



## Centers for Disease Control and Prevention

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### Hand, Foot, and Mouth Disease (HFMD)

<http://www.cdc.gov/hand-foot-mouth/about/index.html>

Hand, foot, and mouth disease is a common viral illness that usually affects infants and children younger than 5 years old. However, it can sometimes occur in adults. Symptoms of hand, foot, and mouth disease include fever, mouth sores, and a skin rash. Hand, foot, and mouth disease is a common viral illness that usually affects infants and children younger than 5 years old. However, it can sometimes occur in adults. Symptoms of hand, foot, and mouth disease include fever, blister-like sores in the mouth (herpangina), and a skin rash.

Hand, foot, and mouth disease is caused by viruses that belong to the Enterovirus genus (group). This group of viruses includes polioviruses, coxsackieviruses, echoviruses, and enteroviruses.

- Coxsackievirus A16 is the most common cause of hand, foot, and mouth disease in the United States, but other coxsackieviruses have been associated with the illness.
- Enterovirus 71 has also been associated with hand, foot, and mouth disease and outbreaks of this disease.

### Signs and Symptoms

<http://www.cdc.gov/hand-foot-mouth/about/signs-symptoms.html>

Hand, foot, and mouth disease usually starts with a fever, poor appetite, a vague feeling of being unwell (malaise), and sore throat. One or 2 days after fever starts, painful sores usually develop in the mouth (herpangina). They begin as small red spots that blister and that often become ulcers. The sores are often in the back of the mouth. A skin rash develops over 1 to 2 days. The rash has flat or raised red spots, sometimes with blisters. The rash is usually on the palms of the hands and soles of the feet; it may also appear on the knees, elbows, buttocks or genital area.

Some people, especially young children, may get dehydrated if they are not able to swallow enough liquids because of painful mouth sores.

Persons infected with the viruses that cause hand, foot, and mouth disease may not get all the symptoms of the disease. They may only get mouth sores or skin rash.



# Transmission

<http://www.cdc.gov/hand-foot-mouth/about/transmission.html>

The viruses that cause hand, foot, and mouth disease (HFMD) can be found in an infected person's:

- nose and throat secretions (such as saliva, sputum, or nasal mucus),
- blister fluid, and
- feces (stool).

An infected person may spread the viruses that cause hand, foot, and mouth disease through:

- close personal contact,
- the air (through coughing or sneezing),
- contact with feces,
- contaminated objects and surfaces.

For example, you might get infected by kissing someone who has hand, foot, and mouth disease or by touching a doorknob that has viruses on it then touching your eyes, mouth or nose.

It is possible to get infected with the viruses that cause hand, foot, and mouth disease if you swallow recreational water, such as water in swimming pools. However, this is not very common. This is more likely to happen if the water becomes contaminated with feces from a person who has hand, foot, and mouth disease, and is not properly treated with chlorine.

Generally, a person with hand, foot, and mouth disease is most contagious during the first week of illness. People can sometimes be contagious for days or weeks after symptoms go away. Some people, especially adults, who get infected with the viruses that cause hand, foot, and mouth disease may not develop any symptoms. However, they may still be contagious. This is why people should always try to maintain good hygiene (e.g. handwashing) so they can minimize their chance of spreading or getting infections.

You should stay home while you are sick with hand, foot, and mouth disease. **Talk with your healthcare provider if you are not sure when you should return to work or school.** The same applies to children returning to daycare.

Hand, foot, and mouth disease is not transmitted to or from pets or other animals.

## Diagnosis

<http://www.cdc.gov/hand-foot-mouth/about/diagnosis.html>

Hand, foot, and mouth disease is one of many infections that cause mouth sores. Health care providers can usually tell the difference between mouth sores caused by hand, foot, and mouth disease and other causes by considering —

- how old the patient is,
- what symptoms the patient has, and
- how the rash and mouth sores look.

Depending on how severe the symptoms are, samples from the throat or stool may be collected and sent to a laboratory to test for the virus.

## Prevention

<http://www.cdc.gov/hand-foot-mouth/about/prevention-treatment.html>

There is no vaccine to protect against the viruses that cause hand, foot, and mouth disease.

A person can lower their risk of being infected by

- Washing hands often with soap and water, especially after changing diapers and using the toilet. Visit [CDC's Clean Hands Save Lives!](#) for more information.
- Cleaning and disinfecting frequently touched surfaces and soiled items, including toys.
- Avoiding close contact such as kissing, hugging, or sharing eating utensils or cups with people with hand, foot, and mouth disease.

If a person has mouth sores, it might be painful to swallow. However, drinking liquids is important to stay hydrated. If a person cannot swallow enough liquids, these may need to be given through an IV in their vein.

## Treatment

There is no specific treatment for hand, foot and mouth disease. However, some things can be done to relieve symptoms, such as

- Taking over-the-counter medications to relieve pain and fever (Caution: Aspirin should not be given to children.)
- Using mouthwashes or sprays that numb mouth pain

Persons who are concerned about their symptoms should contact their health care provider.

# Complications

<http://www.cdc.gov/hand-foot-mouth/about/complications.html>

Health complications from hand, foot, and mouth disease are not common.

Some complications include:

- Viral or "aseptic" meningitis can occur with hand, foot, and mouth disease but it is rare. It causes fever, headache, stiff neck, or back pain.
- Inflammation of the brain (encephalitis) can occur, but this is even rarer.
- Fingernail and toenail loss have been reported, occurring mostly in children within 4 weeks of their having hand, foot, and mouth disease. At this time, it is not known whether nail loss was a result of the disease. However, in the reports reviewed, the nail loss was temporary and the nail grew back without medical treatment.

# References

<http://www.cdc.gov/hand-foot-mouth/references-resources.html>

## Journal Articles

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