

**SUMMARY OF GUIDELINES FOR INVESTIGATION AND MANAGEMENT OF NOROVIRUS  
OUTBREAKS IN LONG TERM CARE FACILITIES**

Colorado Department of Public Health and Environment  
Communicable Disease Epidemiology Program

**Agent:** Noroviruses cause acute viral gastroenteritis. In long-term care facilities (LTCFs), outbreaks of gastroenteritis caused by noroviruses are fairly common (especially in the winter), but require immediate attention to prevent prolonged spread of the virus in residents and staff.

**Incubation period:** 12 - 48 hours

**Duration of symptoms:** 12 - 60 hours

**Symptoms:** Onset of symptoms is sudden, consisting of nausea, vomiting, diarrhea (not bloody), abdominal cramps, low-grade fever, headache, chills, muscle aches and malaise. Severe dehydration can be fatal, especially among older persons with debilitating health conditions.

**Transmission/Communicability:** Noroviruses are extremely infectious, and are highly concentrated in the stool and/or vomit of infected people. Transmission is primarily person-to-person via the fecal-oral route, although airborne and fomite transmission may occur during outbreaks. Noroviruses can also cause foodborne and waterborne outbreaks. People are most contagious from the moment they begin feeling ill until diarrhea subsides, however they can remain contagious until at least 48 hours after recovery.

**Treatment:** There is no antiviral medication for treatment nor is there a vaccine for prevention. Supportive therapy consists of replacing fluids and electrolytes to prevent dehydration.

**Investigation:** In the event of an outbreak, the following steps should be taken:

- **Notify CDPHE or the local public health agency within 24 hours (phone numbers below).** CDPHE is available to assist LTCFs and local public health agencies investigate these outbreaks and review appropriate control measures.
- Collect 2-6 stool specimens from different ill individuals and submit them to a commercial laboratory or to CDPHE for norovirus testing and bacterial culture (on a fee for service basis). Try to collect specimens during the first 48 hours of illness while stool is still liquid.
- **Outbreak control measures should not be delayed while waiting for test results.**
- At the minimum, the facility should collect and document the following information for each ill resident and staff member:
  - Illness onset date and time
  - Symptoms
  - Duration of illness
  - Hospitalizations/deaths
  - Wing/room number (residents)
  - Job duties, work location, dates worked (staff)
- Based on the data collected above, the local public health agency and/or CDPHE will determine if the outbreak is likely from a common source or due to person-to-person spread. Additional information will be collected as needed to determine the source of the outbreak.

**Additional Information:**

|  |                       |
|--|-----------------------|
| <b>Communicable Disease Epidemiology</b>               | <b>(303) 692-2700</b> |
| <b>After-Hours Number</b>                              | <b>(303) 370-9395</b> |
| <b>Laboratory Services Division (state laboratory)</b> | <b>(303) 692-3090</b> |

For additional information on norovirus, please visit these CDC websites:

- “Norwalk-Like Viruses” Public Health Consequences and Outbreak Management:  
<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5009a1.htm>
- Information on norovirus, including frequently asked questions:  
<http://www.cdc.gov/ncidod/dvrd/revb/gastro/norovirus.htm>

## **Norovirus Outbreak Control Measures:**

**Implement control measures as soon as the potential outbreak is recognized.** Do not wait for laboratory results. Since noroviruses may be shed in the stool for weeks after symptoms subside, enhanced precautions need to be in place for at least two weeks following the last case of illness. Some can be discontinued when the outbreak is ‘over’ (at least 2 incubation periods have elapsed since the onset of the last case). The following control measures should be implemented:

### **Handwashing:**

- Staff, residents, volunteers and visitors must be more conscientious about handwashing and infection control. In general, handwashing should occur more frequently among all people in the facility.
- Hand sanitizing gels and lotions (also known as waterless hand sanitizers) can be used if handwashing facilities are not easily or immediately accessible. They can also be used in addition to proper handwashing. These products are not a substitute for proper handwashing.

### **Staff:**

- Symptomatic staff members should be reported to the person in charge of infection control or employee health. The following data should be systematically recorded (i.e. on a line list – see page 13): name, sex, age, illness onset date and time, symptoms, job title and location, illness duration, and if a stool specimen was collected.
- **Exclude ill staff, especially food handlers, from work until at least 48 hours after diarrhea and vomiting have ceased, even if they are feeling well sooner.**
- **Instruct ill staff employed at other healthcare facilities or LTCFs not to work at those other sites until at least 48 hours after diarrhea and vomiting have ceased.**
- Nursing staff should not “float” between affected areas and non-affected areas.
- Non-essential staff should be excluded from the affected areas.
- Staff should use disposable single-use gloves and gowns when caring for ill residents. **Change gloves and gowns and wash hands before caring for each resident.**
- Schedule a meeting with staff to review infection control procedures.
- Staff should wear appropriate PPE (gowns, gloves, and surgical masks) when cleaning areas contaminated with feces or vomit, or when caring for residents who are vomiting.
- Staff such as physical and occupational therapists who are essential and may visit several facilities in one day should be counseled about the outbreak and infection control. Within the affected facility, these staff should visit unaffected units before affected ones and should maintain excellent hand hygiene, especially when moving between facilities.

