

What are noroviruses?

The term “norovirus” is the official name for a group of viruses that cause gastroenteritis. They are also called caliciviruses (because they belong to the virus family Caliciviridae). They used to be called Norwalk-like viruses (NLVs). Norovirus illnesses are common and affect all age groups. They can happen anytime but are more common in the winter months.

What are the symptoms of norovirus?

The symptoms of norovirus usually begin suddenly and include *nausea, vomiting, diarrhea, and stomach cramps*. Sometimes symptoms include a *low-grade fever, chills, headache, muscle aches, and fatigue*. The symptoms usually last for one to three days. All age groups are equally susceptible to norovirus. The more severe symptoms, such as dehydration, however, are more likely to affect the very young, the elderly, and those with certain other pre-existing health problems.

How is the virus spread?

Norovirus is spread from person to person. It is spread through contact with vomit and stool of an infected person, or contact with a surface contaminated with norovirus.

Norovirus can spread

- from person to person through unwashed hands
- by food or ice that has been handled by an infected person, or by contaminated drinking water
- short distances in the air through vomiting
- for several days or weeks through improperly disinfected surfaces, such as door handles, light switches, countertops, toilets, floors, handrails, or sink taps
- in settings where people are in close contact, including day-care centres, long-term care facilities, health-care facilities, schools, and cruise ships

People are most likely to spread noroviruses while ill. Some people may shed the virus in their stool for up to two weeks after their symptoms subside. It is important that people wash their hands carefully even after they no longer have symptoms, or if they have been exposed to persons with the illness and have not shown symptoms.

What is the treatment for norovirus?

Healthy people usually recover in about 48 hours on their own. There are no medications available to treat norovirus. It is important to drink plenty of fluids to prevent dehydration. If vomiting or diarrhea lasts for more than two to three days, or is severe, medical attention may be needed. Staff should not return to work until 48 hours after their last symptoms, to avoid the spread of the infection.

How can the spread of norovirus be prevented?

A multipronged approach to infection control can greatly reduce the spread of norovirus when practised by facility operators, staff, residents, and the public (including students, child-care staff, and summer camp participants). This approach includes proper hand hygiene, the use of personal protective equipment, proper cleaning and disinfection practices, and exclusions. Please see the following fact sheets in the appendices for specific information.

- LTC/Residential Care Facility
- Daycare/Summer Camp
- Schools

Hand hygiene:

The most important measure to prevent any communicable disease is proper hand hygiene. Hand hygiene must be performed

- before preparing food
- before eating
- after contact with ill individuals
- after using the toilet
- after changing diapers

Perform hand hygiene by washing hands with liquid soap and water if hands are soiled or when caring for a person with norovirus.

If a designated hand-washing sink is not available at the point of care, alcohol-based hand rub should be used. Hand hygiene should be performed using liquid soap and water as soon as a suitable hand-washing sink is available.

Studies show that performing hand hygiene with liquid soap and water is *very effective* in controlling the spread of norovirus.

Always perform hand hygiene after caring for or having contact with patients suspected or confirmed to have norovirus gastroenteritis or after contact with environmental surfaces or items contaminated with norovirus.

Alcohol-based hand rubs (at least 70 per cent alcohol) can be made available to staff, residents, and public, but their limitations against norovirus should be recognized. Using most commercially available alcohol-based hand rubs should not be considered a replacement for proper hand hygiene, using liquid soap and water, against norovirus. It is better to use alcohol-based hand rubs that have a claim against norovirus over those with no claim.

Post signs in washrooms and staff areas to remind staff of the importance of proper hand hygiene.

Proper hand hygiene with liquid soap and water:

1. Roll up long sleeves and push up wristwatch.
2. Use running water at a comfortable temperature to wet hands.
3. Use enough liquid soap to lather all surfaces of the hands, including fingers, finger tips, between fingers, palms, backs of hands, thumbs and base of thumbs, and, if a ring is worn, on and under the ring.
4. Vigorously rub the palms and backs of each hand, interlocking and interfacing fingers to make sure fingers and thumbs are rubbed to remove visible soil and/or organic material. This task should take 15 to 30 seconds.
5. Rinse hands thoroughly in a downward position under running water.
6. Dry hands thoroughly by patting with a single-use towel. Electric dryers should not be used in clinical areas.
7. Turn off manual faucets with paper towels, making sure that hands are not contaminated again in the process.
8. Regularly apply skin products, such as lotion, to maintain healthy skin.

Proper use of alcohol-based hand rub (at least 70 per cent alcohol):

1. Roll up long sleeves and push up wristwatch.
2. Do not apply product to wet hands, as water will dilute the alcohol.
3. Follow manufacturer's instructions.
4. Apply enough product to wet the fingers, finger tips, between fingers, palms, backs of hands, thumbs and base of thumbs, and, if a ring is worn, on and under the ring.
5. Rub all hand surfaces until product has dried.
6. Allow alcohol-based hand rub to dry before contact with an oxygen-rich environment, putting gloves on, and proceeding to care for others.

