



# Public Health Information Sheet

Director  
202-513-7217

Deputy Director  
202-513-7224

Epidemiologist  
202-513-7160

National Capital  
202-619-7070

Northeast  
978-970-5033

Southeast  
404-562-3124  
x697

Midwest  
402-221-3786

InterMountain  
303-969-2922

Desert Southwest  
505-988-6040

Pacific West/Pacific  
Islands/Alaska  
510-817-1375  
206-220-4270

## Web Resources

**NPS Public Health:**  
[http://www.nps.gov/public\\_health/](http://www.nps.gov/public_health/)

**CDC:**  
<http://www.cdc.gov>

**State and Local Health Departments:**  
<http://www.cdc.gov/mmwr/international/relres.html>

## Norovirus - General

### What are noroviruses?

Noroviruses are members of a group of viruses called caliciviruses also known previously as “Norwalk-like viruses.” Infection with norovirus affects the stomach and intestines, causing an illness called gastroenteritis, or “stomach flu.” This “stomach flu” is *not* related to the flu (or influenza), which is a respiratory illness caused by influenza virus. In addition, noroviruses are not related to bacteria and parasites that can cause gastrointestinal illnesses. Norovirus is not a “new” virus, but interest in it is growing as more is learned about how frequently noroviruses cause illness in people.

### What are the symptoms of infection with norovirus?

Norovirus infection causes gastroenteritis, which is an inflammation of the stomach and the small and large intestines. The symptoms of gastroenteritis are nausea, vomiting, and/or diarrhea accompanied by abdominal cramps. Some people also complain of headache, fever/chills, and muscle aches. Symptoms are usually brief and last only 1 or 2 days. However, during that brief period, people can feel very ill and vomit, **often violently and without warning**, many times a day. Symptoms usually begin 24 to 48 hours after ingestion of the virus, but can appear as early as 12 hours after exposure. There is no evidence that sick persons can become long-term carriers of the virus, but the virus can be in the stool and vomit of infected persons, from the day they start to feel ill to as long as 2 weeks after they feel better.

### How is norovirus spread?

Noroviruses are found in the stool or vomit of infected people. People can become infected with the virus in several ways, including:

- Consuming food or drinks that are contaminated with norovirus;
- Touching surfaces or objects contaminated with norovirus, and then placing their hand in their mouth;
- Direct contact with another person who is infected and showing symptoms (i.e. caring for someone with illness, or sharing foods or eating utensils with someone who is ill).

Food, drinks and fomites (environmental surfaces which may include: furniture, railings, carpeting, doors, etc) can very easily become contaminated with norovirus because the virus is so small and due to its very low infectious dose (it takes fewer than 100 norovirus particles to make a person sick). Contamination can occur either by direct contact with contaminated hands or work surfaces that are contaminated with stool or vomit, or by tiny droplets from nearby vomit that can travel through air to land on food, water and surfaces. Although the virus cannot multiply outside of human bodies, once on food, water or fomites are contaminated it can cause illness.

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Some foods can be contaminated with norovirus *before* being delivered to a restaurant or store. Several outbreaks have been caused by the consumption of oysters harvested from contaminated waters. Other produce such as salads and frozen fruit may also be contaminated at source.

### **How is norovirus gastroenteritis diagnosed?**

In special cases, when there is an outbreak of gastroenteritis there is a need to identify norovirus as the cause of the illness. In these cases, norovirus can often be found in stool samples of infected persons by using special tests. Sometimes blood tests looking for antibodies against norovirus are also performed, when the stool tests are inconclusive or were not done. Food handlers will often be asked for a stool sample or even a blood sample to help investigate the cause of an outbreak.

### **Can a person have norovirus gastroenteritis more than once?**

Yes, a person can be infected with norovirus more than once in their lifetime. This is because there are many different Noroviruses, and being infected with one type does not prevent infection from another type later. For this reason, it is difficult to develop a vaccine against norovirus.

### **Who gets norovirus infection?**

Anyone can become infected with these viruses. There are many different strains of norovirus, and strain specific immunity is not long lasting – probably only a few months. 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 and develop more severe illness than others.

### **What treatment is available for people with norovirus infection?**

Currently, there is no antiviral medication that works against norovirus and there is no vaccine to prevent infection. Norovirus infection cannot be treated with antibiotics. This is because antibiotics work to fight bacteria and not viruses. Norovirus illness is usually brief in healthy individuals. When people are ill with vomiting and diarrhea, they should drink plenty of fluids to prevent dehydration. Dehydration among young children, the elderly, the sick, can be common, and it is the most serious health effect that can result from norovirus infection. By drinking oral rehydration fluids (ORF), juice, or water, people can reduce their chance of becoming dehydrated. Sports drinks do not replace the nutrients and minerals lost during this illness.

### **Can Norovirus infections be prevented?**

Yes. You can decrease your chance of coming in contact with noroviruses by following these preventive steps:

- Frequently wash your hands, especially after toilet visits and changing diapers, before eating or preparing food.
- Thoroughly clean and disinfect contaminated surfaces immediately after an episode of illness.
- Immediately remove and wash clothing or linens that may be contaminated with virus after an episode of illness (use hot water and soap).
- Flush or discard any vomitus and/or stool in the toilet and make sure that the surrounding area is kept clean.
- Please see: Norovirus – Response and Cleanup Factsheet.

Persons infected with norovirus should not work in settings in which they may have the ability to contaminate food, water, or any objects that may come into contact with guests/visitors while they have symptoms and for 3 days after they recover from their illness. Food that may have been contaminated by an ill person should be disposed of properly.

A key for minimizing the risk of a norovirus outbreak and controlling an existing outbreak is to be diligent and always on the lookout for changes and trends around you. You should develop a **Norovirus Action Plan** which has the following components:

<b>Norovirus Action Plan</b>				
Action	Description	Normal (No known norovirus infections)	Reaction* (Current norovirus outbreak)	Caution (Recent norovirus outbreak contained)
Surveillance	Facility incident tracking system, guest request for medical assistance, complaints, employee illness trends, gift shop sales of anti-diahrreal and anti-emetic medicines, cleanup responses in public areas	Routine Level	Increased Level	Increased Level
Control	Infection control measures including housekeeping, food & Beverage service, pools & spas, special bodily fluid event response	Routine Level*	Increased Level	Routine Level*
Monitoring	Supervision of control measures by management and keeping control plans and supplies current	Routine Level	Increased Level	Increased Level
Training	Routine staff training including infection control measures, special bodily fluid event response and practice	Routine Level	Increased Level	Routine Level
Communication	Staff, guests, NPS and local public health personnel, media		Increased Level	Increased Level

\* For ANY bodily fluid event – Use infection control procedures to contain.

**References:**

Respiratory and Enteric Viruses Branch, National Center for Infectious Diseases, Centers for Disease Control and Prevention.

Proceedings of the Nevada Norovirus Summit, Las Vegas, Nevada July 13, 2004

If you have any questions, please contact a Regional Public Health Consultant, park sanitarian, or call WASO Public Health.

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