

Ontario Public Health Standards:
Requirements for Programs, Services and Accountability

Infectious Diseases Protocol

Appendix 1: Case Definitions and Disease- Specific Information

Disease: Respiratory Infection Outbreaks in Institutions and Public Hospitals

Effective: September 2024

Respiratory Infection Outbreaks in Institutions and Public Hospitals

Communicable

Virulent

[Health Protection and Promotion Act \(HPPA\)](#)¹

[Ontario Regulation \(O. Reg.\) 135/18 \(Designation of Diseases\)](#)²

Provincial Reporting Requirements

Confirmed case

Probable case

As per Requirement #3 of the “Reporting of Infectious Diseases” section of the [Infectious Diseases Protocol, 2023](#) (or as current), the minimum data elements to be reported for each case are specified in the following: ³

- [O. Reg. 569](#) (Reports) under the HPPA;⁴
- The [iPHIS User Guides](#) published by Public Health Ontario (PHO); and
- Bulletins and directives issued by PHO.

Type of Surveillance

Outbreak summary data.

Case Definition

Confirmed Respiratory Infection Outbreak Definition

- Two or more patient/resident cases^a of test-confirmed^b acute respiratory infections (ARI) with symptom onset within 48 hours^c and an epidemiological link (e.g. same unit/floor/service area) suggestive of transmission within the setting.

OR

- Three or more patient/resident cases^a of ARI with symptom onset within 48 hours and an epidemiological link suggestive of transmission within the setting AND testing is not available or all negative^d.

Suspect Respiratory Infection Outbreak Definition

- Two patient/resident cases^a of ARI with symptom onset within 48 hours with an epidemiological link (e.g. same unit/floor/service area) suggestive of transmission in the setting AND testing is not available or all negative^d.

^a At least two cases are patient/resident cases. Staff cases may be part of an outbreak, but declaration of an outbreak should not be based on staff only cases due to challenges in ascertaining staff acquisition. At least two resident/patient cases are institution/hospital acquired cases which refers to infections that are likely to have been acquired in the setting and were not present or incubating at the time of admission. This includes acquisition by exposure to infected visitors/staff.

^b Test confirmation is preferentially through PCR testing but may also include rapid molecular or rapid antigen testing. All cases within the outbreak that are tested should have the same causative organism identified.

^c The timeframe between the symptom onset of the two or more cases should take into consideration the usual incubation period of the identified causative pathogen. Outbreaks may still be declared by the public health unit if the time between symptom onset is more than 48 hours (e.g., viruses with longer incubation periods, See Table 1 for pathogen specific usual incubation periods).

^d In situations where laboratory testing is not available, or where all laboratory is all negative (i.e., outbreak illness is likely due to an untested pathogen), outbreak declaration should not be delayed when there are three or more cases within a 48-hour period. If fulsome testing/investigation has been conducted and no pathogen has been identified the outbreak management team may determine no outbreak exists or declare it over if an outbreak has been declared.

Outbreak Case Definition

The outbreak case definition varies with the outbreak under investigation. Please refer to the [Infectious Diseases Protocol, 2023](#) (or as current) for guidance in developing an outbreak case definition as needed.³ The outbreak case definitions are established to reflect the disease and circumstances of the outbreak under investigation. The outbreak case definitions should be developed for each individual outbreak based on its characteristics, reviewed during the course of the outbreak, and modified if necessary, to ensure that the majority of cases are captured by the definition. The case definitions should be created in consideration of the outbreak definitions.

Outbreak cases may be classified by levels of probability (i.e., confirmed and/or probable).

For further information on for respiratory infection outbreaks in institutions, please refer to: [Recommendations for Outbreak Prevention and Control in Institutions and Congregate Living Settings, 2024](#).⁵

Clinical Information

Clinical Evidence

An **Acute Respiratory Infection (ARI)** is defined as any new onset ARI that could potentially be spread through the droplet route (either upper or lower respiratory tract), which presents with:

- Symptoms of a new or worsening cough or shortness of breath and;
- Often fever (also known as febrile respiratory illness, or FRI)
- It should be noted that elderly people and people who are immunocompromised may not have a febrile response to a respiratory infection.

Clinical Presentation

See Clinical Evidence above and refer to [Recommendations for Outbreak Prevention and Control in Institutions and Congregate Living Settings, 2024](#) (or as current).⁵

Laboratory Evidence

Laboratory Confirmation

Laboratory confirmation is not required to be classified as a confirmed institutional or public hospital respiratory infection outbreak.

Approved/Validated Tests

- Standard or rapid (shell vial) culture for respiratory viruses;
- Nucleic acid amplification test (NAAT) for respiratory viruses; and
- Rapid enzyme immunoassay (EIA) or immunochromatographic test (ICT) kits for respiratory viruses, such as COVID-19, influenza virus and respiratory syncytial virus (RSV).

