

## **Norovirus**

### **What are noroviruses?**

Noroviruses are a group of viruses that cause acute gastroenteritis in humans. Gastroenteritis is an inflammation of the lining of the stomach and intestines. Norovirus was recently approved as the official genus name for the group of viruses provisionally described as "Norwalk-like viruses" (NLV). Currently, human noroviruses belong to one of three norovirus genogroups (GI, GII, or GIV), each of which is further divided into >25 genetic clusters.

### **How are noroviruses spread?**

Noroviruses are highly contagious, with as few as 100 virus particles thought to be sufficient to cause infection. Noroviruses are transmitted primarily through the fecal-oral route, either by direct person-to-person spread or fecally-contaminated food or water. Noroviruses can also spread via a droplet route from vomitus. These viruses are relatively stable in the environment and can survive freezing and heating to 60° C (140° F). In healthcare facilities, transmission can additionally occur through hand transfer of the virus to the oral mucosa via contact with materials, fomites, and environmental surfaces that have been contaminated with either feces or vomitus.

Persons working in long-term care facilities such as nursing homes should pay special attention to residents who have norovirus illness. This virus is very contagious and can spread rapidly throughout such environments.

### **What are the symptoms of noroviruses?**

The symptoms of norovirus illness usually include nausea, vomiting, diarrhea, and some stomach cramping. Sometimes people also have a low-grade fever, chills, headache, muscle aches, and a general sense of tiredness. The illness often begins suddenly, and the infected person may feel very sick. In most people the illness is self-limiting, with symptoms lasting for about 1 or 2 days. In general, diarrhea is more common in children and vomiting is more common in adults. Dehydration is the most common complication and may require intravenous replacement fluids.

### **Are certain people at risk of getting noroviruses?**

Anyone can become infected with noroviruses. There are many different strains of norovirus, which make it difficult for a person's body to develop long-lasting immunity. Therefore, norovirus illness can recur throughout a person's lifetime. In addition, because of differences in genetic factors, some people are more likely to become infected with noroviruses and to develop more severe illness than others.

### **What is the treatment for noroviruses?**

There is no vaccine to prevent norovirus infection, nor is there a drug to treat people who are infected with the virus. Antibiotic drugs will not help if you have a norovirus infection. This is because they fight against bacteria, not viruses.

Norovirus illness is usually brief in people who are otherwise healthy. But the infection can cause severe vomiting and diarrhea, which can lead to dehydration. During norovirus infection, young children, the elderly, and people with other illnesses are most at risk for dehydration.

Symptoms of dehydration in adults and children include a decrease in urination, a dry mouth and throat, and feeling dizzy when standing. Severe dehydration may require hospitalization for treatment with intravenous (IV) fluids. Thus, it is important to prevent dehydration during

norovirus illness. The best way to protect against dehydration is to drink plenty of liquids. The most helpful fluids for this purpose are oral rehydration fluids. Other drinks that do not contain caffeine or alcohol can also help with mild dehydration. However, these drinks may not replace important nutrients and minerals lost due to vomiting and diarrhea.

### **How can noroviruses be prevented in the healthcare setting?**

The most important means of preventing norovirus transmission and infection is exercising frequent and appropriate hand washing (<http://www.cdc.gov/handhygiene>). Alcohol-based hand sanitizers may be helpful as an adjunct method of hand hygiene, but should not replace washing with soap and water.

Other prevention measures include thorough cleaning and disinfecting of contaminated surfaces using a bleach-based cleaner. Noroviruses are relatively resistant. They are able to survive freezing and temperatures as high as 140° F. Moreover, noroviruses can survive in up to 10 ppm chlorine, well in excess of levels routinely present in public water systems.

Environmental surfaces that may be contaminated by norovirus should be disinfected using a chlorine bleach solution with a concentration of 1000-5000 ppm (5-25 tablespoons of household bleach [5.25%] per gallon of water) or other disinfectant registered as effective against norovirus by the Environmental Protection Agency. (See list at: [http://www.epa.gov/oppad001/list\\_g\\_norovirus.pdf](http://www.epa.gov/oppad001/list_g_norovirus.pdf).)

Guidelines for environmental infection control in healthcare facilities can be found at: [http://www.cdc.gov/hicpac/pdf/guidelines/eic\\_in\\_hcf\\_03.pdf](http://www.cdc.gov/hicpac/pdf/guidelines/eic_in_hcf_03.pdf).

For more information regarding norovirus, visit the following resources:

- <http://www.cdc.gov/norovirus/about/index.html>