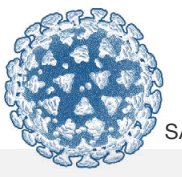
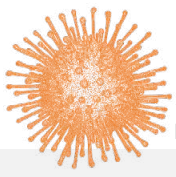
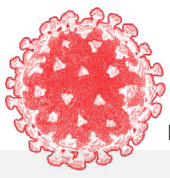
COVID-19 testing during flu season: get the facts


SARS-CoV-2


Influenza


RSV

Respiratory viruses

- **Respiratory viruses** are the most frequent causative agents of disease in humans, with significant impact on morbidity and mortality worldwide[1–3]
- There are many types of respiratory viruses that circulate in all continents as endemic or epidemic agents, and there is a high risk of a large outbreak of **SARS-CoV-2** (COVID-19), **influenza virus** (flu), and **respiratory syncytial virus** (RSV), during the autumn and winter seasons in the Northern Hemisphere[4]

Viral classification

- There is one type, but **several variants**, **of SARS-CoV-2**, such as Alpha, Beta, Delta, Gamma, Mu, and others[5]
- There are **four types of flu viruses**: A, B, C, and D
  - Human influenza A and B viruses cause seasonal epidemics of disease (known as flu season)[6]
- There are **two subtypes of RSV**: A and B
- These viruses mutate and change over time

SARS-CoV-2, influenza, and RSV: what are the differences?

These viruses cause different contagious **respiratory illnesses**[7–8]

- **COVID-19** is caused by infection with SARS-CoV-2
  - COVID-19 seems to spread more easily than flu
  - COVID-19 can cause more serious illness in some people than flu
  - COVID-19 symptoms can take longer to show up
  - People can be contagious longer with COVID-19
- **Flu** is caused by infection with influenza viruses
- Serious infections with RSV can cause **bronchiolitis** and **pneumonia**[9]

For all of these viruses, the **incubation period** and **duration of contagiousness** varies

SARS-CoV-2, influenza, and RSV: what are the similarities?

All three are respiratory RNA viruses that are **easily transmitted** via:

- Direct contact and droplets
- Indirect spread and aerosols

Shared symptoms include*[10–11]:

- Fever/chills
- Cough
- Runny nose/congestion
- Shortness of breath

These viruses can all also result in asymptomatic cases and severe disease.

* This list is not exhaustive.

The importance of testing for multiple viruses

- Because some of the symptoms of COVID-19, flu, and other respiratory illnesses are similar, it is **nearly impossible to diagnose an infection based on symptoms alone**[10]
- **Multiplex technology** allows for **simultaneous testing** of multiple viruses and coinfections
- Given overlapping symptoms, routine **multi-pathogen testing for SARS-CoV-2, influenza virus, and RSV is essential** for providers, patients, and health officials to help manage flu season during the COVID-19 pandemic via[12]:
  - Higher throughput for surveillance and monitoring
  - Minimizing isolation times
  - Avoiding and reducing rates of transmission
  - Savings in resources (cost, reagents, personnel, and time) compared to single tests
  - Treatment decisions

Treatment, vaccines, and testing recommendations

- SARS-CoV-2 variants or influenza virus types do not influence each method of treatment, such as which **antibodies or antivirals** are used.[13–14]
- **Vaccines** are available for SARS-CoV-2 and flu, but not for RSV

"All patients with acute respiratory symptoms in hospitals and other health care settings, and all specimens from sentinel primary care surveillance, should be **tested for both SARS-CoV-2 and influenza during the influenza season** to monitor incidence and trends over time."

—European Centre for Disease Prevention and Control[15]

"Given overlapping symptoms, routine multi-pathogen testing for SARS-CoV-2, and influenza (and possibly other respiratory infections) is important for surveillance, treatment decisions (such as timely use of antivirals for influenza), minimizing isolation times, and avoiding and reducing rates of transmission. **We strongly support multiplex testing**."

—The Academy of Medical Sciences[12]

References:

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Find out more at **thermofisher.com/covid19flu** or **thermofisher.com/covid19flursv**

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