

Enteroviruses in Children



What is an enterovirus infection in children?

An enterovirus is a very common type of virus. There are many types of enteroviruses. Most of them cause only mild illness. Infections most often occur in the summer and fall. The viruses mostly cause illness in babies, children, and teens. This is because most adults have already been exposed to many enteroviruses and have built up immunity.

The viruses may not cause any symptoms, or they may cause only mild symptoms. Enteroviruses often cause what is known as the "summer flu." They can also cause a rash known as hand-foot-and-mouth disease. This is generally caused by coxsackievirus, a type of enterovirus.

But in some cases, an enterovirus can be more severe and cause complications. Some of the viruses, such as polio, can cause serious illness. Polio can be prevented with a vaccine and is now rare in the U.S. Some types of enteroviruses can cause inflammation of the tissue that covers the brain and spinal cord (meningitis). Enterovirus D68 can cause mild to severe symptoms in some children, such as trouble breathing. Some children have no symptoms.

What causes an enterovirus infection in a child?

Enteroviruses can be spread when an infected person sneezes or coughs droplets into the air or on surfaces. A child may then breathe in droplets or touch a contaminated surface and touch their eyes, mouth, or nose. Some of the viruses can spread through contact with infected feces (stool). This can happen when children don't wash their hands or don't wash them correctly. It can also happen from eating or drinking food or water that contains the virus. Infection with the polio virus is more likely if the child is not vaccinated or not current on all of their vaccines against this illness.

What are the symptoms of an enterovirus infection in a child?

In many cases, enteroviruses don't cause symptoms. If they do, the symptoms are often mild. Most symptoms usually go away in a few days and can include:

- Fever
- Muscle aches
- Sore throat
- Runny nose
- Sneezing
- Coughing
- Trouble breathing
- Wheezing
- Nausea and vomiting
- Diarrhea
- Red sores or clear-whitish blisters in the mouth and on the palms of the hands and soles of the feet (hand-foot-and-mouth disease)
- Red rash over large areas of the body
- Muscle weakness or paralysis from infection with polio virus

The symptoms of an enterovirus can be like other health conditions. Make sure your child sees their healthcare provider for a diagnosis.

How is an enterovirus infection diagnosed in a child?

A healthcare provider will ask about your child's symptoms and health history. The provider will do a physical exam. This may include an exam of the mouth, eyes, and skin. The healthcare provider will listen to your child's chest as they breathe.

In most cases, a medical provider will diagnose the condition based only on the symptoms and exams. No testing is needed. In the case of severe symptoms, your child may need certain tests. These are done to see if your child has an enterovirus or a different kind of illness. The tests can look for problems in the heart, lungs, and brain. The tests may include:

- **Virus culture.** The healthcare provider takes a small sample of saliva, blood, urine, or stool. It is then tested for a virus.
- **Polymerase chain reaction.** The healthcare provider takes a small sample of blood, urine, or saliva. The sample is tested for a virus.
- **Spinal fluid test.** The healthcare provider takes a small sample of spinal fluid. This is done by putting a small needle into your child's back. The fluid is tested for levels of certain chemicals and cells.
- **Blood test.** The healthcare provider takes blood from a vein. It is then tested for chemicals that may show the cause of your child's illness or organ problems.
- **X-rays.** This test is done to look at the lungs and heart.
- **Electrocardiogram.** This test is done to look at the electrical action of the heart.
- **Echocardiogram.** This test uses sound waves and a computer to look at the structure and movements of the heart.

How is an enterovirus infection treated in a child?

Treatment will depend on your child's symptoms, age, and general health. It will also depend on how severe the condition is.

Antibiotics don't work on viral illnesses like enterovirus. There is currently no antiviral medicines available to help cure an enterovirus infection. Instead, treatment is done to help your child feel better while their body fights the illness. This includes:

- **Pain medicine.** These include acetaminophen and ibuprofen. They are used to help ease pain and reduce fever. Don't give aspirin to your child or teen if they have a fever. A serious condition called Reye syndrome may occur. It affects the brain and liver.
- **Oral pain reliever (anesthetic).** This is a gel used to help ease the pain of sores in the mouth.
- **Bed rest and fluids.** This helps your child's body fight the illness.
- **Change in diet.** If your child has painful mouth sores, give only bland, soft foods. Don't give your child salty or crunchy foods.

In severe cases, treatment may include:

- Opioid medicines for severe pain
- Medicine for heart problems
- IV (intravenous) fluids for dehydration
- Medicine called immunoglobulin given through an IV

Symptoms, such as muscle aches, fever, and sore throat, usually go away in a few days. The red sores known as hand-foot-and-mouth disease usually go away in 7 to 10 days.

Talk with your child's healthcare providers about the risks, benefits, and possible side effects of all medicines.

