

AT A GLANCE

Key features of Influenza, SARS-CoV-2 and Other Common Respiratory Viruses

2nd Edition: January 2024

Introduction

This document provides a high-level overview of the key features of the following common respiratory viruses that may circulate in Ontario over the course of the respiratory virus season (fall to early spring):

- influenza
- SARS-CoV-2 (the virus that causes COVID-19)
- respiratory syncytial virus (RSV)
- rhinovirus

Signs and symptoms of illness caused by these respiratory viruses can be very similar and therefore illnesses caused by these viruses cannot be distinguished without laboratory testing. These four viruses, along with other viruses, can cause outbreaks in facilities (e.g. long-term care homes, retirement homes and congregate living settings) during the respiratory virus season. In some outbreaks, more than one virus may be identified, while in other outbreaks a causative virus may not be identified despite testing.

Information presented in this document reflects current available evidence related to respiratory viruses, including clarifying the language describing modes of transmission.

Methods

This report is a focused synthesis drawing on a limited selection of published guidance and literature. The websites of key public health agencies were scanned and links from the previous version of this document were updated. A literature search was conducted on the clinical characteristics of the Omicron variant using Ovid, Ovid MEDLINE and Embase. The search consisted of both relevant subject headings and keywords.

Table 1: Comparison of Key Features of Influenza, SARS-CoV-2, Respiratory Syncytial Virus (RSV) and Rhinovirus

Key Features	Seasonal Influenza	SARS-CoV-2 (COVID-19)	Respiratory Syncytial Virus (RSV)	Rhinovirus
<p>Most common signs and symptoms</p> <p>Note: Signs and symptoms of illness caused by these respiratory viruses can be very similar and therefore illnesses caused by these viruses cannot be distinguished without laboratory testing.</p>	<p>Sudden onset of fever, cough, chills, headache, fatigue, sore throat, runny or stuffy nose, muscle pain or body aches.^{1,2}</p> <p>Young children may experience nausea, vomiting and diarrhea in addition to respiratory symptoms.³</p> <p>Elderly and those who are immunosuppressed may not develop a fever.³</p>	<p>Fever, chills, sore or itchy throat, cough, headache, fatigue, muscle aches, runny nose.^{4,5,6,7}</p> <p>Other possible symptoms include new loss of taste and smell and gastrointestinal symptoms (nausea, vomiting, diarrhea).⁷</p>	<p>Young infants, particularly preterm infants, may present with lethargy, irritability, poor eating and/or apnea.^{1,9}</p> <p>Infants and young children most commonly experience upper respiratory tract symptoms,^{1,2,8} which may start with a runny nose^{1,8} and decreased appetite, followed by cough, fever and wheezing.⁸</p> <p>Adults usually have mild or no symptoms.⁸ Symptoms can include runny nose, sore throat, cough, headache, fatigue and fever.⁸ Some individuals, including older and/or frail adults and those with certain chronic conditions, may have more severe symptoms, such as pneumonia.⁸</p>	<p>Runny nose, sneezing, cough, sore throat, muscle pain, fatigue, no fever or mild fever.¹</p>

Key Features	Seasonal Influenza	SARS-CoV-2 (COVID-19)	Respiratory Syncytial Virus (RSV)	Rhinovirus
More severe manifestation/ complications	Pneumonia, worsening of underlying medical conditions, sepsis, cardiac involvement, neurologic involvement, death ^{1,2}	Similar to influenza with the addition of blood clots in lungs, heart, legs or brain ⁹ and multisystem inflammatory syndrome in children (MIS-C) ^{7,9} , or adults (MIS-A) and post COVID-19 condition (long COVID). ^{9,10}	Pneumonia, bronchiolitis, death ¹ Exacerbation of underlying conditions including asthma, chronic obstructive pulmonary disease, and congestive heart failure ⁸	Lower respiratory tract infection (pneumonia, bronchiolitis) in infants. ¹
Those at greater risk for complications	Children less than 2 years of age; older adults; underlying medical conditions, including immunocompromised; obesity; pregnancy ²	Older adults; underlying medical conditions, including immunocompromised; obesity, pregnancy ⁹	Children less than 2 years of age; premature infants; older adults; underlying medical conditions, including immunocompromised ^{1,2}	Young children; immunocompromised; respiratory conditions ¹
Strains	There are different strains of influenza A and influenza B. Small changes occur in the circulating influenza viruses each year. ¹	Mutations occur regularly. Variants^ may be classified as variant under monitoring (VUM), variant of interest (VOI), and variant of concern (VOC). ^{11,12}	Subgroups and genotypes ¹	Many serotypes ^{1,2}
Incubation period Time period from exposure to onset of symptoms	Ranges from 1 to 4 days ²	Ranges from 1 to 14 days, median 2 – 4 days for Omicron (median 4 – 7 days pre-Omicron) ⁷	Ranges from 2 to 8 days ¹	Ranges from 2 to 4 days ¹