Use of Personal Protective Equipment (PPE) when caring for an individual showing symptoms:

1. Use Contact Precautions. These are in addition to Routine Practices and are used to reduce the risk of transmitting infectious agents that are normally spread through contact with an infectious person.
2. Do a point-of-care assessment to help determine which PPE to put on.
3. Wear disposable gloves.
4. Assess the risk to determine if a gown and facial protection, including eye protection, should be used.

Proper Cleaning and Disinfection Practices (pidac, 2012)

The following table provides a list of disinfectant products that may be used during an outbreak of norovirus. Always follow manufacturer’s guidelines.

Product	Dilution	Comments
Household Bleach (Sodium Hypochlorite, 5.25% NaHClO ₄)	<p>1000 ppm 1 part bleach to 49 parts water</p> <p>5000 ppm 1 part bleach to 9 parts water (consider using this concentration if surface was grossly contaminated)</p>	<p>Bleach is inactivated by organic material (e.g., blood, stool). Surface must be cleaned before bleach is used to disinfect.</p> <p>Mix and use in well-ventilated areas.</p> <p>Use mixed product immediately after it is diluted and throw away unused portions.</p> <p>Store in closed containers away from ultraviolet light and heat to prevent it from deteriorating. Use less transparent/opaque bottles if possible.</p> <p>Bleach will corrode metals.</p> <p>Using bleach at 1000–5000 ppm can irritate the respiratory tract, skin, eyes, and mucosal</p>
Health care bleach-based products	May be sold as “Ready to Use” in wipes/liquids	Products may provide one-step cleaning and disinfection. Refer to label information. Avoid contact with fabric, wood, natural rubber, and painted or paper surfaces.
Hydrogen peroxide enhanced action formulation 0.5%	May be sold as “Ready to Use” in wipes/liquid Concentrated solution (7.0%) requires dilution to 0.5%	<p>Hydrogen peroxide products will work effectively in the presence of organic materials (e.g., blood, stool).</p> <p>It has an excellent cleaning ability due to its detergent properties.</p> <p>Do not use on copper, brass, carbon-tipped devices, and anodized aluminum.</p>

- During outbreaks, use a product with a label that states it is effective against norovirus for environmental cleaning and disinfecting shared equipment.
- A disinfecting product should be kept on-site in case of an outbreak, if it is not normally used.
- All disinfectant products have an expiry date. Do not use products after this date has passed.
- **Most quaternary ammonia-based disinfectants are not effective against norovirus.**

General cleaning/disinfection of hard surfaces in a facility with norovirus symptoms:

1. Wear disposable gloves. Assess the risk to determine if a gown and facial protection, including eye protection, should be used.
2. Clean the area with a general cleaner or a detergent and warm water, using one cloth for the sink and another for the toilet. Rinse with hot water.
3. With a clean cloth, wipe area using a disinfectant that is effective against norovirus (follow manufacturer's instructions). Make sure to use the proper contact time of the product with the surface, as well as the appropriate concentration/dilution rate.
4. Throw away the gloves. Perform hand hygiene with liquid soap and water. Do not reuse cloths anywhere else in the facility.
5. High-touch surfaces, such as railings, doorknobs, light switches, sink taps, elevator buttons, etc., or highly contaminated areas, such as toilets and sinks in washrooms, should be cleaned/disinfected on a more frequent basis.
6. Apply a disinfectant directly onto surface. Do not use spray bottles, as this creates aerosols that may irritate the lungs.

Cleaning/disinfecting grossly contaminated hard surfaces (with vomit/feces)

1. Wear disposable gloves. Assess the risk to determine if a gown and facial protection, including eye protection, should be used.
2. Use paper towels to soak up liquids and remove solid material. Other absorbent materials, such as commercial coagulants, can be used to remove gross contamination.
3. Soak the towels or coagulant with disinfectant at a concentration level and contact time appropriate for gross contamination.
4. Throw away the paper towels/coagulant in a garbage bag, then seal and throw away immediately.
5. Clean the area with a general cleaner or detergent and hot water. Rinse with hot water.
6. Follow steps 3–5 of the general cleaning/disinfecting procedure above.

Cleaning/disinfecting carpeted areas

1. Never vacuum carpet during an outbreak. Viruses present in the carpet can become airborne and help spread norovirus.
2. If cleaning grossly contaminated carpet, follow steps 1–3 in the section above, using a disinfectant designed for use on carpet.
3. Steam clean carpets at 70°C (158°F) for five minutes, or at 100°C (212°F) for one minute to destroy the virus. Grossly contaminated small mats should be thrown away.
4. Because the steam-cleaning process needs a long contact time to destroy norovirus, chemical disinfectants appropriate for use on carpet are recommended to help steam cleaning. Consult the chemical supplier about these products. Bleach is not considered an appropriate disinfectant in this application.

Laundry

1. Do not shake out soiled sheets or clothing. Solid material must be removed from grossly soiled sheets or clothing before laundering.
2. Wear disposable gloves.
3. Remove solid material with disposable towel, using a technique that does not agitate excrement. Place solid materials directly in a garbage bag, then seal and throw away immediately.
4. Wash with the hot cycle, using regular detergent. In the dryer, use the hottest setting possible.
5. Perform hand hygiene using liquid soap and water after handling soiled laundry.