Indications and Limitations

- If further laboratory support is required please contact Public Health Ontario Laboratories.

For further information about human diagnostic testing, contact the [Public Health Ontario Laboratories](#).

Case Management

In addition to the requirements set out in the Requirement #2 of the “Management of Infectious Diseases – Sporadic Cases” and “Investigation and Management of Infectious Diseases Outbreaks” sections of the [Infectious Diseases Protocol, 2023](#) (or as current), the board of health shall investigate cases to determine the source of infection.³ Refer to Provincial Reporting Requirements above for relevant data to be collected during case investigation.

The board of health should also refer to recommendations included in the [Recommendations for Outbreak Prevention and Control in Institutions and Congregate Living Settings, 2024](#) (or as current).⁵

If the outbreak is caused by a specific disease of public health significance, refer also to the appendix for that disease.

Contact Management

Contacts are managed as part of the outbreak as per *the Infectious Diseases Protocol, 2018* (or as current) and recommendations included in the [Recommendations for Outbreak Prevention and Control in Institutions and Congregate Living Settings, 2024](#) (or as current).⁵

Outbreak Management

Please see the [Infectious Diseases Protocol, 2023](#) (or as current) for the public health management of outbreaks or clusters in order to identify the source of illness, manage the outbreak and limit secondary spread.³

The most important control measure to prevent serious morbidity and mortality from seasonal influenza epidemics is annual immunization.

The most important control measure to prevent serious morbidity and mortality from COVID-19 outbreaks is staying up-to-date on recommended immunizations.

Further recommendations for outbreak management is outlined in [Recommendations for Outbreak Prevention and Control in Institutions and Congregate Living Settings, 2024](#) as well as the [Institutional/Facility Outbreak Management Protocol, 2023](#) (or as current).^{5,6}

Prevention and Control Measures

Personal Prevention Measures

For this section refer also to the [Institutional/Facility Outbreak Management Protocol, 2023](#) (or as current) and to [Recommendations for Outbreak Prevention and Control in Institutions and Congregate Living Settings, 2024](#) (or as current).^{6,5}

Infection Prevention and Control Strategies

Refer to [PHO's IPAC webpage](#) to find the most up-to-date information on Infection Prevention and Control (IPAC).

Disease Characteristics

Aetiologic Agent - Respiratory infection outbreaks in institutions and public hospitals are caused by a variety of respiratory viruses such as COVID-19, influenza A and B, respiratory syncytial virus (RSV), parainfluenza, rhinovirus, human metapneumovirus, seasonal coronaviruses, enterovirus and adenovirus. Bacteria that occasionally cause respiratory outbreaks in institutions are *Chlamydophila pneumoniae*, *Legionella spp.* and *Mycoplasma pneumoniae* (Atypical Pneumonia).

Modes of Transmission - Person to person; droplet transmission as well as contact with fomites may also occur depending on causative agent.

Incubation Period – Varies, depending on the causative agent.

Period of Communicability - Varies, depending on the causative agent.

Reservoir - Humans.

Host Susceptibility and Resistance - All persons are susceptible; however susceptibility is greater in the very young and the institutionalized elderly. Vaccination, if available for a given aetiologic agent (e.g., influenza, COVID-19), can provide some protection from infection and severe disease.

Please refer to PHO's [Ontario Respiratory Virus Tool](#) and other infectious diseases reports for more information on disease trends in Ontario.⁷

For additional national and international epidemiological information, please refer to the Public Health Agency of Canada and the World Health Organization.

Comments

- Different respiratory viruses often cause similar acute respiratory symptoms. Each respiratory infection outbreak requires its own case definition. The case definition should be developed for each individual outbreak based on its characteristics, reviewed during the course of the outbreak, and modified if necessary, to ensure that the majority of cases are captured by the definition. For more information, please consult Investigation and Management of Infectious Diseases Outbreaks in the [Infectious Diseases Protocol, 2023](#) (or as current) and the [Institutional/Facility Outbreak Management Protocol, 2023](#) (or as current).^{3,6}
- An **epidemiological link** can refer to, but is not limited to, common unit/floor, common staff, shared activities or dining area, common visitors etc., where there is evidence of transmission within the unit or site.
 - Cases are not epidemiologically linked if they have different causative organisms identified.
 - In the instance of cases with an epidemiological link but where one case is test positive and the other case tests negative, the outbreak investigator has the discretion whether to consider them part of the same outbreak depending on the circumstances and information available (e.g. timing of sample collection, sample quality, strength of epidemiological linkage, etc).
- For public hospitals, cases refer to **health care-associated cases**. Health care-associated refers to an infection that is acquired during the delivery of health care that was not present or incubating at the time of admission. It also includes such infections among staff. (Also known as nosocomial infection).
- Declaration of an outbreak can be made by either the institution/health facility or the medical officer of health (MOH).