Key Features	Seasonal Influenza	SARS-CoV-2 (COVID-19)	Respiratory Syncytial Virus (RSV)	Rhinovirus
Communicable Period^^ Time period when an infected person can be spread to others	From 1 day before until about 5 days after symptom onset (peaks 24 – 48 hours after symptom onset). ¹³	Can range from 2 – 3 days ⁹ before symptom onset to upwards of 14 days post-symptom onset. Most commonly 2 days before symptom onset to 3 – 5 days post-symptom onset. ¹⁴	Usual period of viral shedding is 3 to 8 days and can be up to 4 weeks in infants and those who are immunocompromised. ¹	Peaks 2 – 3 days after symptom onset and usually ceases by 7 to 10. ¹
How is the virus spread?	Primarily at short range via respiratory particles (through inhalation or contact with mucous membranes). ¹⁵ Transmission can also occur over longer distances by respiratory particles under certain conditions and by indirect transmission through fomites. ¹⁵	Primarily at short range via respiratory particles (through inhalation or contact with mucous membranes). ¹⁵ Transmission can also occur over longer distances by respiratory particles under certain conditions and by indirect transmission through fomites. ¹⁵	Primarily at short range via respiratory particles (through inhalation or contact with mucous membranes). ¹⁵ Transmission can also occur by indirect transmission through fomites. ¹⁵	Primarily at short range via respiratory particles (through inhalation or contact with mucous membranes). ¹⁵ Transmission can also occur by indirect transmission through fomites. ¹⁵
Spread before symptoms start	Yes, can spread from 24 hours before symptoms onset ^{9,16}	Yes, evidence to suggest up to 3 days before symptom onset ⁹	Uncertain, has not been well studied	Uncertain, has not been well studied
Spread while having no symptoms	Evidence of asymptomatic spread ¹⁶	Evidence of asymptomatic spread ¹⁷	Uncertain, has not been well studied	Uncertain, has not been well studied

Key Features	Seasonal Influenza	SARS-CoV-2 (COVID-19)	Respiratory Syncytial Virus (RSV)	Rhinovirus
<p>Type of Additional Precautions</p> <p>The type of Additional Precautions is informed by presenting signs and symptoms and, along with a point-of-care risk assessment, informs the personal protective equipment to be used.</p>	Droplet and Contact ^{18*}	Droplet and Contact ^{19*}	Droplet and Contact ^{18*}	Droplet and Contact ^{18*}
<p>Number of cases, hospitalizations, deaths</p>	Please see the Ontario Respiratory Virus Tool for information on number of cases, hospitalizations and deaths.	Please see the Ontario Respiratory Virus Tool for information on number of cases, hospitalizations and deaths.	Please see the Ontario Respiratory Virus Tool for information on number of cases, hospitalizations and deaths.	Please see the Ontario Respiratory Virus Tool for information on number of cases, hospitalizations and deaths.
<p>Vaccine</p>	Seasonal influenza vaccine available annually ¹³	Multiple COVID-19 vaccines are approved by Health Canada**	One RSV vaccine has been approved by Health Canada. ²⁰	No vaccine
<p>Prophylaxis</p>	Antiviral medication may be considered for prophylaxis in outbreaks in closed settings, especially if residents are at high risk of complications. ²¹	None	Palivizumab and nirsevimab are monoclonal antibodies that are authorized for prevention in select infant groups. ²²	None

Key Features	Seasonal Influenza	SARS-CoV-2 (COVID-19)	Respiratory Syncytial Virus (RSV)	Rhinovirus
Treatment	Influenza antiviral treatment may be considered in select individuals. ^{13,21,23}	Multiple COVID-19 treatments authorized by Health Canada***	No specific treatment. ²⁴	No specific treatment. ²⁵

^Current designated Variants of Concern can be found on the [World Health Organization's Tracking SARS-CoV-2 variants](#) webpage.

^^Children and people who are immunocompromised may be infectious longer^{13,27}

*Use of N95 respirator based on point-of-care risk assessment.²⁸

**More information on COVID-19 vaccine and booster recommendations can be found on the [Government of Canada Vaccines for COVID-19](#) webpage.

***More information on COVID-19 authorized treatment can be found on the [Government of Canada COVID-19 Treatments](#) webpage.

