



**Enterovirus Infections
and Enterovirus 68
Essential Information**



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Origins

Enteroviruses are members of the Picornaviridae family of viruses, which includes poliovirus, coxsackieviruses, echoviruses, and rhinoviruses. Enteroviruses are often detected in the respiratory secretions (mucus, saliva and sputum) and feces of infected people. While historically polio was the most significant enterovirus infection, global vaccination programs against poliovirus have greatly reduced the prevalence of polio. Non-polio enteroviruses have a high mutation rate and there are more than 60 non-polio enteroviruses causing diseases such as the common cold, flaccid paralysis, aseptic meningitis, myocarditis, conjunctivitis, and hand, foot and mouth disease.

According to CDC estimates, there are 10-15 million non-polio enterovirus infections in the US each year, with infection most likely to occur in the summer and fall. While anyone can become infected with non-polio enterovirus, infants, children and teenagers are more likely to become infected and get sick. As a child grows, exposure to non-polio enteroviruses allows their immune system to develop immunity against future infections. Within this document, we will use the term enterovirus to mean any non-polio enteroviruses to simplify the terminology.

A 2014 outbreak of Human Enterovirus 68 (abbreviated as EV-68, HEV-68, or EV-D68) in the United States has increased interest in enterovirus infections. EV-68 was first isolated in California in 1962. While rare, it has become more prevalent recently, including the most recent US outbreak. As with other enteroviruses, EV-68 causes a respiratory illness primarily in children, as other enteroviruses do, but is unusual in that EV-68 shares epidemiologic and biological features with human rhinoviruses.

Symptoms and Diagnosis

Enterovirus infections are generally mild, with people often showing either no symptoms while infected or mild cold-like symptoms. Non-specific illness with a fever is common in enterovirus infections. However in some cases, enteroviruses can attack the central nervous system and cause paralysis or even death. Children with asthma or anyone with a weakened immune system seem to be more at risk of complications or a severe illness.

Performing a diagnosis on a person infected with enterovirus can be difficult because the early symptoms can be non-specific to enteroviruses. The symptoms likely to present early in the illness are often seen in patients with other similar flu-like diseases, such as those caused by influenza and coronavirus. Diagnosis and treatment should only be performed by a trained physician who can rule out other potential diseases.

Common symptoms of enterovirus infections include:

- Fever
- Runny nose, sneezing, cough
- Skin rash or mouth blisters
- Muscle pain/aches
- Sore throat
- Headache



Method of Transmission

Enteroviruses can be found in an infected person's:

- Eye, nose, and mouth secretions (saliva, mucus, or sputum)
- Feces
- Fluid from blisters in the mouth

Even if the infected person does not have visible symptoms, they may disperse viable virus onto other people or into the environment. It is believed that the most likely route of transmission for enteroviruses, including EV-68, is from person to person through contact transmission of contaminated secretions with close personal contact. People recently infected with enteroviruses can shed the virus from their respiratory tract and feces for several weeks and can do so with no visible symptoms.

Coughing and sneezing by an infected person can disperse droplets of respiratory secretions (saliva, mucus, and sputum) into the air, which can settle on the infected person's clothing, hands, or other parts of their body. The CDC does not indicate that inhalation of droplets is a likely route of transmission, so the virus likely settles onto the infected person or environmental surfaces and equipment as part of the route of transmission.

Improper handwashing after using the toilet or changing the diapers of an infected infant can also contaminate other people or surfaces. An infected person may also touch their eyes, nose, or mouth and transfer virus to their hands and then to other people or surfaces.

Transmission then occurs when an uninfected person contaminates their hands or clothing by touching:

- An infected person's hand, other body part, or clothing that is contaminated with the virus.
- Surfaces or equipment that are contaminated with the virus.
- Changing the diaper of an infected baby.

In each case above, proper hand hygiene would stop the transmission of enterovirus and prevent the second person from becoming infected. If hand hygiene is not performed, and the uninfected person touches their eyes, nose, or mouth with contaminated hands, this allows the virus to cross the second person's mucous membranes and infect them.

Surfaces and equipment are thus a potential source of indirect infection if they have been contaminated with enterovirus and are not disinfected appropriately after contamination. Restroom surfaces, baby changing stations, and other surfaces likely to be contaminated should be cleaned and disinfected regularly to prevent transmission of enteroviruses.

Women who are pregnant or breastfeeding and are infected with enteroviruses can pass the virus to their baby. Consult your doctor for more information.

Prevention

There are currently no vaccines for EV-68. There are also no antiviral treatments. Supportive care is used to reduce the severity of symptoms.

People caring for a patient with enterovirus infection, including EV-68, risk exposure when providing care and should follow precautions as outlined below. The CDC provides somewhat conflicting information, but based on the range of recommendations, Diversey supports using Standard, Contact, and Droplet Precautions for hospitalized patients including:

- **Hand hygiene** as per the WHO five moments and before/after glove use.
- Appropriate **Personal Protective Equipment (PPE)**, including gloves, fluid resistant gowns, and masks. Use of eye protection (face shield or goggles) for Healthcare workers is also recommended if there is a potential for exposure to contaminated secretions, as would usually be anticipated with respiratory infections.
- **Environmental Infection Control** as appropriate. Use of a country governmental approved disinfectant effective against human enteroviruses for environmental surface disinfection. Standards procedures for food utensils and dishware.
- Treat all **blood and body fluids** as potentially infectious and decontaminate.
- **Respiratory hygiene/cough etiquette** to prevent the spread of contaminated respiratory secretions. **Masking Patients:** Known or suspected Enterovirus patients traveling in a Healthcare facility outside their room should wear a mask to minimize the risk to others.
- **Patient Placement/Isolation** of suspected Enterovirus patients from contact with unprotected persons. During Patient Transport, cover or contain contaminated areas of the patient's body with PPE.
- **Fabric Handling** ensuring soiled fabric is handed in a way to prevent transmission. Standard Healthcare laundering procedures for contaminated fabric are capable of making the fabric hygienic.
- **Safe Injection Practices** to ensure multi-use vials of medication and reuse of needles does not infect additional patients. Also ensure **lumbar punctures** do not create risk for Healthcare workers through proper use of PPE.

In non-Healthcare settings, frequent hand hygiene, such as after using the toilet or when changing a baby diaper, increased frequency of surface disinfection, and respiratory hygiene are recommended to reduce the risk of enterovirus infection.”

Guidance and technical information is available from the CDC website to aid in better understanding of the disease and its prevention. These references were used in the preparation of this document.

www.cdc.gov/non-polio-enterovirus



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