

Respiratory Syncytial Virus (RSV) Infection

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Condition Overview

What is respiratory syncytial virus infection?

Respiratory syncytial virus infection, usually called RSV, is a lot like a bad cold. It causes the same symptoms. And like a cold, it is very common and very contagious. Most children have had it at least once by age 2.

RSV is usually not something to worry about. But it can lead to [pneumonia](#) or other problems in some people, especially babies. So it's important to watch the symptoms and call your doctor if they get worse.

What causes RSV infection?

A virus causes RSV infection. Like a cold virus, RSV attacks your nose, eyes, throat, and lungs. It spreads like a cold too, when you cough, sneeze, or share food or drinks.

There are many kinds of RSV, so your body never becomes [immune](#) to it. You can get it again and again throughout your life, sometimes during the same season.

What are the symptoms?

RSV usually causes the same symptoms as a bad cold, such as:

- A cough.
- A stuffy or runny nose.
- A mild sore throat.
- An earache.
- A fever.

Babies with RSV may also:

- Have no energy.
- Act fussy or cranky.

Media Gallery



[Respiratory system in a child](#)



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- Be less hungry than usual.

Some children have more serious symptoms, like [wheezing](#). Call your doctor if your child is wheezing or having trouble breathing.

How is RSV diagnosed?

Doctors usually diagnose RSV by asking about your or your child's symptoms and by knowing whether there is an outbreak of the infection in your area.

There are tests for RSV, but they aren't usually needed. Your doctor may want to do testing if you or your child may be likely to have other problems. The most common test uses a sample of the drainage from your nose.

How is it treated?

RSV usually goes away on its own. For most people, home treatment is all that is needed. If your child has RSV:

- Prop up your child's head to make it easier to breathe and sleep.
- Suction your baby's nose if he or she can't breathe well enough to eat or sleep.
- Relieve fever with acetaminophen or ibuprofen, if needed. Never give aspirin to someone younger than 20 years, because it can cause [Reye syndrome](#), a serious but rare problem.

When a person with RSV is otherwise healthy, symptoms usually get better in a week or two.

RSV can be serious when the symptoms are very bad or when it leads to other problems, like pneumonia. Certain people are more likely to have problems with RSV:

- Babies younger than 6 months, especially those born early (prematurely)
- People with immune system problems
- People with heart or lung problems
- Adults older than 65

These people sometimes need treatment in a hospital. So it's important to watch the symptoms and call your doctor if they get worse.

Can you prevent RSV infection?

It's very hard to keep from catching RSV, just like it's hard to keep from catching a cold. But you can lower the chances by practicing good health habits. Wash your hands often, and teach your child to do the same. See that your child gets all the [vaccines](#) your doctor recommends.

Medicines to prevent RSV may be given to babies and children who are more likely to have problems with the infection. Sometimes these medicines don't prevent RSV, but they may keep symptoms from getting serious.

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[Scarlet Fever](#)

[Sexually Transmitted Infections](#)

Cause

Respiratory syncytial virus (RSV) is highly contagious, meaning it spreads easily from person to person. There are two main types of RSV and many subtypes (strains). For this reason, you cannot have full [immunity](#) to the virus. And you may have many RSV infections throughout life.

People with RSV infection may spread the virus through their secretions (saliva or mucus) when they cough, sneeze, or talk. You can catch the virus by:

- Touching an object or surface contaminated with the virus and then touching your nose, eyes, or mouth without first washing your hands. The virus can survive for more than 6 hours on countertops and other hard surfaces, such as doorknobs, and for 30 minutes on hands, clothing, or tissue.
- Close contact. If an infected person coughs or sneezes near you, you could breathe in RSV that's in his or her saliva or mucus.

The virus spreads easily in crowded settings, such as child care facilities, preschools, and nursing homes. Children attending school often spread the virus to their parents and siblings. The incubation period—the time from exposure to RSV until you have symptoms—ranges from 2 to 8 days but usually is 4 to 6 days.¹

You are most likely to spread the virus within the first several days after symptoms of RSV infection begin. You remain contagious for up to 8 days. Babies and young children may spread the virus for at least 3 to 4 weeks.

Many different viruses can cause lower [respiratory tract](#) infections in children. These viruses can cause symptoms that are similar to an RSV infection.

Symptoms

When a respiratory syncytial virus (RSV) infection affects the nose and throat (upper [respiratory system](#)), symptoms are usually mild and resemble those of the common cold. They include:

- Cough.
- Stuffy or runny nose.
- Mild sore throat.
- Earache.
- Fever, usually at the beginning of the illness. A high fever does not mean the illness is more severe.