References

1. American Academy of Pediatrics. Red book: 2021-2024 report of the Committee on Infectious Diseases. 32nd ed. Itasca, IL: American Academy of Pediatrics; 2021.
2. American Public Health Association, Heymann DL. Control of communicable diseases manual: an official report of the American Public Health Association. 21st ed. Washington, DC: APHA Press; 2022.
3. Centers for Disease Control and Prevention (CDC). Clinical signs and symptoms of influenza [Internet]. Atlanta, GA: CDC; 2023 [cited 2023 Aug 21]. Available from: <https://www.cdc.gov/flu/professionals/acip/clinical.htm>
4. Pan Y-N, Gu M-Y, Mao Q-L, Ruan X-Z, Du X-F, Gao X, et al. Clinical characteristics and high-resolution computed tomography findings of 805 patients with mild or moderate infection from SARS-CoV-2 omicron subvariant BA.2. *Curr Med Imaging*. 2024;20(1):e260423216213. Available from: <https://dx.doi.org/10.2174/1573405620666230426145140>
5. Akaishi T, Kushimoto S, Katori Y, Sugawara N, Egusa H, Igarashi K, et al. COVID-19-related symptoms during the SARS-CoV-2 omicron (B.1.1.529) variant surge in Japan. *Tohoku J Exp Med*. 2022;258(2):103-10. Available from: <https://dx.doi.org/10.1620/tjem.2022.J067>
6. Meo SA, Meo AS, Al-Jassir FF, Klonoff DC. Omicron SARS-CoV-2 new variant: global prevalence and biological and clinical characteristics. *Eur Rev Med Pharmacol Sci*. 2021;25(24)8012-8. Available from: https://dx.doi.org/10.26355/eurev_202112_27652
7. Government of Canada. COVID-19 signs, symptoms and severity of disease: a clinician guide [Internet]. Ottawa, ON: Government of Canada; 2020 [modified 2022 Jun 01; cited 2023 Aug 21]. Available from: <https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/guidance-documents/signs-symptoms-severity.html>
8. Centers for Disease Control and Prevention (CDC). Respiratory Syncytial Virus Infection (RSV): for healthcare providers [Internet]. Atlanta, GA: CDC; 2023 [cited 2023 Aug 21]. Available from: <https://www.cdc.gov/rsv/clinical/index.html>
9. Centers for Disease Control and Prevention (CDC). Similarities and difference between flu and COVID-19 [Internet]. Atlanta, GA: CDC; 2020 [cited 2023 Aug 21]. Available from: <https://www.cdc.gov/flu/symptoms/flu-vs-covid19.htm>
10. Public Health Agency of Canada. COVID-19: symptoms, treatment, what to do if you are sick [Internet]. Ottawa, ON: Government of Canada; 2020 [modified 2023 Jan 27; cited 2023 Aug 21]. Available from: <https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/symptoms.html>
11. Public Health Agency of Canada. SARS-CoV-2 variants: national definitions, designations and public health actions [Internet]. Ottawa, ON: Government of Canada; 2020 [updated 2023 Dec 20; cited 2023 Dec 27]. Available from: <https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/health-professionals/testing-diagnosing-case-reporting/sars-cov-2-variants-national-definitions-classifications-public-health-actions.html>

