

Gastrointestinal Virus Infection Control Measures Healthcare Facilities

These guidelines have been developed to help stop the spread of viral gastroenteritis in schools and daycares. Norovirus is highly contagious and very resilient. The virus can survive low chlorine levels, freezing, and heating to 140°F. Preventive measures should be continued for at least 3 days after the outbreak appears over. Infected persons can continue to shed the virus for up to 2 weeks after they have recovered.

Norovirus can be transmitted by multiple methods: foodborne, waterborne, person-to-person, and fomite (inanimate objects). Contamination can occur either by direct contact with soiled hands, environmental surfaces that are contaminated with stool or vomit, or by tiny droplets from vomit that can become airborne. Contaminated food, water, or fomites can serve as vehicles to transmit the virus. The virus cannot multiply outside of the body but can survive for several days. Infected persons shed an extremely large amount of virus in feces and vomitus (> 1 million virus particles/ml). It is estimated that fewer than 100 Norovirus particles can make a person sick. While Norovirus is the most common cause of human gastroenteritis, other viruses such as Astrovirus, Adenovirus, Reovirus and Sapovirus can be controlled by the same infection control practices although the incubation periods, duration of illness, shedding, and severity may differ slightly.

1. Personal Protective Equipment (PPE)

- Staff should wear PPE when caring for ill patients/residents or when touching potentially contaminated surfaces
 - Gloves should be discarded and hands washed immediately after completing patient care
- Housekeeping staff should wear PPE when vacuuming, cleaning contaminated or potentially contaminated surfaces, or laundering
 - Minimize aerosolization while cleaning
- PPE: All staff should be adequately trained on how to don and remove PPE appropriately¹
 - Disposable gloves – during ill patron contact and environmental disinfection measures
 - Masks and/or face shield - may be necessary for contact with patron while vomiting and during disinfection of surfaces or materials contaminated with vomitus or feces that may become aerosolized
 - Disposable gowns and footies - may be necessary to protect workers during extreme cleaning conditions of vomitus and feces and to avoid contaminating work clothing that could come into direct contact with other surfaces or persons
 - Dispose of all PPE before coming in contact with another room or area

2. Disinfection and Sanitation

- Use a bleach solution to frequently clean *all* common surfaces, bleach dilutions can be used in the kitchen
 - Use common sodium hypochlorite (bleach)
 - Do not use scented or low-odor bleach
 - Bleach starts losing its effectiveness after being opened for 30 days
 - For surfaces that could corrode or be damaged by bleach, rinse the sanitized area with water or a 70% alcohol solution after applying the bleach solution

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- As bleach degrades over time, the solution should be date and time labeled and prepared at least daily
 - Use a new freshly made bleach solution between area cleaned

Table 1: Bleach dilutions, 1:10 is recommended

	1:10 (5000ppm)	1:50 (1000ppm)	1:250 (200ppm)
Mixing Instructions	1 part bleach to 9 parts water or 1&2/3 cups of bleach to 1 gallon of water	1/3/ cup bleach to 1 gallon of water	1 tablespoon bleach to 1 gallon of water
Surfaces	Use for porous surfaces and direct clean up of soiled areas	Non-porous surfaces, tile floors, counter-tops, sinks, toilets	Can be used for stainless steel, food/mouth contact items, toys
Contact Time	10-20 minutes on surface	10-20 minutes on surface	10-20 minutes on surface

- Use a 10% bleach solution to frequently clean *all* common fomites, at least once a day
 - Fomites are inanimate objects capable of carrying infectious agents from an infected person to another person
 - Examples: desks, table tops, door handles, remote controls, railings, elevator buttons, counter tops, arm rests, toys, athletic equipment, telephones, electronic equipment and buttons, toilet seats, water faucets, water fountains, ice machines, light switches, diaper stations
- Solutions that *are not* effective
 - Commonly used quarternary ammonium disinfectants
 - Non-hospital grade bleach wipes often do not contain bleach at all
 - Phenols (Lysol ® or Pinesol ®) can be effective but require 2-4x more concentration than the manufacturer’s recommendation, posing a significant health risk
 - Quaternary (quats) compounds, ethanol, or anionic compounds
- Visible debris should be cleaned up with disposable absorbent material (double bag and discard)
- Contaminated carpets, upholstery, and mattresses
 - Should be steam cleaned at ≥158°F for 5 minutes or 212°F for 1 minute or cleaned with detergent, hot water (≥170°F), and sodium hypochlorite (if bleach-resistant)
 - Carpets and upholstery must be allowed to air dry (or with assistance from a fan) before the area can be considered useable
- Linens (including clothes, towels, tablecloths, napkins, etc.)
 - Soiled items (with vomit or stool) must be separated from non-soiled items before laundering
 - Launder in 160°F at the maximum cycle length and add bleach during the rinse cycle (if possible)
 - Dry at a temperature ≥170°F

