

State of Tennessee  
Department of Health  
Communicable and Environmental Diseases and Emergency Preparedness

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**RECOMMENDATIONS FOR THE PREVENTION AND  
CONTROL OF VIRAL GASTROENTERITIS  
OUTBREAKS IN LONG-TERM CARE FACILITIES**

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## **Introduction**

Outbreaks of viral gastroenteritis in long-term care facilities (LTCFs) are common and can become epidemic if not identified early and prompt control measures instituted. In Tennessee, outbreaks in community settings such as LTCFs primarily occur in the fall and winter. Viral gastroenteritis outbreaks are often caused by caliciviruses such as those in the norovirus group. Noroviruses are extremely contagious and easily transmitted in healthcare facilities and other institutional settings through person-to-person contact. Additionally, environmental surfaces can become contaminated and viral particles may persist in the environment for one week or longer without thorough disinfection. It is best to use chlorine bleach as the main disinfecting agent since other types of disinfectants are not effective at killing the virus. Food has been implicated as a vehicle for transmission, but is less often the cause of outbreaks in LTCFs.

The incubation period for norovirus is 12 to 48 hours.

Noroviruses usually cause mild to moderate illness in healthy adults with symptoms lasting 24 to 72 hours. However, illness can be more severe in the elderly and in those with underlying health conditions. Dehydration from fluid loss is a concern for those who are ill, especially the elderly and very young.

Norovirus associated deaths, although rare, have been reported among elderly persons during outbreaks.

**An outbreak of viral gastroenteritis should be suspected when 2 or more residents and/or staff develop new onset of vomiting and/or diarrhea within 48 hours of each other.**

Controlling the rapid spread of acute gastrointestinal outbreaks in LTCFs **requires early recognition** of symptoms by staff and **prompt implementation of infection control measures** such as those outlined in this document. The consequences of uncontrolled outbreaks can impact a LTCF for weeks with residents, staff (both medical and non-medical), volunteers, visitors, and environmental contamination propagating the outbreak. Early recognition of an outbreak and prompt implementation of control measures can prevent severe illness, hospitalization, and death.

**If you suspect an outbreak of viral gastroenteritis, contact your local health department.**

## **Frequently Asked Questions:**

*What is viral gastroenteritis and what causes it?*

Viral gastroenteritis is an inflammation of the stomach and intestines resulting in vomiting and/or diarrhea. Outbreaks of viral gastroenteritis in LTCFs are generally due to caliciviruses, which includes norovirus. Bacteria can cause gastroenteritis in LTCFs, but are more likely to be food-borne, and the patterns of illness that occur are usually different from viral gastroenteritis outbreaks.

### ***What are the signs and symptoms of viral gastroenteritis?***

Sudden onset of vomiting and diarrhea. Vomiting is usually prominent while diarrhea tends to be watery, short-lived, and less severe than bacterial gastroenteritis. Headache, fever (usually low-grade), chills, abdominal cramps (“stomach ache”), nausea, and myalgia (“body or muscle aches”) also occur. These symptoms can occur in various combinations during an outbreak. **When viral gastroenteritis occurs during the winter it is often referred to as “intestinal influenza” or “stomach flu,” although it has no relationship to respiratory infections caused by the influenza virus.**

### ***How is viral gastroenteritis spread?***

Viral gastroenteritis or norovirus is spread when microscopic viral particles are transferred from contaminated hands or objects to the mouth and ingested (fecal-oral). Norovirus can also spread via a droplet route from vomitus (MMWR, 2011). Millions of particles are present in the stool and vomitus, and it takes only a small number to cause illness. Excretion of virus in the stool begins a few hours before the onset of symptoms and reaches a maximum 24–72 hours after exposure. Duration of shedding can last two to three weeks. The virus can continue to be present in the stool of infected persons for a week or more after symptoms have subsided. Persons who have been infected but do not develop symptoms may also shed the virus in their stool. Vomiting may disperse viral particles through the air, resulting in exposure of persons nearby and in contamination of environmental surfaces and objects. Noroviruses are relatively stable in the environment and can survive on inanimate surfaces for up to a week or more. Transmission can occur when individuals touch environmental surfaces or objects contaminated with these viruses and then touch their mouth (MMWR, 2011).

