

Control Measures for Suspected Norovirus Outbreaks in Long Term Care Facilities

N.C. Public Health Recommendations for County Health Departments

Introduction

This document provides background information on norovirus infections, and general guidance for preventing and controlling norovirus activity in Long Term Care Facilities.

Background

Noroviruses are a group of viruses that cause gastroenteritis. The average incubation period for norovirus is 12 to 48 hours. Illness is characterized by acute-onset vomiting; watery, non-bloody diarrhea with abdominal cramps, and nausea. In addition, myalgia, malaise, and headache are commonly reported. Low-grade fever is present in about half of cases. Dehydration is the most common complication and may require intravenous replacement fluids. Symptoms usually persist for 1 to 3 days.

Noroviruses are highly contagious, with as few as 100 virus particles thought to be sufficient to cause infection. They 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.

Specific control measures**:

1. Strict hand hygiene: Staff, residents and visitors should wash with soap and warm water for at least 15 seconds. Discontinue the use of alcohol-based hand sanitizers because they are not effective against norovirus.
2. Exclude ill staff from work until 48 hours after last symptom resolves. It is common for LTCF staff members to work in multiple facilities. Therefore, it is important to remind ill staff that they should not report to work in any other facility during this period.
3. Disinfect: Recommend a bleach-based disinfectant for non-porous surfaces. The minimum concentration effective against norovirus is 1000 parts per million (ppm). The maximum concentration effective against norovirus is 5000 parts per million (ppm) and should be considered when surfaces are more porous and/or difficult to clean. See table below for the quantities of water and bleach needed based on the amount of sodium hypochlorite in the product and the desired concentration you want to achieve.

| Recommended Bleach Preparation Quantities | | |
|--|----------|----------------------------|
| 5.25% Sodium hypochlorite | | |
| | | Bleach per gallon of water |
| Bleach (Free Chlorine) Concentration | 1000 ppm | 1/3 cup |
| | 5000ppm | 1 2/3 cup |

| Recommended Bleach Preparation Quantities | | |
|--|----------|----------------------------|
| 8.25% Sodium hypochlorite | | |
| | | Bleach per gallon of water |
| Bleach (Free Chlorine) Concentration | 1000 ppm | 3 TBSP |
| | 5000ppm | 1 cup |

- a. For best efficacy, the bleach solution should be made daily,
4. Clean and disinfect soiled carpeting: Visible debris should be cleaned using an absorbent material (double layer) and discarded in a plastic bag to minimize aerosols. Clean with hot water and detergent and then steam clean (158° F for 5 min or 212° F for 1 min) for complete inactivation. A professional carpet cleaning company is recommended to reduce the risk of aerosolizing virus. Dry vacuuming is not recommended. CDC recommends avoiding the use of upholstered furniture and rugs or carpets in patient care areas, as these objects are difficult to clean and disinfect completely. If this option is not possible, immediately clean soilage, such as emesis or fecal material, from upholstery, using a manufacturer-approved cleaning agent or detergent. Opt for seating in patient-care areas that can withstand routine cleaning and disinfection.
5. Ill patients should remain in their room as much as possible during their illness.. Observe contact isolation precautions.
6. Restrict admissions and transfers until outbreak is over (i.e., no new cases for at least 96 hours).

7. Consider canceling group activities that include sharing items between residents (i.e. playing cards, self-serve pot lucks, etc.) until 96 hours after last case.
8. Visitor considerations:
 - a. NC Division of Public Health nor the CDC routinely recommend discouraging visitors
 - b. Facilities should encourage visitors to enter the facility through one central location
 - c. Facilities should ensure that signage and information is readily available explaining the illness impacting the facility
 - d. Facilities should instruct ill visitors to refrain from visiting until their symptoms resolve
9. Environmental health to review food service/disinfection practices. Pay particular attention to staff hand washing and ice machines.
10. Maintain line list: Contact facility daily to monitor for ill staff and patients. Continue for 1 week after last case onset. A sample line list of affected residents and staff worksheet is available <http://www.cdc.gov/hai/pdfs/norovirus/229110-A-NoroLineList508.pdf>
11. Contact other long term care facilities in area to alert them that norovirus is circulating, reinforce prevention and control messages, and remind them of reporting requirements.

****** These control measures should be implemented until the outbreak is over. An outbreak is considered over once two incubation periods have passed without new illness. This is 96 hours for norovirus.

Laboratory Testing

Testing for norovirus using reverse-transcription polymerase chain reaction (RT-PCR) is available through the North Carolina State Laboratory for Public Health (NC SLPH). This testing is for outbreaks only, and not for diagnosis of individual patients. The number of specimens that test positive from each outbreak will be given to the submitting laboratory; however individual test results will not be given by the NC SLPH as this testing is for surveillance rather than diagnostic purposes.

Requests for norovirus testing must be approved by the Communicable Disease Branch. Specimens from at least five patients must be submitted for testing to begin. One stool specimen from each patient should be placed in Cary-Blair transport medium and kept refrigerated (not frozen) before shipping. Specific guidance for specimen collection and shipping are available from SLPH at <http://slph.state.nc.us>.

Please note: Testing for norovirus may not be useful for outbreaks that are clinically and epidemiologically consistent with norovirus and occur in areas where norovirus is known to be circulating. Control measures should never be delayed while awaiting laboratory confirmation. All outbreaks should be reported to the Communicable Disease Branch and outbreak reports shall be submitted to the Communicable Disease Branch within 30 days of the end of an outbreak.

Additional Information

North Carolina Statewide Program for Infection Control and Epidemiology (NC SPICE) at: <http://spice.unc.edu/infection-control-guidelines-and-recommendations/published-2011/>.