AT A GLANCE

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

Introduction

This document provides a high-level overview of the key features of the following common respiratory viruses that may circulate 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 cannot be distinguished without laboratory testing. These four viruses, along with other viruses, can cause outbreaks in facilities 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.

Due to the evolving nature of the COVID-19 situation, information presented in this document related to SARS-CoV-2 reflects what is known at the time of publication.
### Table 1: Comparison of key features of influenza, SARS-CoV-2, respiratory syncytial virus (RSV) and rhinovirus

<table>
<thead>
<tr>
<th>Key features</th>
<th>Seasonal Influenza</th>
<th>SARS-CoV-2 (COVID-19)</th>
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<th>Rhinovirus</th>
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</thead>
<tbody>
<tr>
<td><strong>Most common symptoms</strong></td>
<td>Sudden onset of fever, cough, chills, headache, fatigue, sore throat, runny or stuffy nose, muscle pain or body aches&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td>Similar to influenza including shortness of breath with the possibility of other symptoms, including new loss of taste and smell and gastrointestinal symptoms (nausea, vomiting, diarrhea)&lt;sup&gt;3,4&lt;/sup&gt;</td>
<td>Similar to influenza&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td>Runny nose, sneezing, cough, sore throat, muscle pain, fatigue, no or mild fever&lt;sup&gt;1,2&lt;/sup&gt;</td>
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<td><strong>More severe manifestation/complications</strong></td>
<td>Pneumonia, worsening of underlying medical conditions, sepsis, cardiac involvement, neurologic involvement, death&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td>Similar to influenza with the addition of blood clots in lungs, heart, legs or brain&lt;sup&gt;5&lt;/sup&gt; and multisystem inflammatory syndrome in children (MIS-C)&lt;sup&gt;5,6&lt;/sup&gt;, multisystem inflammatory syndrome in adults (MIS-A)&lt;sup&gt;3&lt;/sup&gt;, Long-COVID&lt;sup&gt;5&lt;/sup&gt; and death&lt;sup&gt;5,7&lt;/sup&gt;</td>
<td>Pneumonia, bronchiolitis, death&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Lower respiratory tract infection (pneumonia, bronchiolitis) in infants&lt;sup&gt;1&lt;/sup&gt;, bronchitis&lt;sup&gt;2&lt;/sup&gt;</td>
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<tr>
<td><strong>Risk groups for complications</strong></td>
<td>Young children; older adults; underlying medical conditions, including immunocompromised; obesity; pregnancy&lt;sup&gt;2,7&lt;/sup&gt;</td>
<td>Older adults&lt;sup&gt;3,7&lt;/sup&gt;; underlying medical conditions, including immunocompromised&lt;sup&gt;3,7&lt;/sup&gt;; obesity&lt;sup&gt;3&lt;/sup&gt;</td>
<td>Infants and children less than 2 years of age with congenital heart disease or chronic lung disease; premature infants; older adults; underlying medical conditions, including immunocompromised&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td>Young children; immunocompromised; respiratory conditions&lt;sup&gt;1&lt;/sup&gt;</td>
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<tr>
<td><strong>Strains</strong></td>
<td>Frequent mutations; different types, subtypes, strains&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Mutations occur regularly; variant strains have been identified&lt;sup&gt;8&lt;/sup&gt;</td>
<td>Subgroups and genotypes&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Many serotypes&lt;sup&gt;1,2&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Incubation period</strong></td>
<td>1 to 4 days&lt;sup&gt;9&lt;/sup&gt;</td>
<td>1 to 14 days; median: 5 to 6 days&lt;sup&gt;3&lt;/sup&gt;</td>
<td>3 to 7 days&lt;sup&gt;9&lt;/sup&gt;</td>
<td>2 to 4 days&lt;sup&gt;9&lt;/sup&gt;</td>
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<tr>
<td>Time period from exposure to onset of symptoms</td>
<td>1 day before and until about 5-10 days after onset of symptoms (peaks 24-48 hours after symptom onset)&lt;sup&gt;1.9&lt;/sup&gt;</td>
<td>2-3 days prior to symptoms to about 10 days after symptom onset for immunocompetent people.&lt;sup&gt;3&lt;/sup&gt;</td>
<td>Usually until 3 to 8 days after symptom onset, but can sometimes be up to 4 weeks in infants and those who are immunocompromised&lt;sup&gt;1&lt;/sup&gt;</td>
<td>1 to 3 weeks (peaks 2-3 days after symptom onset)&lt;sup&gt;9&lt;/sup&gt;</td>
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<td><strong>Communicable Period</strong></td>
<td>2-3 days prior to symptoms to about 10 days after symptom onset for immunocompetent people.&lt;sup&gt;3&lt;/sup&gt;</td>
<td>May be prolonged in people with compromised immune system.&lt;sup&gt;10&lt;/sup&gt;</td>
<td>Direct person-to-person transmission and fomites&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>Time period when can be spread to others</td>
<td>Usually until 3 to 8 days after symptom onset, but can sometimes be up to 4 weeks in infants and those who are immunocompromised&lt;sup&gt;1&lt;/sup&gt;</td>
<td>May be prolonged in people with compromised immune system.&lt;sup&gt;10&lt;/sup&gt;</td>
<td>Direct person-to-person transmission and fomites&lt;sup&gt;1&lt;/sup&gt;</td>
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<td><strong>How is the virus spread?</strong></td>
<td>Direct person-to-person transmission and fomites, and possibly small aerosols under certain conditions&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Primarily at short range through unprotected close contact and exposure to large and small respiratory particles and possible but less common transmission over longer distance under favourable conditions&lt;sup&gt;11&lt;/sup&gt;</td>
<td>Fomite transmission is possible but current evidence</td>
<td>Direct person-to-person transmission and fomites&lt;sup&gt;1&lt;/sup&gt;</td>
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<td></td>
<td></td>
<td>suggests this is an uncommon route of transmission.</td>
<td></td>
<td></td>
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<tr>
<td>Spread before symptoms start</td>
<td>Yes, can spread from 24 hours before symptoms start$^{,5,13}$</td>
<td>Yes, evidence to suggest 2-3 days before symptom onset$^{3}$</td>
<td>Uncertain, has not been well studied</td>
<td>Uncertain, has not been well studied</td>
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<td>Spread while having no symptoms</td>
<td>Infected people can have no symptoms and may spread the virus to others$^{14}$</td>
<td>Possible to spread while asymptomatic$^{14}$</td>
<td>Uncertain, has not been well studied</td>
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</tr>
<tr>
<td>Type of precaution</td>
<td>Droplet and contact$^{15}$</td>
<td>Droplet and contact; Airborne when performing aerosol-generating medical procedures$^{16}$</td>
<td>Droplet and contact$^{15}$</td>
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<tr>
<td>How infectious is the virus?</td>
<td>$R_0$: 1.27$^{17}$</td>
<td>$R_0$: 2.7-3.3$^{18}$</td>
<td>$R_0$:3.0$^{20}$</td>
<td>Not available</td>
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<td></td>
<td>Evidence to suggest some SARS-CoV-2 Variants of Concern have increased reproduction numbers compared to wild-type.$^{19}$</td>
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<td>Not available</td>
<td></td>
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<tr>
<td>Case fatality</td>
<td>$&lt;0.1%$</td>
<td>Variable $\sim 2.16%^{21}$ world wide; 1.8%$^{22}$ in Canada.</td>
<td>Not available</td>
<td>Extremely unlikely to result in death$^{2}$</td>
</tr>
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</table>

