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The ABCs of RSV

A GUIDE TO RESPIRATORY SYNCYTIAL VIRUS

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Respiratory syncytial virus (RSV) is a human-specific microbe that causes infections similar to the common cold and flu. This virus is present worldwide and follows a seasonal cycle. It is most active between autumn and early spring, with a peak in mid-winter.

It mainly affects young children and the more fragile elderly. In children under the age of one, it is the main cause of bronchial infections (bronchiolitis). After the age of two, almost all children will have been infected at least once.

For most people, the infection causes few symptoms; however, in certain populations, it can be severe, leading to breathing difficulties and even cardio-respiratory arrest.

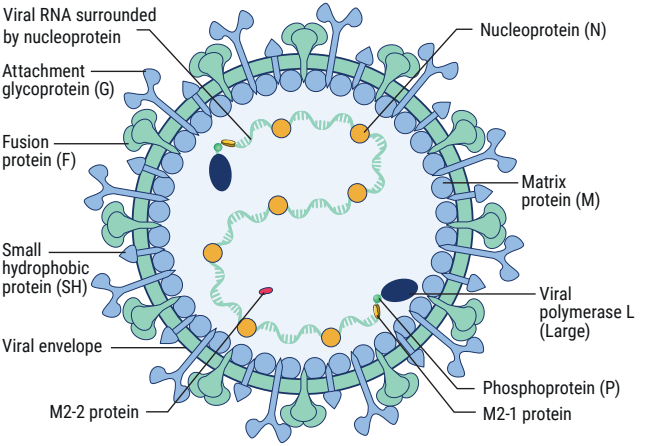
It's important to take steps to prevent infection.

In this guide

All you need to know about the virus

The culprit: A simple virus

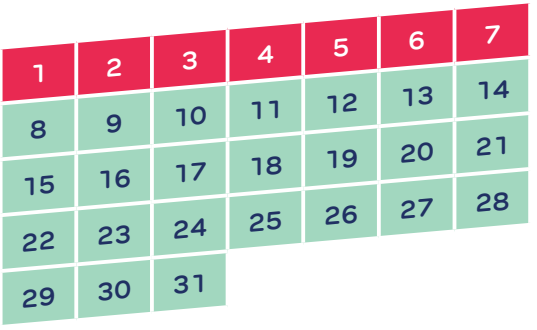
A virus is a strand of genetic material wrapped in a capsule that protects it from the environment. This material enables it to replicate. However, viruses cannot reproduce themselves. They must therefore infect the cells of another organism, such as a human, in order to multiply.



RSV is **highly contagious** and spreads through the air by droplets produced when an infected person sneezes or coughs. It is possible to contract the virus by being in direct contact with an infected person or their bodily fluids. It is also possible to be exposed by touching a surface that has been contaminated by the virus, since it can remain there for several hours before decomposing.

After contact, contamination begins when the virus enters the body through the eyes, nose, or mouth. It then travels to the nose, where it starts to replicate over four to eight days. Once this period has passed, the person develops initial symptoms, such as nasal congestion and discharge. In some cases, the virus can move down into the lungs to continue multiplying. In an effort to fight the virus, the body triggers an inflammatory response that causes tissue swelling, cell damage, and increased mucus production. This can lead to symptoms similar to those of pneumonia. This internal reaction can last from 7 to 14 days, which is the time the immune system needs to eliminate the virus.

An infected person can transmit the virus for up to 7 days before the onset of symptoms and until the symptoms disappear completely.



Typically, our bodies develop a recognition system when we are first infected, so we are prepared to fight future attacks by the same microbe. However, in the case of RSV, the virus structures change each year, making it hard for our immune system to recognize the virus. Thankfully, subsequent infections tend to be less severe.

Although the body cannot develop immunity following infection, it can be immunized against RSV with preventive treatments or vaccines. The latter can provide protection against the virus, helping the body to be better prepared to face infection.

People at risk

RSV infection usually resolves within 1 to 2 weeks. However, certain groups of people are at greater risk of developing severe infection or complications:

- Infants under 6 months and children born prematurely
- Older adults
- People with weakened immune systems
- People with lung or heart disease, such as cystic fibrosis, COPD, heart failure, etc.
- Smokers or people exposed to second-hand smoke
- Children with Down syndrome, because of anatomical differences that put them at greater risk

Complications may include:

- Bacterial infection and inflammation of the bronchi or lungs
- Cardiac complications
- Hospitalization
- A death

The impact of the virus

RSV frequently causes hospital stays in young children. In fact, most hospitalized cases involve children under 5 years old. Nevertheless, people aged 65 and older face a higher risk of death from RSV infection.