Babies may have additional symptoms, including:

- A decreased interest in their surroundings.
- Listlessness and sleepiness.
- Fretfulness (irritability) and not sleeping well.
- Poor feeding.

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[Sexually Transmitted Infections: Symptoms in Women](#)

[Sexually Transmitted Infections: Treatment](#)

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[Tinea Versicolor](#)

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[Tuberculosis Screening](#)

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- Apnea, where breathing stops for about 15 to 20 seconds. This usually occurs only in babies who were born prematurely and who also have a history of apnea.

It is hard to distinguish between a common cold and RSV infection. But unless you or your child has an increased risk of complications from RSV, it usually is not important to know which virus causes symptoms.

RSV infection sometimes leads to [bronchiolitis](#) or [pneumonia](#) or both.

Symptoms of these complications include:

- [Difficulty breathing](#), which may include breathing more rapidly than normal.
- [Wheezing](#).
- Coughing that is getting worse. A child may choke or vomit from intense coughing.
- Lethargy, increased tiredness, decreased interest in surroundings, or loss of interest in food.

What Happens

In healthy children, respiratory syncytial virus (RSV) infections tend to be mild and resemble a cold. Children who have only upper [respiratory system](#) symptoms, such as a sore throat or a runny nose, usually recover in about 10 to 14 days.

Two different types and many different subtypes (strains) of RSV exist. For this reason, you cannot have full immunity to the virus and may have many RSV infections throughout your life. A child's first RSV infection, which almost always occurs by age 2, usually is the most severe. Certain babies and children have an increased risk of complications from an RSV infection because of a health condition or another problem. Also, babies have narrow breathing tubes that can clog easily, making breathing hard. The most common complications for young children are [bronchiolitis](#) and [pneumonia](#), which are lower respiratory tract infections.

Adults older than 65 have an increased risk of complications following infection with RSV. Pneumonia is a particular risk, especially if other health problems exist, such as chronic obstructive pulmonary disease (COPD) or heart failure.

It may take older adults longer to recover from RSV infection and its complications than people in other age groups.

What Increases Your Risk

Respiratory syncytial virus (RSV) infects almost all children by the age of 2, and reinfection throughout life is common. The virus spreads easily and is extremely difficult to completely avoid. Babies and young children who are in daycare centres or frequently in public places are most likely to become infected, especially during the peak season. Older brothers and sisters in school often become infected with the virus and spread it to other household members, including babies and preschoolers. Sharing food, touching objects that are contaminated with the virus, and not washing hands can lead to RSV infection. Older adults living in nursing homes or other group environments also have a higher risk of becoming infected with RSV.

- ▶ [Obesity](#)
- ▶ [Rehabilitation and Exercise](#)
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Babies ages 2 to 7 months of age have the highest incidence of RSV infection affecting the lower [respiratory tract](#). Reinfection with another type or strain of RSV can occur within weeks. But later infections are usually less severe.

With RSV infections, there is an increased risk of having complications, especially in certain babies and young children and adults older than 65.

When To Call

Call [9-1-1](#) or other emergency services immediately if:

- Your child has [severe trouble breathing](#).
- Your child's breathing has stopped.
 - Start [rescue breathing](#).

Call your doctor now if your baby or child has [moderate trouble breathing](#).

Call a doctor if your child:

- Breathes slightly faster than normal and seems to be getting worse. Most healthy children breathe less than 40 times a minute.
- Has cold symptoms that become severe.
- Has shallow coughing, which continues throughout the day and night.
- Has a poor appetite or is being less active than usual.
- Has any trouble breathing.

Watchful waiting

For an otherwise healthy child who has symptoms of an [upper respiratory infection](#), such as a cough or runny nose, home treatment usually is all that is needed. But it's important to watch for signs of complications, such as [dehydration](#).

Watchful waiting may **not** be a good choice when your child with an upper respiratory infection has an increased risk for complications. Watch your child closely if there are symptoms of an upper respiratory infection. If symptoms get worse or new symptoms develop, see a doctor right away.

Examinations and Tests

In otherwise healthy people, it is not usually necessary to distinguish respiratory syncytial virus (RSV) infection from a common cold. A doctor may suspect RSV infection as the cause of symptoms when there is evidence of a recent community [outbreak](#). It is generally not necessary to confirm RSV infection with lab tests. But a medical history and physical examination may be done to evaluate symptoms.