3. Contact Prevention

- Educate patients/residents about washing their hands after using the restroom and prior to eating
 - An in-service on hand washing and control measures being implemented may be beneficial
- Isolation and grouping (if allowable per your health care facility policy)
 - Isolate ill residents from others by encouraging the ill resident(s) to remain in their room
 - Group ill people together in the same unit or section
- Discontinue
 - Patient transfers and admittance
 - Group activities should be kept to a minimum or postponed, particularly those involving patrons or food
- Signage:
 - Post signs explaining the risk of infection of ill patients/residents and ill visitors

- Post hand washing signs (ask the ISDH for copies)
- Signage for visitors to consider postponing their visit due to the outbreak
 - If visitation is allowed, visitors should go directly to the person they are visiting and not spend time with anyone else
 - They should wash their hands upon entering and leaving the room
 - They should not visit if they are ill

4. Staff

- Interview each employee at the start of their shift regarding vomiting and/or diarrhea
- Exclude ill staff until asymptomatic for at least 24 hours
 - Facilities should consider enacting longer exclusion measures once asymptomatic due to prolonged shedding of the virus, i.e.: 72 hours after the cessation of symptoms
- Staff assignments
 - Should be assigned to work in areas with either well or sick patron rooms, but should *not* clean for both groups
 - Staff working in the affected units should not visit onsite food service areas or other areas of the facility that are not part of the outbreak
- Staff should wash and dry their hands when entering and leaving *every* hotel room with soap and water for at least 20 seconds
 - During outbreaks, *do not* use alcohol sanitizers as a replacement for washing hands; many viruses are not affected by alcohol
- Do not allow foodhandlers to come into contact with ill persons or infected units; this could mean nurses serving the meal trays directly to the ill persons
 - Use wrapped single-use silverware
- Housekeeping staff should ensure adequate supplies of soap and paper towels in all restrooms

5. Facility Closure

- Is considered only under critical conditions:
 - The facility refuses to comply with above recommendations
 - If the outbreak continues among patrons even with above recommendations being followed

Please contact your local health department for assistance as soon as possible if an outbreak is suspected. The ISDH laboratory can provide free stool testing of students and staff during an outbreak. During hospital outbreaks, hospitals are encouraged to test their own bacterial agents as this will ensure a faster turnaround of results. However, ISDH will test for both bacterial and viral agents upon request.

Indiana State Department of Health
317-233-1325 (24-hours)

For more information about viral gastroenteritis <http://www.in.gov/isdh/25448.htm>

Resources

1. The Centers for Disease Control and Prevention (CDC): Norovirus: For Health Care Providers
<http://www.cdc.gov/norovirus/hcp/index.html>
2. CDC Vital Signs. Preventing Norovirus Outbreaks.
<http://www.cdc.gov/vitalsigns/norovirus/index.html>
3. The Centers for Disease Control and Prevention (CDC). Prevent the Spread of Norovirus.
<http://www.cdc.gov/Features/Norovirus/>
4. The Centers for Disease Control and Prevention (CDC). Norovirus.
<http://www.cdc.gov/norovirus/index.html>
5. *MMWR*. (March 4 2011). Updated Norovirus Outbreak Management and Disease Prevention Guidelines. 60(RR03); 1-15.
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6003a1.htm?s_cid=rr6003a1_w

6. The Centers for Disease Control and Prevention (CDC). Guidance for the Selection and Use of Personal Protective Equipment in Healthcare Settings. <http://www.cdc.gov/HAI/prevent/ppe.html>