The disease in children

In children, the disease can take different forms depending on age. In children under 2, RSV can cause bronchiolitis* or pneumonia, while in those over 2, the infection is more similar to that of an adult.

* Note that the most common cause of bronchiolitis is RSV, but other pathogens can also be responsible.

Signs and symptoms in children under 2

In young children, the illness often begins with an infection of the upper respiratory tract—that is, the nose, throat, and mouth. The symptoms are:

- Nasal discharge and/or congestion
- Fever (38°C or higher with rectal thermometer)
- Reduced appetite
- Cough (rarely)

After 1 to 3 days, the infection can progress to **affect the bronchial branches or even reach deeper into the lungs**. Symptoms include:

- Rapid breathing (60 to 80 breaths per minute, compared with 20 to 60 breaths per minute in a healthy child under 2 years of age)
- Breathing difficulties, including temporary and sudden respiratory arrest

- **Wheezing**
- Difficulty eating due to nasal congestion and rapid breathing
- Restlessness and crying

As these symptoms resemble those of colds and flu, only a doctor can make a precise diagnosis.

It's not always necessary to identify the specific microbe responsible, since the treatment for bronchiolitis focuses on relieving symptoms. However, if warning signs appear (see «When to seek medical attention»), medical advice should be sought.

Signs and symptoms in children over 2 years of age

RSV symptoms in older children are very similar to those seen in adults. Please refer to the section on adults. Note, however, that progression to severe disease is rarer in these children.

When should I consult a doctor?

As mentioned above, a precise diagnosis is not always necessary if symptoms are mild. However, a medical consultation is recommended if your child presents any of the following symptoms:

- Fever for more than 48 hours, **or if the baby has a fever and is less than 3 months old**
- Coughs to the point of choking or vomiting
- Rapid breathing (more than 60 breaths per minute)
- **Difficulty breathing (such as chest retractions, flaring nostrils, or neck muscle use to help breathe)**
- **Bluish lips or fingertips**
- Reduced ability to eat or drink
- Reduced urinary frequency (less than 3 to 4 times per 24 h)
- **Unusually intense fatigue**

N. B. : Symptoms in red often require a visit to the emergency.

Treatment

This section does not apply to children with one or more warning signs. If this is the case, consult a doctor.

In most children, the disease typically resolves within 1-2 weeks without complications. However, it is important to ensure that the child has the right conditions for recovery.

Hydration: Offer fluids regularly and monitor urine frequency. If the child is breastfed, ensure they drink enough milk.

Humidify the room in which they sleep.

Fever: It's not always advisable to treat fever, as it helps to eliminate germs more easily. If you deem it necessary, you can administer fever-reducing drugs, provided they have not been contraindicated by a health professional.

Note: Please also note that acetylsalicylic acid (Aspirin®) should be avoided in children under 18 years of age, and ibuprofen (Advil®, Motrin®) in children under 6 months of age.

Encourage mucus clearance:

- For the nose, use a suction bulb, a suitable spray, or a syringe filled with saline water.
- For a sore throat, if your child is over a year old, give warm, clear liquids to help clear mucus.
- If your child is over a year old, prop his head up with a pillow to make them more comfortable in bed.

Monitoring: Sleep in the same room as your child, so you can take action if they have difficulty breathing.

Healthy:

- Do not smoke or allow children near second-hand smoke.
- Wash your hands frequently.

Avoid:

- Avoid giving honey to children under 1 year of age, as it may pose a risk of botulism.
- Avoid cough medicines and decongestants in children under 6, as their efficacy has not been proven, and the risk of side effects is increased.

Antibiotics are not advised for bronchiolitis because most cases are viral and not affected by antibiotics. However, if a bacterial superinfection is suspected, antibiotics may be given.

Currently, no cure exists for RSV. Therefore, prevention is especially crucial.