A [viral detection test](#) may be done to confirm a diagnosis of RSV in symptomatic children and adults older than 65 who are at an increased risk for a severe infection or for complications. The test involves lab analysis of nasal drainage, obtained with a cotton swab or nasal wash. Testing

may also be recommended for people who are hospitalized if the cause of symptoms has not already been determined and they have a high risk of developing complications.

The results of viral detection tests help determine whether precautions are needed to prevent the spread of infection. For children who are at risk for getting severe infections or complications of RSV infections, the results of these tests may help guide treatment, such as the need for medicines.

Certain tests may be needed if RSV symptoms do not improve or become worse or if complications such as [bronchiolitis](#) or [pneumonia](#) are suspected. These tests may include:

- A chest [X-ray](#), which may show signs of pneumonia.
- Blood tests, such as a [chemistry screening](#), a [complete blood count](#), or [arterial blood gases](#) analysis.
- [Oximetry](#), to measure the amount of oxygen in the blood.

Treatment Overview

Respiratory syncytial virus (RSV) infections are usually mild and seem like a common cold. In most cases, RSV infections go away on their own in about 10 to 14 days. Home treatment to ease symptoms and prevent complications is usually all that is needed.

- Watch for signs of [dehydration](#). Signs of dehydration include being thirstier than usual and having darker urine than usual. Make sure to replace fluids lost through rapid breathing, fever, diarrhea, or vomiting. Encourage more frequent breast- or bottle-feeding. Avoid giving your baby sports drinks, soft drinks, undiluted fruit juice, or water. These beverages may contain too much sugar, contain too few calories, or lack the proper balance of essential minerals ([electrolytes](#)).
- [Make your child more comfortable](#) by helping relieve his or her symptoms. Sometimes a child may get some relief from medicine, such as [acetaminophen](#) or [ibuprofen](#), or from being kept in an upright position, which makes breathing easier. Be safe with medicines. Read and follow all instructions on the label. You can [suction your baby's nose](#) if he or she can't breathe well enough to eat or sleep.
- Make sure you understand whether and when [antibiotics](#) are needed. Antibiotics are not usually given for RSV infections. But if your child develops complications, such as an [ear infection](#), your doctor may prescribe an antibiotic. Do not stop giving antibiotic medicine when your child starts to feel better. The entire prescription must be taken to completely kill the bacteria. If you do not give your child all the medicine, the bacterial infection may return.
- [Take care of yourself](#). Caring for a sick child can be very tiring physically and emotionally. You can best help your child when you are rested and feeling well.

Treatment for severe infection or complications

Children who develop lower respiratory infections, especially bronchiolitis, may need medicines in addition to home treatment. Antibiotics may be used to treat a bacterial

infection (such as pneumonia) that develops as a complication. But antibiotics don't treat RSV or any other viral infection.

When complications develop in otherwise healthy children, [corticosteroid](#) medicines sometimes are used. But more study is needed before corticosteroids are routinely recommended for this purpose.

A child who is having difficulty breathing or is dehydrated may need to be cared for in a hospital. The child may need respiratory and other medical treatments. In very rare cases, some children receive the antiviral medicine ribavirin while they are in the hospital.

- Pregnant women should avoid contact with a child who is receiving ribavirin.
- If your child is in the hospital for RSV, there are [extra measures](#) you can take to make his or her stay comfortable.

Prevention

Respiratory syncytial virus (RSV) infection is easy to catch (highly contagious). It is common for children to get viral infections such as RSV if they are often exposed to infected people and have not built up immunity. There is no sure way to prevent respiratory illnesses in babies and children.

Sometimes medicines are used to help prevent RSV infection in babies and children who are at risk for complications from RSV. Even if RSV infection develops, use of these medicines may result in a less severe infection.

Monoclonal antibodies, such as palivizumab (Synagis), may be used to help prevent or reduce the severity of RSV infection.

The following may help reduce your child's risk of respiratory problems:

- [Wash your hands](#) frequently, and teach your children to do the same. Also, make sure people who care for your child wash their hands and understand the importance of this habit in preventing the spread of infection.
- See that your child gets all of his or her [vaccines](#). Diphtheria, tetanus, and pertussis (DTaP), *Haemophilus influenzae* type b (Hib), and pneumococcal vaccines are especially important.
- Breastfeed your baby for at least the first 6 months after birth, if possible. Breast milk seems to offer some protection against RSV infection, but more study is needed.² Breast milk does not prevent RSV infection.
- Separate a child diagnosed with RSV from others in the home as much as possible.
- If you smoke, quit. If you cannot quit, do not smoke in the house or car. [Second-hand smoke](#) irritates the mucous membranes in your child's nose, sinuses, and lungs, making him or her more [susceptible](#) to infections.