In a healthcare facility the virus is spread primarily when ill persons (residents, healthcare workers, visitors) contaminate their hands with feces or vomitus containing the viral particles. Hand hygiene (using soap and water) is critically important in controlling the spread of the virus, but should not be relied upon as the only method in controlling an outbreak. .

### ***Can viral gastroenteritis be spread by food and water?***

Viral gastroenteritis (norovirus) is also transmitted by food and water, however, the extent to which this occurs in LTCFs is unknown. Food preparers or handlers who have viral gastroenteritis may contaminate food, especially if they do not wash their hands thoroughly after using the bathroom or do not wear gloves while handling food. Cold foods such as salad and sandwiches have been implicated in many outbreaks. Contamination of drinking water with norovirus is typically associated with the breakdown of routine chlorination for municipal water supplies and sewage or other fecal contamination of well water sources.

### *How is viral gastroenteritis diagnosed?*

Viral gastroenteritis cannot be diagnosed by routine methods used for bacteria and parasites. Norovirus is identified by special testing [reverse transcription-polymerase chain reaction (RT-PCR)], available through Tennessee Department of Health Laboratory Services. Local health departments can facilitate the testing. Ideally, stool samples should be obtained from 3 to 4 ill persons within 48-72 hours after the onset of symptoms. While RT-PCR can be completed relatively quickly, **decisions to institute infection control measures should NOT be delayed for results.** Decisions regarding testing for norovirus should be made after consultation with the facility medical director and Tennessee Department of Health.

### *How can an outbreak of viral gastroenteritis be identified?*

Facilities should establish and maintain an infection prevention and control program that includes a surveillance program for infections common to LTCFs including viral gastrointestinal disease. **An outbreak of viral gastroenteritis should be suspected when 2 or more residents and/or staff develop new onset of vomiting and/or diarrhea within 48 hours of each other.** Vomiting is often present in at least half of the ill persons. Other symptoms may include nausea with or without vomiting, abdominal cramping, fatigue, body aches and occasionally a low grade fever. **Facilities should immediately institute infection control measures and contact public health anytime an outbreak is suspected, regardless of any decision regarding the need for laboratory testing.**

### *How is an outbreak of viral gastroenteritis controlled?*

Despite all the control measures and precautions that a facility may have in place, it is very difficult to prevent the initial **introduction** of the virus into the facility by an infected healthcare worker or visitor who may be shedding the virus even before they have symptoms. However, **immediate implementation of control measures may limit the extent of the outbreak.** The following recommendations may assist facility personnel in controlling an outbreak of viral gastroenteritis.

### *What should my facility do to prepare for the possibility of an outbreak?*

Review the information provided in this document and share it with your staff. Think about what types of information and documentation you want to have ready to respond to questions and concerns from residents, their family and friends, and staff. In advance of an event, consider development of information and guidance letters for these groups as well as signage that addresses specific issues such as dining facility closure or group activity suspensions. A sample is available in Appendix 2. In outbreak response, preparation and transparency in response efforts are the keys to success.

*You suspect a viral gastroenteritis outbreak, now what?*

**Step 1: Notification**

- Residents – Report any sudden onset of vomiting and/or diarrhea to Infection Control Practitioner (ICP) or Staff Manager.
- Staff (including volunteers and home health agency providers) – Report any sudden onset of vomiting and/or diarrhea to ICP or staff manager.
- ICP or Staff Manager -
  1. Consult with medical practitioner for your facility.
  2. Consult with your county health department.
  3. Log cases daily using line list such as provided in Appendix 3.
  4. Notify any “sister” facilities which share staff with your facility that you suspect an outbreak in order that they can institute control measures.
  5. Provide staff, visitors, and residents with information such as the Viral Gastroenteritis Fact Sheet provided (Appendix 4).
  6. Alert any hospitals, other facilities (i.e. hospice), and/or medical transport service personnel to the presence of an acute viral gastrointestinal outbreak.

