CONDITION

# RSV infection

RSV infection is a common respiratory infection that can cause serious breathing problems in babies, older adults, and people at higher risk.

**WHAT IT IS**
Viral infection of the airways and lungs

**BODY SYSTEM**
Lungs and breathing

**MAIN SYMPTOMS**
Runny nose, cough, fever, wheezing

**WHAT CAUSES IT**
Respiratory syncytial virus infection

**HOW IT IS DIAGNOSED**
Clinical assessment, confirmed by nasal PCR or antigen testing

**MAIN TREATMENT**
Supportive care for breathing, fluids, and fever

**CAN IT BE CURED?**
Yes - infection usually clears with time

**IS IT AN EMERGENCY?**
Sometimes - severe breathing difficulty or blue lips

**LONG-TERM OUTLOOK**
Most recover fully; reinfection remains possible

## Overview

Respiratory syncytial virus, usually called RSV, is a common virus that infects the nose, throat, airways, and sometimes the lungs. Almost anyone can catch it. In many older children and healthy adults, it causes symptoms similar to a cold.

RSV matters because it can affect breathing more seriously in babies, older adults, and people with certain health conditions. In babies, RSV is a common cause of bronchiolitis. This is swelling and mucus in the smallest airways of the lungs. RSV can also cause pneumonia, an infection involving the lung tissue.

Most people recover at home without specific antiviral treatment. Some need medical care for dehydration, low oxygen levels, or difficulty breathing. Reinfection is possible because protection after an infection is not complete or lifelong.

RSV often circulates more during particular seasons, although timing differs by location and can change from year to year.

## Symptoms

Symptoms usually begin several days after exposure. They may start gradually rather than all at once.

Common symptoms include:

Very young babies may not develop the usual cold symptoms. Instead, they may be unusually sleepy or irritable, feed less, or have pauses in breathing called apnea. Some babies breathe faster or work harder to breathe. You may notice the skin pulling in between or below the ribs.

Adults often have a sore throat, congestion, cough, headache, or tiredness. Older adults and people with heart, lung, or immune system conditions may develop shortness of breath, wheezing, or worsening of an existing condition.

Symptoms are often at their worst around days 3 to 5. A cough may continue for two or three weeks after the fever and breathing problems improve.

- Runny or blocked nose
- Cough
- Reduced appetite
- Fever
- Sneezing
- Wheezing or noisy breathing
- Tiredness

## Causes and risk factors

RSV infection is caused by respiratory syncytial virus. It spreads through droplets and small respiratory particles released when an infected person coughs, sneezes, talks, or breathes close to someone else. It can also spread when virus-containing mucus gets onto hands or surfaces and is then transferred to the eyes, nose, or mouth.

People are commonly contagious for several days. Babies and people with weakened immune systems may release the virus for longer.

Anyone can develop RSV infection. The chance of severe illness is higher in:

Exposure to tobacco smoke can irritate the airways and may make breathing symptoms worse. Crowded indoor settings and close contact with young children can increase opportunities for the virus to spread.

- Babies younger than 6 months, especially very young babies
- Children born prematurely
- Children with long-term lung disease or certain heart conditions
- People with weakened immune systems
- People with conditions that make coughing or swallowing difficult
- Adults aged 75 and older
- Adults with chronic heart or lung disease
- Adults who are frail or live in long-term care settings

## Diagnosis

RSV is often diagnosed from symptoms, an examination, and knowledge of whether the virus is circulating locally. Most people with mild symptoms do not need a test because the result would not change their care.

When confirmation is useful, a healthcare professional can take a sample from the nose. A PCR test looks for the virus's genetic material and is generally more sensitive. A rapid antigen test looks for proteins from the virus. Test performance can differ by age and by the type of test used.

A pulse oximeter may be placed on a finger or toe to estimate the amount of oxygen in the blood. This is especially important when breathing is difficult.

Chest X-rays and blood tests are not routinely needed for uncomplicated bronchiolitis. They may be used if the symptoms are unusual, severe, or could have another cause, such as bacterial pneumonia.

## Treatment and management

There is no routine medicine that quickly eliminates RSV. Treatment mainly supports breathing and hydration while the immune system clears the infection.

For mild illness, helpful care may include rest, regular fluids, and saline nose drops. Gentle nasal suction can help a baby feed when mucus is blocking the nose. Offering smaller feeds more

often may be easier than expecting a baby to finish a normal-sized feed.

Age-appropriate fever or pain medicine may improve comfort when used according to the product label or professional advice. Aspirin should not be given to children or teenagers because of its link to Reye syndrome, a rare but serious condition. Over-the-counter cough and cold medicines may be unsafe for young children and do not treat the infection itself.

Antibiotics like amoxicillin or doxycycline do not treat RSV because antibiotics act against bacteria, not viruses. They may be needed if a separate bacterial infection is diagnosed.

Bronchodilators like albuterol or salmeterol , which relax airway muscles, and corticosteroids like prednisone or hydrocortisone , which reduce inflammation, are not routinely recommended for babies with typical RSV bronchiolitis. A healthcare professional may consider other treatment if there is a different or additional condition, such as asthma.