What are possible complications of an enterovirus infection in a child?

Complications from enteroviruses are not common. But they can cause severe problems, such as:

- Inflammation of the brain (encephalitis)
- Inflammation of the tissues around the brain and spinal cord (meningitis)
- Inflammation of the heart (myocarditis)
- Inflammation of the liver (hepatitis)
- Eye infection (conjunctivitis)
- Severe illness in the lungs
- Weakness or paralysis of muscles

How can I help prevent an enterovirus infection in my child?

Children are vaccinated against poliovirus. There currently is no vaccine for other enteroviruses. Enteroviruses can spread easily from person to person. They are spread through stool and mucus from coughing or sneezing. They can live on surfaces that sick people have touched, coughed, or sneezed near. To help prevent illness:

- Teach children to wash their hands after using the toilet, before eating, and before touching their eyes, mouth, or nose.
- Wash your hands often, especially if you are caring for someone who is sick. Use a hand sanitizer if you don't have soap and water handy.
- Try to have less contact with people who are sick.
- Clean surfaces at home regularly with disinfectant.
- Be sure to have your child fully vaccinated against polio.

When should I call my child's healthcare provider?

Call a healthcare provider right away if your child has:

- Fever (see Fever and children section below)
- Severe headache that doesn't get better after taking a pain reliever
- Trouble breathing
- Chest pain when breathing
- Confusion
- Seizures
- Pain, swelling, and redness of the eyes
- Stiffness and trouble moving
- Yellow tint to the skin and eyes (jaundice)

Fever and children

Use a digital thermometer to check your child's temperature. Don't use a mercury thermometer. There are different kinds and uses of digital thermometers. They include:

- **Rectal.** For children younger than 3 years, a rectal temperature is the most accurate.
- **Forehead (temporal).** This works for children age 3 months and older. If a child under 3 months old has signs of illness, this can be used for a first pass. The provider may want to confirm with a rectal temperature.
- **Ear (tympanic).** Ear temperatures are accurate after 6 months of age, but not before.
- **Armpit (axillary).** This is the least reliable but may be used for a first pass to check a child of any age with signs of illness. The provider may want to confirm with a rectal temperature.
- **Mouth (oral).** Don't use a thermometer in your child's mouth until they are at least 4 years old.

Use a rectal thermometer with care. Follow the product maker's directions for correct use. Insert it gently. Label it and make sure it's not used in the mouth. It may pass on germs from the stool. If you don't feel OK using a rectal thermometer, ask the healthcare provider what type to use instead. When you talk with any healthcare provider about your child's fever, tell them which type you used.

Below is when to call the healthcare provider if your child has a fever. Your child's healthcare provider may give you different numbers. Follow their instructions.

When to call a healthcare provider about your child's fever

For a baby under 3 months old:

- First, ask your child's healthcare provider how you should take the temperature.
- Rectal or forehead: 100.4°F (38°C) or higher
- Armpit: 99°F (37.2°C) or higher
- A fever of _____ as advised by the provider

For a child age 3 months to 36 months (3 years):

- Rectal or forehead: 102°F (38.9°C) or higher
- Ear (only for use over age 6 months): 102°F (38.9°C) or higher
- A fever of _____ as advised by the provider

In these cases:

- Armpit temperature of 103°F (39.4°C) or higher in a child of any age
- Temperature of 104°F (40°C) or higher in a child of any age
- A fever of _____ as advised by the provider

Key points about enteroviruses in children

- Enteroviruses are very common. The viruses mostly cause illness in babies, children, and teens. This is because most adults have already been exposed to many enteroviruses and have built up immunity.
- The viruses often don't cause symptoms, or they cause only mild symptoms.
- Enteroviruses can be spread when an infected person sneezes or coughs droplets into the air or on surfaces. A child may then breathe in droplets or touch a contaminated surface and touch their eyes,

mouth, or nose.

- The viruses are treated with supportive care, such as fever or pain medicine, rest, and fluids.
- In some rare cases, the viruses may cause inflammation of the brain, heart, or other parts of the body.

Next steps

Tips to help you get the most from a visit to your child's healthcare provider:

- Know the reason for the visit and what you want to happen.
- Before your visit, write down questions you want answered.
- At the visit, write down the name of a new diagnosis and any new medicines, treatments, or tests. Also write down any new instructions your provider gives you for your child.
- Know why a new medicine or treatment is prescribed and how it will help your child. Also know what the side effects are.
- Ask if your child's condition can be treated in other ways.
- Know why a test or procedure is recommended and what the results could mean.
- Know what to expect if your child does not take the medicine or have the test or procedure.
- If your child has a follow-up appointment, write down the date, time, and purpose for that visit.
- Know how you can contact your child's provider after office hours. This is important if your child becomes ill and you have questions or need advice.

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