**Step 2: Isolation and Case Management**

- Residents – Isolate those with symptoms to their rooms until 48 hours after symptoms have ceased.
- Staff (including volunteers) – Those with symptoms should not report to work until 48 hours after symptoms have ceased.
- ICP or Staff Manager -
  1. Exclude non-essential staff (including home healthcare workers) & volunteers from the rooms of isolated patients.
  2. Discontinue use of “floating” staff, i.e., try to limit staff to one area of assignment.
  3. Discontinue all communal activities, to include closing of common dining facilities until 48 hours after identification of last case.
  4. Consider not admitting new residents until no new cases have been identified for at least 48 hours. If new admissions are necessary, consider admitting them only to unaffected buildings or units until outbreak is resolved.
  5. Consider postponing transfers out to other facilities such as hospice while outbreak is occurring. If transfers out do take place, be sure to notify the transfer facility of presence of an acute viral gastrointestinal outbreak
  6. Discourage visits from non-resident family and friends, e.g. by posting signage such as that in Appendix 2.

### **Step 3: Staff Contact Precautions and use of Personal Protective Equipment (PPE)**

- PPE such as disposable gloves and gowns should be worn when entering the rooms of symptomatic residents.
- Masks (surgical or procedural) and goggles and/or face shields should be worn if vomitus is presents.
- Remove PPE and perform hand hygiene immediately upon leaving room. Place PPE in a closed container or biomedical waste bag, tie, and dispose.
- Hand hygiene –  
Wash with soap and water before and after patient contact..  
Soap and running water for at least 20 seconds is the most effective way to reduce norovirus contamination on the hands. **Hand sanitizers should not be considered a substitute for soap and water handwashing. (MMWR, 2011).**

### **Step 4: Managing Ill Staff**

- Ill staff & volunteers should not return to work until they are **symptom-free for 48 hours.**
- Maintain a log of ill staff to include date of onset, date returned to work, and symptoms reported (See Appendix 3).

### **Step 5: Managing Food Service**

- Closing communal dining areas is important during an acute gastrointestinal outbreak.
- Consider delivering food on disposable dinnerware to affected areas.
- If particular floors or units are affected, consider delivery of all meals to that floor or unit by one staff member. Distribution of food to each resident on the floor might then be tasked to the staff member dedicated to the care of residents of that floor or unit in order that the number of staff in contact with ill residents remains limited.
- Cleaning and disinfection of food and drug trays and the carts used to transport them should take place before and after each use **outside the food and drug preparation areas.**
- During an acute viral gastroenteritis outbreak, emphasis should be placed on strict hand washing regimes by food service personnel.
- Exclude non-food service personnel from food preparation and service areas.

## **Step 6: Managing the Environment**

### ***DO:***

- Use chlorine bleach (1000 ppm dilution for less soiled areas, but up to 5000 ppm for more soiled areas).(Appendix 1)
- Increase frequency of environmental cleaning of residents' living areas and bathrooms.
- Clean & disinfect vomit and fecal spills promptly using chlorine bleach solution.
- Wear PPE (disposable gown, gloves, and surgical or procedure mask) when cleaning and disinfecting.
- Segregate clean and soiled laundry.
- Wear PPE when handling and cleaning soiled linens and laundry.
- Place soiled linens in a bag for transport to cleaning area and minimize number of staff handling soiled laundry.
- Post signs alerting residents and visitors to the presence of gastrointestinal illness in the facility (e.g. Appendix 2).
- Discourage visitation during the outbreaks. (If visitation is necessary, visitors should wear PPE and be shown how to properly put it on and take it off to avoid contamination.)
- Provide staff, visitors, and residents with information regarding norovirus such as the Viral Gastroenteritis Fact Sheet provided (Appendix 4).
- Continue enhanced cleaning and disinfection practices for at least 72 hours after last case.

### ***DO NOT:***

- Rely upon disinfectants designed for antibacterial disinfecting such as “Lysol” as their use in destroying norovirus particles is uncertain.
- Vacuum contaminated carpets and furnishings until steam cleaning has taken place in order to avoid risk of re-circulating viral particles.
- Bring non-essential equipment into contaminated areas.
- Shake soiled linens and laundry.
- Hesitate to consult with your local health department for clarification of this guidance.



## References

### **CDC-Norovirus-Resources and**

**References**<http://www.cdc.gov/norovirus/resources.html>

Overview: A Norovirus Outbreak Control Resource Toolkit for Healthcare Settings,  
<http://www.cdc.gov/hicpac/norovirus/pubs.html>

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Michigan Department of Community Health. Viral Gastroenteritis: Norovirus: Local Health Department Guidelines for Environmental Cleaning and Disinfection of Norovirus. January 5, 2009.

