



FOR SCHOOLS: NOROVIRUS CONTROL MEASURES

HOW IS NOROVIRUS SPREAD?

Norovirus is spread when material contaminated by stool or vomitus from an infected person is ingested. Norovirus is extremely infectious. It takes only a few particles, so small that they cannot be seen with an ordinary microscope, to cause illness. Millions of particles are present in the stool or vomitus of someone who is sick. Excretion of virus in stool begins a few hours before the onset of symptoms and reaches a maximum 24-72 hours after exposure. The virus may continue to be present in the stool of infected persons for a week or more, even after they recover, but people are most infectious up to 48 hours after symptoms resolve. The virus is spread primarily through contamination of the hands of person who are ill. Good hand washing with soap and water is essential. Hand sanitizers are not effective in killing the virus.

Vomiting will also suspend viral particles in the air, resulting in contamination of the environment. Norovirus can remain infectious on environmental surfaces for many days and are relatively resistant to disinfection, heat, and cold.

CAN NOROVIRUS BE SPREAD BY FOOD AND WATER?

Norovirus can also be transmitted by food and water. Food preparers or handlers who have norovirus may contaminate food, especially if they do not wash their hands regularly after using the bathroom or do not wear gloves while handling food. Cold foods such as salad and sandwiches have been a source for outbreaks. Drinking water can also be contaminated due to faulty plumbing and be a source of these viruses.

HOW IS NOROVIRUS DIAGNOSED?

Norovirus cannot be diagnosed by traditional stool cultures or examination of stool for ova and parasites. Norovirus can be identified by a method called polymerase chain reaction (PCR), which is available at Sonoma County Public Health Lab (707) 565-4711. This requires fresh refrigerated (unfrozen) stool. PCR can remain positive for at least a week after the symptoms have resolved. While PCR can be completed within a day or two of receiving 4-10 stool specimens, decisions to institute control of a possible outbreak should not be delayed while waiting for results.

HOW CAN AN OUTBREAK OF NOROVIRUS BE IDENTIFIED?

Schools should establish and maintain a program of surveillance for norovirus illness. An outbreak of norovirus should be suspected when two or more students in one classroom and/or staff have vomiting and diarrhea with onset within one to two days. Vomiting, often projectile, is present in at least half of those ill. Other symptoms may include nausea with or without vomiting and low-grade fever.

HOW IS AN OUTBREAK OF NOROVIRUS CONTROLLED?

Interrupting person-to-person transmission controls the outbreak of norovirus. The following recommendations may assist school personnel in controlling an outbreak of norovirus.

- A. Limit transmission when initial cases of norovirus are suspected.
 1. Notify the Principal
 2. Confine symptomatic students to a room or segregated area until they can leave.
 3. New cases should be recorded daily using a case log.
 4. Notify the local health department. (707 565-4567) and consult with them about laboratory testing and control of the outbreak.

- B. Institute control measures when a norovirus outbreak is suspected without waiting for diagnostic confirmation.
 1. Minimize movement of students.
 2. Persons experiencing symptoms should not be involved with food preparation or food handling,.
 3. Students and staff experiencing symptoms should not attend school until 48 hours after symptoms have stopped.
 4. Limit group gatherings until the incidence of new cases has reached zero.
 5. Increase frequency of cleaning bathroom and shared common areas. Consider the use of respiratory protection for cleaning staff where aerosols may be present following vomiting, or be generated by cleaning activity.
 6. Clean and disinfect vomit and fecal spillages promptly.
 - i. Use an Environmental Protection Agency-approved disinfectant or a freshly prepared sodium hypochlorite solution (e.g, household chlorine bleach in a 1:100 {500ppm} to 1:10 {5,000ppm} dilution) to disinfect surfaces contaminated with feces or vomitus. Doorknobs, light switches, handrails should be included in disinfection process.
 - ii. Metal chairs/ desks and stationary furniture residing in classrooms of persons who have been vomiting should be washed with disinfecting solution.
 - iii. All bathroom surfaces, including floors should be disinfected. Surfaces that are rough or of uneven texture should have generous amounts of disinfecting solution applied and thoroughly scrubbed to assure solution has penetrated all areas of surface.
 7. Clean carpets and soft furnishings with hot water and detergent or steam clean. Dry vacuuming is not recommended.

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