References/Websites

Centres for Disease Control and Prevention

cdc.gov/hicpac/pdf/norovirus/Norovirus-Guideline-2011.pdf

Centers for Disease Control and Prevention, 2011. *Morbidity and Mortality Weekly Report: Update Norovirus Outbreak Management and Disease Prevention Guidelines.*

cdc.gov/mmwr/preview/mmwrhtml/rr6003a1.htm

Department of Agriculture

novascotia.ca/agri/programs-and-services/food-protection/

Guidance for the Management of Norovirus Infection in Cruise Ships

hpa.org.uk/webc/HPAwebFile/HPAweb_C/1206520183347

Infection Prevention Control Nova Scotia

www.ipc.gov.ns.ca/

Nova Scotia Health and Wellness

gov.ns.ca/hpp/publications/Guidelines_CDPC_Childcare_Daycare.pdf

Nova Scotia Health and Wellness

novascotia.ca/dhw/public-health.asp

Occupational Safety and Health Administration

osha.gov/Publications/norovirus-factsheet.pdf

Ontario Public Health

publichealthontario.ca/en/eRepository/2010-12%20BP%20Hand%20Hygiene.pdf

Ontario Public Health

publichealthontario.ca/en/eRepository/Best_Practices_Environmental_Cleaning_2012.pdf

Public Health Agency of Canada

phac-aspc.gc.ca/index-eng.php

Also see: Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare settings May, 2013.

Long-term Care Facility/Residential Care Facility

Residents

- Keep residents in their rooms while they are showing symptoms or ill (until 48 hours after their last symptom(s)), or as advised by Public Health.
- If possible, for rooms with multiple residents, keep ill residents with other ill residents to prevent spread of norovirus to residents not showing symptoms.
- Dedicate toilet/commode to individuals showing symptoms.
- Have tray service of foods and fluids to ill residents' rooms.
- Staff working with residents in long-term care or residential facilities with norovirus must take contact precautions. This includes wearing gloves for the care of the resident and/or contact with the resident environment. Hand hygiene with liquid soap and water should be performed after gloves are removed at the point of care.

Visitors

- Tell visitors that there is an ongoing gastrointestinal illness outbreak at the facility. Urge the public to refrain from visiting the facility if they have gastrointestinal symptoms.
- Encourage proper hand hygiene before visiting residents and before leaving the facility.
- If a member of the public is visiting an ill resident, encourage them to restrict their visit to that resident exclusively.

Staff

- High-touch surfaces, such as railings, doorknobs, light switches, sink taps, elevator buttons, etc., or highly contaminated areas, such as toilets and sinks in washrooms, should be cleaned and disinfected more frequently.
- Ill staff should not return to work until 48 hours after their last symptom(s).
- Consider staff and resident cohorting, which is the practice of grouping residents/staff on the basis of similar clinical symptoms and characteristics.
- Assess the risk to determine if a gown and facial protection, including eye protection, should be used.

Please report all suspected outbreaks to the local public health office.

Daycare/Summer Camp

- At the first sign of norovirus symptoms, exclude the ill child or children, if possible, in a separate room away from other children. Designate a washroom that only the ill child or children can use until they leave the facility.
- Contact the child's or children's guardian(s) right away to have them picked up from the facility as soon as possible.
- Suspend water play, sand play, and play dough activities in the centre.
- Follow the cleaning/disinfection procedures listed in this document, and increase how often toys are cleaned and disinfected.
- Increase hand hygiene with liquid soap and water.
- Staff should remind parents that they must not bring ill children to the facility, and to keep ill children home until 48 hours after their last symptom(s).
- Ill staff should not return to work until 48 hours after their last symptom(s).
- High-touch surfaces, such as railings, doorknobs, light switches, sink taps, elevator buttons, etc., or highly contaminated areas, such as toilets and sinks in washrooms, should be cleaned and disinfected more frequently.
- Assess the risk to determine if a gown and facial protection, including eye protection, should be used.

Please report all suspected outbreaks to the local public health office.

Child Care Guidelines

gov.ns.ca/hpp/publications/Guidelines_CDPC_Childcare_Daycare.pdf

Schools

- At the first sign of norovirus symptoms, exclude the ill child or children in a separate room away from other children. Designate a washroom for the child's or children's to use exclusively until they leave the facility.
- Contact the child's or children's guardian(s) right away to have them removed from the facility as soon as possible.
- Follow the cleaning/disinfection procedures listed in this document, and increase how often toys, environmental surfaces, and shared items are cleaned and disinfected.
- Staff should remind parents that they must not bring ill children to the school, and to keep ill children home until 48 hours after their last symptom(s).
- If there is a concern about fumes, sodium hypochlorite (i.e. bleach) products can be used after hours.
- Ill staff should not return to work until 48 hours after their last symptom(s).
- High-touch surfaces, such as railings, doorknobs, light switches, sink taps, elevator buttons, etc., or highly contaminated areas, such as toilets and sinks in washrooms, should be cleaned and disinfected more frequently.
- Assess the risk to determine if a gown and facial protection, including eye protection, should be used.

Please report all suspected outbreaks to the local public health office.