Comparing Key Features of Influenza, SARS-CoV-2 and Other Common Respiratory Viruses
### Key features of Influenza, SARS-CoV-2 (COVID-19) and Other Common Respiratory Viruses

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<td>identified cases, expressed as a percentage</td>
<td></td>
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<td>Vaccine</td>
<td>Seasonal vaccine available and recommended annually&lt;sup&gt;23&lt;/sup&gt;</td>
<td>Four Health Canada approved vaccines are currently available for use in Canada.&lt;sup&gt;24,25,26&lt;/sup&gt;</td>
<td>Currently in development; Palivizumab, a humanized monoclonal immunoglobulin, available for prevention in some high risk infants&lt;sup&gt;1&lt;/sup&gt;</td>
<td>No vaccine</td>
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</table>
| Antiviral medications               | Used for treatment in those with moderate or severe illness or at risk for complications of influenza<sup>27</sup>  
Recommended for both treatment and prevention in outbreaks in closed settings, especially if residents are at high risk of complications<sup>27</sup> | Approved treatments (dexamethasone<sup>28</sup>, remdesivir<sup>29,30</sup>, Bamlanivimab<sup>30</sup>, Casirivimab<sup>30</sup> and imdevimab<sup>30</sup>) are available for hospitalized patients with particular indications; Trials for therapies are ongoing | None routinely recommended                                                                 | None       |

<sup>1</sup> Current designated Variants of Concern can be found on the [World Health Organization’s Tracking SARS-CoV-2 variants](https://www.who.int/variants) webpage

<sup>23</sup> R<sub>0</sub>: Basic reproductive numbers - Average number of people who become infected by an infectious person when everyone is susceptible to the infection.
References


Citation

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This document was developed by Public Health Ontario (PHO). PHO provides scientific and technical advice to Ontario’s government, public health organizations and health care providers. PHO’s work is guided by the current best available evidence at the time of publication.

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At a Glance
An At a Glance is a brief document offering an overview of a topic or steps in a process, in a concise manner.

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