### **Residents:**

- Symptomatic residents should be reported to the person in charge of infection control, and the following data should be systematically recorded (i.e. on a line list – see page 14): name, sex, age, illness onset date and time, symptoms, room number, unit/wing, hospitalization status, illness duration, and if a stool specimen was collected.
- Ill residents should be placed on contact precautions and should be restricted to their rooms as much as possible until at least 48 hours after cessation of vomiting and diarrhea.
- Group activities should not occur among affected residents/units until the outbreak is over.

- Staff should make an effort to decrease feelings of isolation among ill residents. Consider encouraging family members to make more frequent telephone calls to ill residents.
- Residents should not be moved from an affected area to an unaffected area.
- Maintain the same staff-to-resident assignments.
- Consider the use of antiemetics (anti-vomiting medication) for residents with vomiting.
- If a resident is transferred to the hospital, notify the hospital that the resident is coming from a facility at which an outbreak of viral gastroenteritis is occurring.

#### Facility

- The facility, in conjunction with the state or local public health agency, should consider halting new admissions until the outbreak is over.
- Use a 10% solution of household chlorine bleach (a cup of bleach per nine cups of water) or an EPA-approved disinfectant with specific activity against norovirus. **Quaternary ammonium compounds are not effective against noroviruses.** A list of EPA-registered disinfectants is available at: [www.epa.gov/oppad001/chemregindex.htm](http://www.epa.gov/oppad001/chemregindex.htm).
- Clean and disinfect more frequently than usual, especially bathrooms, bathtubs, toilets, and areas of the facility commonly touched, such as handrails and doorknobs.
- Clean and disinfect any area that becomes soiled with feces or vomit promptly with a bleach solution or EPA-approved disinfectant.
- Common medical equipment (such as blood pressure cuffs) should be adequately cleaned and disinfected between residents. Consider dedicating pieces of commonly used equipment (blood pressure cuffs, glucometers, etc.) for use in affected areas.
- Flush any vomit or feces in toilets immediately.
- For carpets and upholstered furniture, remove visible debris with absorbent material and steam clean (158F for 5 minutes or 212F for 1 minute)
- Handle soiled linens and clothing as little as possible. They should be laundered with detergent in hot water at the maximum available cycle length and then machine dried.
- Any food handled by an ill person should be properly discarded.
- Discontinue self-service or family-style dining in dining rooms until outbreak is over.
- Disposable dishes and utensils are not necessary as regular dishwashing practices effectively removes any pathogens.
- Post signs that the facility is experiencing an increase in gastrointestinal illness.

#### Visitors/Volunteers:

- Encourage all visitors and volunteers to wash their hands while in the facility.
- Postpone visits from elderly persons, young children and persons with underlying medical conditions until the outbreak is over.
- Ill family members and friends should be asked to avoid visitation until symptoms subside.
- Monitor facility volunteers for illness. If ill, exclude them from volunteer work until at least 48 hours after recovery.

#### **Additional Information:**

To report an outbreak or for further guidance, please contact your local public health agency or CDPHE:

|  |                       |
|--|-----------------------|
| <b>Communicable Disease Epidemiology</b>               | <b>(303) 692-2700</b> |
| <b>After-Hours Number</b>                              | <b>(303) 370-9395</b> |
| <b>Laboratory Services Division (state laboratory)</b> | <b>(303) 692-3090</b> |