12. Health Infobase. COVID-19 epidemiology update: testing and variants [Internet]. Ottawa, ON: Government of Canada; 2020 [modified 2023 Dec 19; cited 2023 Dec 27]. Available from: <https://health-infobase.canada.ca/covid-19/testing-variants.html>
13. Public Health Agency of Canada. Flu (influenza): for health professionals [Internet]. Ottawa, ON: Government of Canada; 2020 [modified 2023 Sep 18; cited 2023 Oct 12]. Available from: <https://www.canada.ca/en/public-health/services/diseases/flu-influenza/health-professionals.html>
14. Ontario Agency for Health Protection and Promotion (Public Health Ontario). COVID-19 omicron variant of concern communicability - what we know so far [Internet]. Toronto, ON: King's Printer for Ontario; 2023 [cited 2023 Aug 21]. Available from: <https://www.publichealthontario.ca/-/media/documents/ncov/covid-wwksf/2022/01/wwksf-omicron-communicability.pdf>
15. Public Health Agency of Canada. Respiratory infectious diseases: how to reduce the spread with personal protective measures [Internet]. Ottawa, ON: Government of Canada; 2020 [modified 2023 Dec 12; cited 2023 Dec 27]. Available from: <https://www.canada.ca/en/public-health/services/diseases/prevent-spread-respiratory-viruses.html>
16. Centers for Disease Control and Prevention (CDC). How flu spreads [Internet]. Atlanta, GA: CDC; 2018 [cited 2023 Aug 21]. Available from: <https://www.cdc.gov/flu/about/disease/spread.htm>
17. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Interim infection prevention and control measures based on respiratory virus transmission risks in health care settings [Internet]. 1st revision, November 2023. Toronto, ON: King's Printer for Ontario; 2023 [cited 2024 Jan 02]. Available from: https://www.publichealthontario.ca/-/media/Documents/I/2023/ipac-measures-transmission-risks-technical-brief.pdf?rev=ee2e6d14b5d04f10beb719a4b5ef6187&sc_lang=en
18. Ontario Agency for Health Protection and Promotion (Public Health Ontario), Provincial Infectious Diseases Advisory Committee. Routine practices and additional precautions in all health care settings [Internet]. 3rd ed. Toronto, ON: Queen's Printer for Ontario; 2012 [cited 2023 Dec 27]. Available from: <https://www.publichealthontario.ca/-/media/documents/B/2012/bp-rpap-healthcare-settings.pdf?la=en>
19. Ontario Agency for Health Protection and Promotion (Public Health Ontario). IPAC recommendations for use of personal protective equipment for care of individuals with suspect or confirmed COVID-19 [Internet]. 3rd ed. Toronto, ON: King's Printer for Ontario; 2023 [cited 2023 Dec 27]. Available from: https://www.publichealthontario.ca/-/media/documents/ncov/updated-ipac-measures-covid-19.pdf?sc_lang=en%20and%20https://www.publichealthontario.ca/-/media/documents/ncov/covid-wwksf/2020/12/routes-transmission-covid-19.pdf?sc_lang=en
20. Health Canada. Drug and health product submissions under review (SUR): new drug submissions under review [Internet]. Ottawa, ON: Government of Canada; 2020 [modified 2023 Dec 15; cited 2023 Dec 27]. Available from: <https://www.canada.ca/en/health-canada/services/drug-health-product-review-approval/submissions-under-review/new-drug-submissions-under-review.html#tbl1>

21. GSK Canada. GSK Canada submits respiratory syncytial virus (RSV) vaccine candidate for regulatory review [Internet]. Mississauga, ON: GSK Canada; 2022 [cited 2023 Aug 21]. Available from: <https://ca.gsk.com/en-ca/media/press-releases/gsk-canada-submits-respiratory-syncytial-virus-rsv-vaccine-candidate-for-regulatory-review/>
22. Aoki FY, Allen UD, Mubareka S, Papenburg J, Stiver HG, Evans GA. Use of antiviral drugs for seasonal influenza: foundation document for practitioners – update 2019. *J Assoc Med Microbiol Infect Dis Can.* 2019;4(2):60-82. Available from: <https://doi.org/10.3138/jammi.2019.02.08>
23. Government of Canada. Respiratory syncytial virus (RSV): Canadian immunization guide [Internet]. Ottawa, ON: Government of Canada; 2020 [modified 2023 Sep 08; cited 2023 Oct 12]. Available from: <https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines/respiratory-syncytial-virus.html>
24. Aoki F, Papenburg J, Mubareka S, Allen U, Hatchette T, Evans G. 2021–2022 AMMI Canada guidance on the use of antiviral drugs for influenza in the COVID-19 pandemic setting in Canada. *J Assoc Med Microbiol Infect Dis Can.* 2022;7(1):1-7. Available from: <https://doi.org/10.3138/jammi-2022-01-31>
25. Public Health Agency of Canada. Respiratory syncytial virus (RSV): for health professionals [Internet]. Ottawa, ON: Government of Canada; 2020 [modified 2023 Oct 03; cited 2023 Dec 27]. Available from: <https://www.canada.ca/en/public-health/services/diseases/respiratory-syncytial-virus-rsv/health-professionals.html>

Citation

Ontario Agency for Health Protection and Promotion (Public Health Ontario). Key features of influenza, SARS-CoV-2 and other common respiratory viruses. 2nd ed. Toronto, ON: King's Printer for Ontario; 2024.

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Publication History

Published: December 2023

2nd Edition: January 2024

Public Health Ontario

Public Health Ontario is an agency of the Government of Ontario dedicated to protecting and promoting the health of all Ontarians and reducing inequities in health. Public Health Ontario links public health practitioners, front-line health workers and researchers to the best scientific intelligence and knowledge from around the world.

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ISBN: 978-1-4868-7703-4

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