- In the event of a disagreement between the institution and the MOH, the MOH has the authority to determine if an outbreak of a communicable disease exists, for purposes of exercising statutory powers under the HPPA. Once an outbreak is declared, it is reported to the Ministry of Health (ministry) through the integrated Public Health Information System (iPHIS) or any other method specified by the ministry.
- The board of health shall declare whether an outbreak is over, in consultation with the institution/facility. Rationale for declaring or not declaring an outbreak and declaring an outbreak over should be documented.
- Issuing a media release to the public is the responsibility of the institution or health facility. Should there be a public health risk to the general population, a joint media alert may be issued, or the board of health may issue an alert on behalf of the institution or health facility with their knowledge.

Table 1: Overview of Incubation Periods for Acute Respiratory Infection⁸

Outbreak Organism	Usual Incubation Period
Influenza A&B	1-4 days
RSV	3-7 days
Parainfluenza	2-6 days
Rhinovirus/Enterovirus	2-4 days
Metapneumovirus	3-6 days
Adenovirus	4-8 days
Seasonal Coronavirus	2-5 days
SARS Cov-2	4-7 days

References

1. *Health Protection and Promotion Act*, RSO 1990, c H.7. Available from: <https://www.ontario.ca/laws/statute/90h07>
2. *Designation of Diseases*, O Reg 135/18. Available from: <https://www.ontario.ca/laws/regulation/180135>
3. Ontario. Ministry of Health. *Infectious diseases protocol*, 2023. Toronto, ON: King's Printer for Ontario; 2023. Available from: <https://files.ontario.ca/moh-infectious-disease-protocol-en-2023.pdf>
4. *Reports*, RRO 1990, Reg 569. Available from: <https://www.ontario.ca/laws/regulation/900569>
5. Ontario. Ministry of Health. *Recommendations for outbreak prevention and control in institutions and congregate living settings*. Toronto, ON: King's Printer for Ontario; 2024. Available from: <https://www.ontario.ca/page/ontario-public-health-standards-requirements-programs-services-and-accountability#section-4>
6. Ontario. Ministry of Health. *Institutional/facility outbreak management protocol*, 2023. Toronto, ON: King's Printer for Ontario; 2023. Available from: <https://files.ontario.ca/moh-institutional-facility-outbreak-management-protocol-en-2023.pdf>
7. Ontario Agency for Health Protection and Promotion (Public Health Ontario). *Ontario Respiratory Virus Tool* [Internet]. Toronto, ON: King's Printer for Ontario; 2023 [cited 2023 Sep 13]. Available from: <https://www.publichealthontario.ca/en/Data-and-Analysis/Infectious-Disease/Respiratory-Virus-Tool>
8. Ontario Agency for Health Protection and Promotion (Public Health Ontario), Provincial Infectious Diseases Advisory Committee on Infection Prevention and Control. *Best practices for the prevention of acute respiratory infection transmission in all health care settings*. Toronto, ON: King's Printer for Ontario; 2024.

Case Definition Sources

Ontario. Ministry of Health. Recommendations for Outbreak Prevention and Control in Institutions and Congregate Living Settings. Toronto, ON: Queen's Printer for Ontario; 2024. Available from: <https://www.ontario.ca/files/2024-10/moh-recommendations-for-outbreak-prevention-and-control-in-institutions-and-cls-en-2024-10-23.pdf>

Ontario Agency for Health Protection and Promotion (Public Health Ontario), Provincial Infectious Diseases Advisory Committee. Annex B: best practices for prevention of transmission of acute respiratory infection. Annexed to: Routine practices and additional precautions in all health care settings. Toronto, ON: Queen's Printer for Ontario; 2013. Available from: <https://www.publichealthontario.ca/-/media/documents/B/2012/bp-prevention-transmission-ari.pdf>

Ontario Agency for Health Protection and Promotion (Public Health Ontario), Provincial Infectious Diseases Advisory Committee. Best practices for prevention, surveillance and infection control management of novel respiratory infections in all health care settings [Internet]. 1st revision. Toronto, ON: Queen's Printer for Ontario; 2020 [cited 2023 Sep 13]. Available from: <https://www.publichealthontario.ca/-/media/documents/b/2020/bp-novel-respiratory-infections.pdf>

Document History

Revision Date	Document Section	Description of Revisions
April 2022	Entire Document	New template. Appendix A and B merged. No material content changes.
April 2022	Epidemiology: Occurrence section	Removed.
April 2022	ICD Codes	Removed.
August 2023	Entire document	Updated links.
September 2023	Case definition, clinical information	Updated ARI definition.
September 2024	Case definition, entire document	Updated ARI outbreak definition. Updated links throughout document.