## OUTBREAK SURVEILLANCE FORM – STAFF

Facility: \_\_\_\_\_

| NAME | SEX | AGE | ONSET |      | SYMPTOMS<br>(SEE BELOW) | JOB<br>TITLE | JOB<br>LOCATION | ILLNESS<br>DURATION | STOOL<br>COLLECTED |
|------|-----|-----|-------|------|-------------------------|--------------|-----------------|---------------------|--------------------|
|      |     |     | DATE  | TIME |                         |              |                 |                     |                    |
|      |     |     |       | AM   |                         |              |                 |                     |                    |
|      |     |     |       | PM   |                         |              |                 |                     |                    |
|      |     |     |       | AM   |                         |              |                 |                     |                    |
|      |     |     |       | PM   |                         |              |                 |                     |                    |
|      |     |     |       | AM   |                         |              |                 |                     |                    |
|      |     |     |       | PM   |                         |              |                 |                     |                    |
|      |     |     |       | AM   |                         |              |                 |                     |                    |
|      |     |     |       | PM   |                         |              |                 |                     |                    |
|      |     |     |       | AM   |                         |              |                 |                     |                    |
|      |     |     |       | PM   |                         |              |                 |                     |                    |
|      |     |     |       | AM   |                         |              |                 |                     |                    |
|      |     |     |       | PM   |                         |              |                 |                     |                    |
|      |     |     |       | AM   |                         |              |                 |                     |                    |
|      |     |     |       | PM   |                         |              |                 |                     |                    |
|      |     |     |       | AM   |                         |              |                 |                     |                    |
|      |     |     |       | PM   |                         |              |                 |                     |                    |
|      |     |     |       | AM   |                         |              |                 |                     |                    |
|      |     |     |       | PM   |                         |              |                 |                     |                    |
|      |     |     |       | AM   |                         |              |                 |                     |                    |
|      |     |     |       | PM   |                         |              |                 |                     |                    |
|      |     |     |       | AM   |                         |              |                 |                     |                    |
|      |     |     |       | PM   |                         |              |                 |                     |                    |
|      |     |     |       | AM   |                         |              |                 |                     |                    |
|      |     |     |       | PM   |                         |              |                 |                     |                    |
|      |     |     |       | AM   |                         |              |                 |                     |                    |
|      |     |     |       | PM   |                         |              |                 |                     |                    |

**Symptoms:** **V** = Vomiting   **D** = Diarrhea   **F** = Fever (provide temperature)   **A** = Abdominal Cramps   **H** = Headache   **N** = Nausea  
**M** = Muscle Aches   **C** = Chills   **O** = Other (please list)



**GASTROENTERITIS (NOROVIRUS) OUTBREAK REPORT FORM FOR LONG TERM CARE  
AND HEALTHCARE FACILITIES**

Outbreaks should be reported to the local or state health department within 24 hours of being identified. When the outbreak has ended, please complete and fax this form to CDPHE or your local health department; attach additional comments, epi-curve, and/or outbreak report if available.

Reported by: \_\_\_\_\_  
Agency: \_\_\_\_\_ Title: \_\_\_\_\_

Facility name: \_\_\_\_\_  
Address: \_\_\_\_\_ City: \_\_\_\_\_ Zip code: \_\_\_\_\_  
County: \_\_\_\_\_ Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Facility contact person/title: \_\_\_\_\_

Facility type (check all that apply):  Skilled nursing  Assisted living  Rehabilitation  
 Independent living  Acute care hospital  Other: \_\_\_\_\_

Facility census at start of outbreak: # Residents \_\_\_\_\_ # Employees \_\_\_\_\_

Date of first illness onset: \_\_\_\_\_ Date of last illness onset: \_\_\_\_\_

Total number of ill residents: \_\_\_\_\_

Total number of ill staff: \_\_\_\_\_

Number of persons hospitalized: \_\_\_\_\_ Number of deaths: \_\_\_\_\_

Shortest duration of illness: \_\_\_\_\_ Longest duration of illness: \_\_\_\_\_ Median duration: \_\_\_\_\_

Primary route of transmission:  Person-to-person  Food/water\*  Other: \_\_\_\_\_

\*If foodborne/waterborne is suspected, contact CDPHE immediately. More complete investigation is needed.

| <b>Symptoms</b>   | <b># Residents</b> | <b># Employees</b> |
|---|--------------------|--------------------|
| Abdominal cramps  |                    |                    |
| Fever   |                    |                    |
| Diarrhea  |                    |                    |
| Bloody diarrhea   |                    |                    |
| Vomiting  |                    |                    |
| Headache  |                    |                    |
| Other:  |                    |                    |
| <b>Total people for whom this information was collected</b> |                    |                    |

Were stool specimens submitted to a laboratory for testing?  Yes  No

If yes, where:  CDPHE (state) lab  Other lab: \_\_\_\_\_

Date submitted (earliest date, if submitted on multiple days): \_\_\_\_\_

| <b>Stool Test Summary</b> |                       |                         |                       |
|---------------------------|-----------------------|-------------------------|-----------------------|
| <b>Type of Test</b>       | <b>Total # tested</b> | <b>Total # positive</b> | <b>Organism found</b> |
| Norovirus PCR             |                       |                         |                       |
| Bacterial culture         |                       |                         |                       |
| Other:                    |                       |                         |                       |

**Fax completed form to:** Colorado Department of Public Health and Environment (CDPHE)  
(303) 782-0338  
(Or to your local public health department)

Questions? Call CDPHE at (303) 692-2700

Complete guidance can be found at: [http://www.cdphe.state.co.us/dc/Epidemiology/dc\\_group.html](http://www.cdphe.state.co.us/dc/Epidemiology/dc_group.html)