[http://www.michigan.gov/documents/Guidelines\\_for\\_Environmental\\_Cleaning\\_125846\\_7.pdf](http://www.michigan.gov/documents/Guidelines_for_Environmental_Cleaning_125846_7.pdf)

## Appendix 1. Suggested disinfection procedures for facilities experiencing viral gastroenteritis outbreaks

### **What to disinfect:**

- Doorknobs, faucets, sinks, toilets, commodes, bath rails, phones, counters, chairs, bottles, food and drug trays, food and drug carts, elevator buttons, light switches, mattress covers, aprons, uniforms, bedding, computer keyboards, ice machines.
- Clean and disinfect surfaces starting from areas with lower likelihood of norovirus contamination to areas with highly contaminated surfaces. Change mop heads when new solutions are prepared, or after cleaning large spills of vomitus or fecal material.
- Use Standard Precautions for handling soiled patient items or linens

### **What to use, and how:**

***Chlorine bleach*** (sodium hypochlorite, NaOCl).

. with a concentration of 1000–5000 ppm (5–25 tablespoons of household bleach [5.25%] per gallon of water), strength dependant on degree of soiling. For more information, see [EPA's Registered Antimicrobial Products Effective Against Norovirus \(Norwalk-like virus\)](#)

### **What NOT to use:**

- Most quaternary ammonia compounds (many common all-purpose cleaners)
- Ethanol (ethyl alcohol based) anionic compounds, like alcohol-based hand sanitizers.
- Phenolic compounds like Lysol or Pine-Sol
- These cleaners are likely to be ineffective in destroying viral particles which cause acute viral GI outbreaks.
- Many common household disinfectant sprays may be effective, but require concentrations of 2-4 times manufacturer's recommendation, which could pose significant health risk to workers and pets.

**Because we are currently experiencing an increase in the number of residents with vomiting and diarrhea in our facility, we ask that you please check in at the front desk before visiting with your family member or friend.**

**~Thank you for your cooperation.**

**Appendix 3. Suggested Case Log or Line List of Residents for facilities experiencing an outbreaks of viral gastroenteritis**

No.	Name	Age	Sex	Building/Unit	Room	Onset date	N	V	D	AC	Fe	Ch	Day well	Hosp	Lab Results
001	John Doe	78	M	A	202	1/02/2014	N	Y	Y	N	N	N	1/08/2014	N	none

N=Nausea, V=Vomiting, D=Diarrhea, AC=Abdominal Cramps, Fe=Fever, Ch=Chills, Hosp=Hospitalization

# Viral Gastroenteritis Fact Sheet

What is viral gastroenteritis?

- Inflammation of the stomach and small & large intestines
- Commonly caused by norovirus (formerly called “Norwalk-like viruses”)
- Sometimes incorrectly called “stomach flu” (has no relationship to influenza)
- Noroviruses are highly contagious

How are viruses that cause gastroenteritis spread?

- Person-to-person transmission
- Viral particles may become airborne during vomiting events
- Contamination of environmental surfaces
- Food can be contaminated by ill people
- Virus can be shed up to 48 hours after symptoms resolve, possibly longer

How serious is norovirus?

- Most people feel better within 1 or 5 days
- Dehydration from fluid loss is a concern and may result in severe illness, especially **in the elderly, the very young, and those with other illness**

How is viral gastroenteritis treated?

- **Rehydrate** by drinking plenty of fluids
- Preventing severe fluid loss (dehydration) during illness is key
- Severe dehydration may require hospitalization
- Antibiotics are **not effective** in treating viral infections

How are viral gastroenteritis outbreaks prevented?

- Frequent and thorough hand washing using **soap and water**
- Prompt disinfection of contaminated surfaces with **chlorine-based cleaners**
- Prompt washing of contaminated clothing and linens
- Limiting personal contact and group gatherings when an outbreak is known or suspected

Symptoms of norovirus:

- Vomiting
- Diarrhea (often watery)
- Headache
- Fever
- Nausea
- Abdominal pain

Symptoms usually start 12-48 hours after exposure, usually lasting 24-60 hours.

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