Hospital care may include oxygen, fluids through a vein or feeding tube, and closer monitoring. A small number of people need breathing support. The antiviral medicine ribavirin is rarely considered for selected people with severe immune suppression; it is not routine RSV treatment.

## Complications

Most RSV infections improve without complications. When complications occur, they are more likely in very young babies, older adults, and people with underlying medical conditions.

Possible complications include:

Some children wheeze repeatedly after severe RSV bronchiolitis. RSV illness is associated with later wheezing and asthma, but this does not prove that RSV alone causes asthma. Shared airway and immune factors may also contribute.

- Bronchiolitis or pneumonia
- Dehydration from poor feeding or drinking
- Low blood oxygen
- Pauses in breathing in young babies
- Respiratory failure requiring breathing support
- Worsening asthma, chronic lung disease, or heart failure
- A middle-ear infection in some children

## Prevention

RSV cannot always be prevented. Reinfection can happen, and the virus spreads easily before or during common cold-like symptoms.

Immunization can reduce the risk of severe RSV in eligible groups. Depending on local recommendations, this may include vaccination during pregnancy to pass protective antibodies to the baby, vaccination for older adults or adults at increased risk, and a long-acting antibody for babies.

The antibody given to babies is not a vaccine. It provides ready-made protection during the months when the baby is most vulnerable. Most babies do not need both maternal vaccination and an infant antibody, although there are exceptions. Eligibility and seasonal timing differ between countries.

Everyday steps can also reduce spread:

People who are ill should follow local respiratory-virus advice about staying home and returning to work, school, or childcare.

- Wash or sanitize hands before touching a baby
- Cover coughs and sneezes and dispose of tissues
- Clean frequently touched objects
- Avoid sharing cups or utensils during illness
- Improve indoor ventilation where practical
- Keep people with respiratory symptoms away from newborns when possible
- Avoid exposing children to tobacco smoke

## Living with it and what to expect

For most otherwise healthy people, RSV is a short-term illness. Nasal symptoms and fever often settle first. The cough may take longer to disappear because irritated airways need time to recover.

A baby with bronchiolitis may feed and sleep differently for several days. Monitoring feeding, wet diapers, alertness, and breathing can be more useful than focusing on the cough alone. Recovery may be slower after a hospital admission, but most babies return to their usual health.

RSV does not normally remain dormant in the body. Once an infection clears, ongoing symptoms are not usually due to hidden RSV. However, a person can catch RSV again, even

within the same season. Later infections are often milder, but this is not guaranteed, especially in older adults or people whose health has changed.

Routine follow-up is not always needed after a mild infection that resolves. Arrange non-urgent follow-up if the cough is not gradually improving, wheezing keeps returning, feeding remains difficult, or an existing heart or lung condition has not returned to its usual level of control.

## When to get medical help

Seek prompt medical advice if a baby, child, or adult is breathing faster than usual, wheezing, drinking much less, passing less urine, or becoming more unwell. A baby younger than 3 months with a temperature of 38°C or 100.4°F or higher needs urgent medical assessment.

People at higher risk should seek advice early if symptoms are worsening. This includes very young or premature babies, older adults, and anyone with significant heart, lung, immune, swallowing, or muscle problems.

Call emergency services if someone has:

Dehydration also needs urgent assessment. Warning signs include very few wet diapers, no urine for many hours, a very dry mouth, no tears when crying, or unusual sleepiness.

- Severe difficulty breathing or cannot speak, cry, or feed normally
- Blue, grey, or very pale lips, tongue, or skin
- Long pauses in breathing
- Marked chest pulling or grunting with each breath
- Severe drowsiness, confusion, or difficulty waking
- Signs of collapse or unresponsiveness

## Common questions

Is RSV just a cold?

It can look like a cold in healthy older children and adults. In babies and higher-risk adults, it can move into the smaller airways or lungs and cause bronchiolitis or pneumonia.

How long is RSV contagious?

Many people can spread RSV for about three to eight days. Babies and people with weakened immune systems may remain contagious for several weeks. Good hand hygiene remains useful

after the first few days.

Can I get RSV more than once?

Yes. Immunity after infection is incomplete and becomes weaker over time. Reinfections are common throughout life.

How do I know whether it is RSV, flu, or COVID-19?

Symptoms overlap, so it may not be possible to tell from symptoms alone. Testing can identify the virus when the result would affect medical care, infection-control decisions, or treatment for another infection.

Is RSV dangerous for adults?

It is usually mild in healthy younger adults. It can be serious for older adults and people with chronic heart or lung disease, frailty, or weakened immune systems.

Does an RSV vaccine treat an infection I already have?

No. Vaccines are intended to prevent future severe illness; they do not treat an active infection. Care during an infection focuses on breathing, hydration, comfort, and treatment of complications.

## Sources

- Centers for Disease Control and Prevention: Clinical Overview of RSV
- Centers for Disease Control and Prevention: RSV Immunization Guidance for Infants and Young Children
- Centers for Disease Control and Prevention: RSV Vaccine Guidance for Adults
- National Institute for Health and Care Excellence: Bronchiolitis in children-diagnosis and management, guideline NG9
- American Academy of Pediatrics: Clinical Practice Guideline-The Diagnosis, Management, and Prevention of Bronchiolitis