.

If patients need to leave their room, they should: be accompanied by a HCW; wear a mask (surgical or procedural); be instructed on respiratory hygiene; perform hand hygiene (with assistance as necessary); and be provided with clean bedclothes and bedding before leaving their room.

Contact and droplet precautions should be maintained by HCWs during patient transport, and isolation recommendations communicated to the transferring service and receiving unit ahead of transfer.

10. Selection and Use of Personal Protective Equipment (PPE)

PPE should be available outside the patient's room for use by HCWs and visitors (including family members) prior to entering the patient's room.

In addition to routine practices, the following PPE for contact and droplet precautions should be used:

- Gloves and a gown should be worn upon entering the patient’s room;
- Facial protection (mask and eye protection, or face shield, or mask with visor attachment) should be used when within two metres of the patient;

- A fit-tested N95 respirator (including eye protection) should be used by all HCWs in the patient's room when AGMPs are being performed on a person under investigation for COVID-19.

All PPE, except the N95 respirator (if used for an AGMP), should be removed **before** leaving the patient's room and discarded into a no-touch receptacle. The N95 respirator (if used) should be removed **after** leaving the patient's room and discarded into a no-touch waste receptacle.

Hand hygiene should be performed after removing gloves and gown, before removing facial protection, and upon exiting the patient's room and removing the N95 respirator (if used).

11. Aerosol-Generating Medical Procedures

Aerosol-generating medical procedures (AGMPs) are medical procedures that can generate aerosols as a result of artificial manipulation of a person's airway. AGMPs should only be performed on patients with signs and symptoms and exposure criteria consistent with COVID-19 if medically necessary. Strategies to reduce aerosol generation should be applied, and the number of HCWs present during an AGMP should be limited to those essential for patient care and support.

An N95 respirator and facial protection are recommended for all HCWs present in a room where an AGMP is being performed on a patient with signs and symptoms and exposure criteria consistent with COVID-19.

AGMPs should be performed in an AIIR whenever feasible. If AIIRs are unavailable, AGMPs should be carried out using a process and environment that minimizes the exposure risk for HCWs, ensuring that patients, visitors, and others in the healthcare setting are not exposed to SARS-CoV-2 (e.g., single room with door closed and away from high-risk patients).

12. Patient Care Equipment

All reusable equipment and supplies, along with toys, electronic games, personal belongings, etc. should be dedicated to the use of the patient with signs and symptoms and exposure criteria consistent with COVID-19. If use with other patients is necessary, the equipment and supplies should be cleaned and low-level disinfected before reuse. Items that cannot be appropriately cleaned and disinfected should be discarded upon patient transfer or discharge. Single-use disposable equipment should be discarded into a no-touch waste receptacle after use.

13. Environmental Cleaning

Increased frequency of cleaning high-touch surfaces is significant in controlling the spread of microorganisms during a respiratory infection outbreak. Environmental cleaning products registered in Canada with a Drug Identification Number (DIN) and labelled as a broad-spectrum virucide are sufficient for SARS-CoV-2. All surfaces, especially those that are horizontal and frequently touched, should be cleaned at least twice daily and when soiled. The healthcare organization's terminal cleaning protocol for cleaning of the patient's room after discharge, transfer, or discontinuation of contact and droplet precautions should be followed.

14. Handling Linen, Dishes and Cutlery

No special precautions are recommended; routine practices are sufficient.

15. Waste Management

No special precautions are recommended; routine practices are sufficient.

16. Discontinuing Additional Precautions

The duration and discontinuation of precautions should be determined on a case-by-case basis, in consultation with the infection prevention and control program, and in accordance with provincial and territorial guidance.

17. Handling Deceased Bodies

Routine practices, along with additional precautions should be used for handling deceased bodies, preparing bodies for autopsy, and transferring bodies to mortuary services.

18. Management of HCW Exposure within the Healthcare Setting

The organization's Occupational Health Service professional(s), attending physicians (including infectious diseases specialists), and infection control professional(s) should work collaboratively with public health authorities to manage exposed HCWs.

Bibliography

- Public Health Agency of Canada. Hand Hygiene Practices in Healthcare Settings (2012). https://www.canada.ca/en/public-health/services/infectious-diseases/nosocomial-occupational-infections/hand-hygiene-practices-healthcare-settings.html
- Public Health Agency of Canada. Infection Prevention and Control Guidance for Middle East Respiratory Syndrome Coronavirus (MERS-CoV) in Acute Care Settings (2018). https://www.canada.ca/en/public-health/services/publications/diseases-conditions/infection-prevention-control-guidance-middle-east-respiratory-syndrome-coronavirus-mers-cov-acute-care-settings.html

- Public Health Agency of Canada. Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings (2013). https://www.canada.ca/en/public-health/services/infectious-diseases/nosocomial-occupational-infections/routine-practices-additional-precautions-preventing-transmission-infection-healthcare-settings.html
- Public Health England. Wuhan novel coronavirus (WN-CoV) infection prevention and control guidance (Updated 15 January 2020). https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control
- World Health Organization. Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected, Interim guidance (13 January 2020). https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-(ncov)-infection-is-suspected

Acknowledgments

The National Advisory Committee on Infection Prevention and Control (NAC-IPC) is an external advisory body that provides subject matter expertise and advice to the Public Health Agency of Canada (the Agency) on the prevention and control of infectious diseases in Canadian health care settings.

The following individuals formed the NAC-IPC and their affiliations were current at the time this document was developed (participation in the NAC-IPC does not constitute endorsement by affiliated organizations):

Joanne Embree, BSc MD MSc FRCPC (Chair)
Pediatric Infection Disease Specialist, Winnipeg Regional Health Authority
Professor, University of Manitoba

Winnipeg, Manitoba

Jennie Johnstone, MD PhD FRCPC (Vice-Chair)
IPC Physician
Public Health Ontario
Toronto, Ontario

Molly Blake, RN BN MHS GNC(C) CIC
Program Director, Infection Prevention & Control Program, Winnipeg Regional Health Authority
Winnipeg, Manitoba

Maureen Cividino, MD CCFP BScN FCFP DOHS CCBOM CIC
Occupational Physician, St Joseph's Healthcare
Hamilton, Ontario
IPAC Physician, Public Health Ontario

Nan Cleator, RN CCHN(c) CVAA(c)
National Practice Consultant, Practice Quality & Risk Team, Victorian Order of Nurses (VON) Canada
Bracebridge, Ontario

Matthew P. Muller, BSc MD PhD FRCPC
Assistant Professor, University of Toronto
Associate Medical Director, Infection Prevention & Control, St. Michael's Hospital
Toronto, Ontario

Patsy Rawding, RN BScN CIC
Health Services Manager Infection Prevention & Control, Central and Western Zone
Halifax, Nova Scotia

Suzanne Rhodenizer Rose, RN BScN MHS CIC
Director, Clinical Planning QEII Redevelopment, Nova Scotia Health Authority

Halifax, Nova Scotia

Patrice Savard, MD MSc FRCPC
Associate Professor (clinical), University of Montreal
Medical microbiologist and infectiologist
Director, Infection Prevention Unit CHUM
Montreal, Quebec

Stephanie Smith, MD, MSc (Epi), FRCPC
Associate Professor, Division of Infectious Diseases, Department of Medicine, University of Alberta
Director, Infection Prevention and Control, University of Alberta
Edmonton, Alberta

Date modified:
2020-02-24