

# Coxsackievirus



## Hand, Foot, and Mouth Disease

*Hand, foot, and mouth disease is an early childhood condition most commonly caused by the coxsackievirus. This viral infection is named after its classic symptoms: small ulcers on the inside cheeks, gums, and tongue, and a red rash that can result in blisters on the palms of the hands and soles of the feet.*

*Coxsackievirus is easily spread from an infected person through nasal secretions, saliva, droplets in the air after a cough or sneeze, fluid from open blisters, or stool contamination. The best protection against its spread is thorough hand washing, especially after diaper changes or use of the bathroom. Breakouts of the disease are common in child care settings, preschools, and elementary schools.*

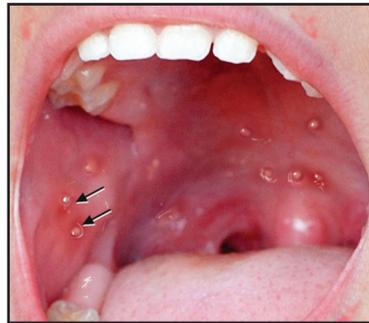
*Symptoms begin to appear between 3 and 7 days following exposure. The initial symptoms include fever, loss of appetite, and sore throat, followed by small blisters in the mouth and a red skin rash commonly found on the palms and soles. Treatment is aimed at relieving symptoms with fever reducers such as acetaminophen or ibuprofen, easing sore mouths and throats with topical anesthetics, and encouraging fluids to avoid dehydration.*

*Hand, foot, and mouth disease is usually mild and lasts no more than 7 to 10 days. It can cause more serious symptoms in some children, resulting in dehydration when it is painful to swallow. In rare cases, this viral infection can lead to inflammation of the brain lining (meningitis) or of the brain itself (encephalitis). There is no vaccine available to prevent the disease. The best prevention involves thorough hand washing, disinfecting areas or objects shared by young children during an outbreak, and home care until fever is gone and mouth ulcers have healed.*

- Symptoms:**
- Fever
  - Rash
  - Sore throat
  - Headache
  - Joint pain
  - Rash with small blisters

## Young Children Are the Most Vulnerable to Infection

Hand, foot, and mouth disease is a common, contagious, viral illness in young children. It can occur in older children and adults, although it is usually very mild. In the United States, coxsackievirus A16 is the most common cause of this infection, but enterovirus 71 has also caused outbreaks.



*Symptoms of infection include small ulcers on the inside cheeks, gums, and tongue.*

### Recognizing the Infection

Symptoms begin to appear within a week of exposure to an infected person. Fever and sore throat are the initial symptoms, followed by sores in the mouth and throat about 48 hours later. Finally, a rash appears after another 48 hours. The rash is typically found on the palms of the hands and soles of the feet and may form raised blisters. In some children, the rash may also be seen on the knees, elbows, buttocks, and genital area. Although this is a common pattern for the development of symptoms, some children may develop only one or two of the typical symptoms, while others may become more seriously ill, having difficulty eating or drinking for an extended period due to painful ulcers in the mouth and throat. These children may become extremely dehydrated as a result and require treatment with IV fluids.

Diagnosis is usually made by combining the timing and appearance of symptoms with the observations made during a physical examination. Often, there is an outbreak spreading through the day care center or school the child attends. Laboratory testing for the virus is not required for diagnosis, although a throat swab or stool sample may be analyzed to determine the exact virus responsible for the illness.

### Treating the Symptoms

There is no specific treatment for hand, foot, and mouth disease. A virus causes this illness, so antibiotics are not effective. The aim of treatment is to relieve symptoms and prevent complications such as dehydration. Fever may be treated with nonprescription medicines such as acetaminophen or ibuprofen. Aspirin should not be used in young children due to the risk of Reye syndrome. Mouthwashes and sprays that contain topical anesthetics help relieve mouth ulcer pain, making it easier to eat and drink. Children who are having trouble swallowing liquids may be given frozen pops or ice cream, and they may have an easier time drinking cold drinks and eating soft foods that do not require chewing.

### Complications

The most common complication is dehydration, a result of fever and difficulty drinking fluids. Rarely, viral meningitis or encephalitis, two inflammatory brain conditions, can result. Children with unusual symptoms such as prolonged fever, stiff neck, and headache should always be evaluated by a doctor.

Children with hand, foot, and mouth disease are highly contagious and should be kept home for at least the first week of the illness, until fever is gone and open ulcers in the mouth and on the body are healed. Viruses that cause this disease can be contagious even after symptoms have disappeared and can be spread by people who had very mild symptoms or none at all. Prevention of viral spread is greatly helped by thorough hand washing and good toilet hygiene. During outbreaks of the disease, it is important to disinfect surfaces and objects (such as toys) that may be contaminated with viruses using a solution of 1 tablespoon of chlorine bleach to 4 cups of water.