The disease in adults

Signs and symptoms

As mentioned above, symptoms of RSV infection in adults can resemble those of the common cold or flu. It can therefore be difficult to differentiate RSV from other respiratory viruses. The most common symptoms are as follows:

- Coughing
- Sore throat
- Fever (over 37.5°C on oral thermometer)
- Nasal congestion and/or discharge
- Fatigue

After a few days, symptoms may evolve:

- **Wheezing**
- Cough progression
- Breathing difficulties

However, RSV infection can also progress to cause bronchitis, pneumonia or exacerbation of underlying heart or lung conditions in those at higher risk.

People with lung diseases, such as asthma or COPD, may experience symptoms that closely resemble an exacerbation of their condition, including fever and upper respiratory tract involvement.

When should I consult a doctor?

Some people, especially those with underlying medical conditions, will be at greater risk of developing complications from the disease. So it's important to seek advice if you develop any of these symptoms:

- Intense and unusual exhaustion on exertion
- Prolonged palpitations
- Chest pain
- Persistent fever or chills, or chills that return after a fever-free period (note that if you are taking fever-reducing medication, it is possible that the return of fever is caused by the discontinuation of this medication)
- Intense throat pain
- Ear or sinus pain
- Coughing up blood when you cough
- Weakened state of consciousness, difficulty staying awake
- Rapid breathing (20 breaths per minute compared to 12 breaths per minute in a healthy person)
- Sudden, temporary breathing difficulties or respiratory arrest

Treatment

This section does not apply to children with one or more warning signs. If this is the case, consult a doctor.

As with children, symptoms generally disappear on their own within 1 to 2 weeks. The best way to heal is to take steps to ensure that the body has the resources it needs to heal:

- Keep **well-hydrated**, unless you have a medical condition, which restricts the amount of fluid you can take in a day.
- **Humidify** rooms at home.
- **Decongest nasal passages with saline water.**
- **In case of fever**, it's not always advisable to treat it, since it makes it easier to eliminate germs. If necessary, administer fever-reducing drugs, provided they have not been contraindicated by a health professional.
- **Stop smoking.**
- **Use your prescribed pumps** if you have them.

Other medications are available in pharmacies to relieve the symptoms of nasal congestion, runny nose and cough. For further information on these products, consult your pharmacist.

How to prevent infection

Since there is no cure for RSV infection, prevention is the only way to protect yourself. Therefore, it is important to take steps to prevent the spread of RSV to safeguard yourself and others.

Respiratory etiquette

Preventing respiratory infections begins with respiratory etiquette: everyday habits that help stop the spread of disease.

- **Wash your hands** frequently, especially after blowing your nose. Use soap and water or alcohol-based gels and scrub for 20 seconds, taking care to clean fingernails as well.
- Immunosuppressed people and those with respiratory symptoms should **wear a mask** to protect themselves and prevent transmission.
- Cough into your elbow or mask.
- Try to avoid close contact with individuals who are infected.
- If you have symptoms of a cold, the flu, or a cough, avoid contact with people at risk of complications, such as pregnant women, young children, individuals with weakened immune systems, or older adults.

Preventive therapies

Immunization with a vaccine or preventive treatment (prefabricated antibody) is the best way to protect against RSV infection and complications. It can reduce the risk of infection, transmission and hospitalization in immunized patients. For infants, the elderly or immunosuppressed people, this protection can mean the difference between life and death.

In Quebec, there are different recommendations for immunization, depending on age, health conditions or risk factors for RSV complications. These immunizing treatments may be offered free of charge to certain populations. If you would like more information on the preventive treatments offered and on who is eligible, consult your healthcare professional or refer to the **Protocole d'immunisation du Québec (PIQ)**. Recommendations evolve based on studies, so the PIQ is updated regularly. Evolution implies change.

Ultimately, the decision to vaccinate is a personal choice. However, the benefits of vaccination extend not only to you but also to the entire population. Therefore, even if you're not at high risk of RSV complications, vaccination may be considered to protect loved ones or those who cannot receive the vaccine.

Conclusion

RSV is a common virus that can be harmless, but it poses a significant risk for certain groups, such as infants, seniors, and the immunocompromised. By adopting preventive measures like vaccination and recognizing the signs that require medical attention, it is possible to reduce its impact and prevent serious complications.

Sources and useful links

Familiprix Inc.

Government of Québec

Health Canada

Naître et grandir (French only)

Protocole d'immunisation du Québec (PIQ) (French only)

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In this guide

Only pharmacists are responsible for the professional activities of the pharmacy practice. They use various tools such as the PSST! (Plan to Stay in Shape Today) program.

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