



Date: January 8, 2007
To: Coastal Valleys EMS Agency
From: Leigh Hall, MD, Deputy Health Officer
Re: Recommendations for Control of Norovirus for First Responders

With the many outbreaks of norovirus occurring throughout the state, the question of infection control measures for first responders has repeatedly arisen. Below are guidelines for that group sent to us by California State Department of Health Services. Please distribute to interested EMS providers in the region.

Recommendations for Control of Norovirus for First Responders

Noroviruses, formerly referred to as “Norwalk-like viruses,” are part of a family of viruses called caliciviruses. Infection with a norovirus can cause acute gastroenteritis characterized by diarrhea, abdominal cramps, nausea and vomiting. Norovirus illness has an incubation period of 12 to 48 hours and a duration of 12 to 60 hours. Elderly and immunocompromised patients may be sick longer. Treatment of norovirus infection is supportive consisting of maintenance of hydration and rest.

Noroviruses are spread primarily through contact with an infected person’s stool or vomitus. Although “airborne” transmission has sometimes been described, this is really contact with particles of vomitus that have been propelled long distances by someone with vigorous (often projectile) vomiting. Transmission occurs when the particles come into contact with mucous membranes and are swallowed, or when the skin is contaminated and virus is later transferred to a mucous membrane and swallowed. Foodborne transmission is a common route of infection; direct or indirect person-to-person transmission is frequent. Indirect transmission is aided by the extreme hardiness of the virus in the environment as well as its highly infectious nature. The infectious dose is believed to be as low as 10 to 100 viral particles, while approximately one million particles are excreted per milliliter of stool. Shedding occurs in both symptomatic and asymptomatic persons. Shedding occurs while the person is ill and for up to two weeks post-recovery. There is also the possibility of pre-symptomatic shedding.

Noroviruses are very common: they account for 94% of nonbacterial gastroenteritis reported to the Centers for Disease Control and Prevention (CDC) for which a cause is identified. There are estimated to be 23 million cases each year in the United States, 9.2 million of which are believed to be foodborne.

Specific recommendations for management of norovirus for first responders include:

1. Contact precautions should be observed by the responder when there is potential contact with body fluids that are not one’s own.
 - a. This would include long-sleeved gown, gloves, and a surgical mask in the presence of an actively vomiting patient or when cleaning a heavily soiled area.

- b. If just walking into the facility to transport a patient with norovirus who is not vomiting, gown and gloves are sufficient.
 - c. The responder should refrain from touching their own mucous membranes unless hands have been washed first.
2. As waterless hand rubs are not completely effective against norovirus, hand washing with soap and running water when possible, or hand hygiene with a disposable towelette, is preferred. Handwashing should be performed before patient contact and eating, and after glove removal, use of the restroom, and at the end of the shift. Bare arm and any other skin that might have been exposed during vomiting should also be washed.
3. If the primary care provider has been within range of the vomiting patient, the responder's outer clothing should be changed or covered with a disposable jumpsuit prior to further patient or environmental contact when possible.
4. If a patient has diarrhea, or especially if they have projectile emesis while in custody of the first responder, the following sanitation must be done BEFORE use of the exposed equipment for another call:
 - a. Wearing gown, gloves and a surgical mask, scrupulously clean up all vomitus and stool.
 - b. Following manufacturer's instructions for contact time, disinfect the entire area within an 8-10 foot range of the vomiting incident with either a double-strength phenolic, 1:10 dilution of fresh bleach, or a quaternary ammonium product that has an Environmental Protection Agency (EPA) norovirus kill claim.
 - c. If disposable supplies (e.g. dressings) have been 'exposed' and cannot be disinfected, they should be thrown away. Non-disposable equipment such as gurney straps, BP cuffs, etc. should be cleaned and disinfected.
 - d. Failure to be meticulous with cleanup may lead to norovirus remaining in the environment and subsequent employee or patient infections.
5. Report the incident to the receiving facility.
6. First responders who become ill should not come back to work until symptom-free for 24 hours, must practice scrupulous handwashing, and if possible, should not perform food handling duties until able to return to work.