[Outbreaks](#) of RSV often occur between late fall and early spring. To keep from catching the virus during this time, [limit your exposure](#) to RSV. This is most critical for babies and children who are at risk for serious RSV infections. Try to avoid:

- Sharing items such as cups, glasses, and utensils with others.
- People who have [upper respiratory infections](#), such as colds.
- Child care centres, malls, movie theatres, and other places where many people are in an enclosed area.
- Visiting children who are in the hospital.

Self-Care

When to use home treatment

Most mild to moderate respiratory syncytial virus (RSV) infections in otherwise healthy people are like the common cold and can be treated at home. If your child is older than 12 months of age and is not at risk for complications from RSV infection, try home treatment. But RSV infections in people with an increased risk of complications need close monitoring.

People who have [impaired immune systems](#) need to see a doctor for cold symptoms because of the increased risk for complications. Also, babies and children—and older adults—who have health problems and other risk factors should see a doctor at the first sign of RSV.

How to help your child with RSV infection

- Watch for signs of [dehydration](#). Make sure to replace fluids lost through rapid breathing, fever, diarrhea, or vomiting. Encourage more frequent breast- or bottle-feeding. Avoid giving your baby sports drinks, soft drinks, undiluted fruit juice, or water. These beverages may contain too much sugar, contain too few calories, or lack the proper balance of essential minerals (electrolytes).
- [Make your child more comfortable](#) by helping relieve his or her symptoms. Sometimes a child may get some relief from medicine, such as [acetaminophen](#) or [ibuprofen](#), or from being kept in an upright position, which makes breathing easier. Be safe with medicines. Read and follow all instructions on the label. Never give aspirin to someone younger than 20 years, because it can cause [Reye syndrome](#), a serious but rare problem. For more information, see [Quick Tips: Giving Over-the-Counter Medicines to Children](#).
- Antibiotics are not usually given for viral infections. But if your child develops complications of RSV, such as an [ear infection](#), your doctor may prescribe an [antibiotic](#). Do not stop giving antibiotic medicine when your child starts to feel better. The entire prescription must be taken to completely kill the bacteria. If you do not give your child all the medicine, the bacterial infection may return.
- [Take care of yourself](#). Caring for a sick child can be very tiring physically and emotionally. You can best help your child when you are rested and feeling well.

Medicines

Most respiratory syncytial viral (RSV) infections do not require prescription medicines. But medicines may be recommended for certain people to help:

- Prevent RSV infection.
- Treat RSV infection and its complications.

Medicine choices

A medicine may be given to infants and children at high risk for complications of RSV to **prevent the infection or reduce its severity**. Monoclonal antibodies, such as palivizumab (Synagis), are usually given in monthly doses for up to 5 months. This medicine can stop RSV from multiplying.

Medicines to help **treat complications** of RSV infection include:

- [Corticosteroids](#). These medicines may be used if a child has an RSV infection and also has asthma or an allergic-type breathing problem. But corticosteroids are typically not used.
- [Antibiotics](#). Antibiotics help the body destroy bacteria and may be used to help treat or prevent complications that can occur from RSV.
- Bronchodilators. They relax the muscle layer that surrounds the breathing tubes in the lung, allowing them to expand and move air more easily. This may help to reduce [wheezing](#) in some infants and toddlers.

What to think about

- Ribavirin (Virazole) is an antiviral medicine that is very rarely used to treat people with RSV infections who have a high risk of developing complications. Studies so far have provided conflicting evidence regarding its effectiveness. The doctor will consider the particular circumstances of the person being treated before making a recommendation about ribavirin.
- Bronchodilators are typically not used, but they may be tried for babies who are having trouble breathing. The medicine can be continued if it helps.

Related Information

- [Bronchiolitis](#)
- [Coughs, Age 11 and Younger](#)
- [Fever or Chills, Age 11 and Younger](#)
- [Protecting Your Child From Infections](#)
- [Quick Tips: Safely Giving Over-the-Counter Medicines to Children](#)
- [Respiratory Problems, Age 11 and Younger](#)

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- 2. Hall CB, Walsh EE (2009). Respiratory syncytial virus. In RD Feigin et al., eds., *Feigin and Cherry's Textbook of Pediatric Infectious Diseases*, 6th ed., vol. 2, pp. 2462–2487. Philadelphia: Saunders Elsevier.

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