 SECTION 10.2

NOROVIRUS (WINTER VOMITING DISEASE)

- What is Norovirus?
- What are the Symptoms?
- Spread of Infection
- How Infectious is the Virus?
- Who is at Risk of Contracting Norovirus?
- How is Norovirus treated?
- Prevention of Spread
- Why Does Norovirus Cause outbreaks?
- How Can Outbreaks be Stopped?
- Early Control Measures
- Environmental Cleaning
- Work Exclusion
- Infection Prevention & Control Precautions for Clients with Suspected Norovirus in the Home

Appendix 10.2.1 General Guidance on Cleaning During an Outbreak of Norovirus in a Healthcare Setting

Appendix 10.2.2 General Guidance on Cleaning in the Home Setting.
**What is Norovirus?**

Winter vomiting disease is caused by a virus known as Norovirus - previously known as Small Round Structured Virus (SRSV) or Norwalk-like Virus (NLV). They belong to a group of viruses called ‘caliciviruses’. The disease was historically known as “winter vomiting disease” due to its seasonality and typical symptoms; however it is not always confined to winter. The virus is very contagious, and is frequently responsible for short-lasting outbreaks of gastroenteritis. Healthcare settings (including acute hospitals, community hospitals and nursing homes) have been particularly affected during recent outbreaks of illness due to this virus. Noroviruses are the most common cause of infectious gastroenteritis in the UK (HPA, 2011). There were a total of 1641 notified cases in Ireland in 2009 with 1087 of those affected over 65 years of age (HPSC, 2010).

**What are the Symptoms?**

Illness due to Norovirus is usually mild. The illness is self-limiting and the symptoms will last for 12 -60 hours. The incubation period is generally about 24-48 hours but may be as short as 6 hours.

Symptoms include:
- Tummy pain and nausea (often sudden onset) are usually the first symptoms.
- Vomiting and/or diarrhoea.
- Vomiting can be forceful or projectile and can be very exhausting. Less than half of the people affected present with vomiting as a symptom.
- Diarrhoea is usually fairly mild and may be watery.
- The infection may be quite unpleasant, debilitating and prolonged in some people (particularly older people) who may become very dehydrated and require hospital treatment.
- Most people make a full recovery within 1-2 days.

**Spread of Infection**

Human beings are the only known source of Norovirus. Spread of the virus may occur through:
- Person-to-person spread: this is a common method of spread in settings such as hospitals, day care centres, schools etc. Spread may be by a number of means:
  - Faecal-oral route (if hands are not washed properly after toilet use).
  - Vomiting - causing aerosol dissemination of the virus and environmental contamination. Others may then either (a) breathe in and swallow the virus or (b) pick it up indirectly from hand contact with contaminated environmental objects and then inadvertently touching their mouths.
- Contaminated food (shellfish can harbour the viruses). However, any food can potentially transmit Norovirus if it is handled or comes in contact with an infected food handler or is exposed to environmental contamination.
- Contaminated water.
- In healthcare settings, healthcare workers and hospital visitors can spread the infection to other residents/clients or contaminate surfaces through hand contact (HPSC, 2006).
How Infectious is the Virus?
The virus is highly infectious with as few as 100 viral particles thought to be sufficient to cause infection. It is present in an infected person’s vomit and stool. These viruses are relatively stable in the environment and can survive freezing and heating to 60°C (CDC, 2006). It can remain infectious for several days on surfaces and in fabrics and upholstery. Thorough cleaning and disinfection to remove the virus from soiled surfaces and furnishings is necessary.

Who is at Risk of Contracting Norovirus?
Norovirus infection affects people of all ages and can occur in any setting. There are many different strains of Norovirus and immunity is short lived. Therefore people can get Norovirus more than once and it is possible to become re-infected during an outbreak in a healthcare situation. Healthcare Settings are particularly affected by outbreaks of Norovirus. A study done by the HPA (2008) reported that outbreaks are shortened when control measures at healthcare settings are implemented quickly.

How is Norovirus Treated?
There is no specific treatment for Norovirus apart from letting the illness run its course. However symptoms may need to be treated i.e. fluids to prevent dehydration.

Prevention of Spread
It is often impossible to prevent infection as Norovirus is so easily transmitted, thus it is everyone’s responsibility to prevent its spread. Health and Social care settings including day care settings and health centres should advise clients/visitors not to come to the area if they have had recent symptoms of vomiting and diarrhoea. They should also be advised not to re-attend for 48 hours following their last symptoms.

Good personal hygiene, especially if suffering from diarrhoea or vomiting, is essential.

FREQUENT HAND WASHING is a very effective way of limiting the spread of all bacteria and viruses that cause gastroenteritis.

Alcohol hand rub products are not suitable alone even if hands are physically clean when dealing with a suspected or known Norovirus infection. Hands must be washed with soap and water. Alcohol products are not effective on their own for some viruses and spores.

HAND WASHING PROCEDURE

• WET HANDS UNDER RUNNING WATER
• LATHER USING SOAP & WATER,
• COVER ALL SURFACES OF THE HAND using the 6 step technique
• RINSE THOROUGHLY USING RUNNING WATER
• DRY THOROUGHLY WITH DISPOSABLE PAPER TOWELS

Please refer to Section 3 Standard Precautions for Hand Hygiene.
**Hands should be washed:**
- Before preparing, handling or eating food (especially food that does not need any further cooking)
- Before serving meals/feeding residents
- After touching raw meat, poultry, fish or eggs
- After using the toilet
- After handling diarrhoeal specimens
- After changing nappies (wash child’s hands as well)
- After helping a child to use the toilet
- After contact with a person who has had vomiting and/or diarrhoea.
- Whenever hands have come in contact with vomit, stool, salivary or runny noses.
- Before and after residents or client contact.
- After smoking.

Remember to offer your resident/client the opportunity to wash their hands before meals and after using the bathroom.

**Why does Norovirus cause Outbreaks?**
Norovirus causes outbreaks as it can easily spread from one person to another and it is able to survive in the environment for many days. An outbreak can occur in a home setting also.

A Norovirus outbreak can be defined as an episode in which two or more people thought to have a common exposure, experience a similar illness or proven infection.

**How can Outbreaks be Stopped?**

Management of the facility should be aware of the National Guidelines on the management of Outbreaks of Norovirus Infection in Healthcare settings (NDSC, 2003).

Outbreaks are notifiable under the Infectious Diseases (Amendment) Regulation 2011(SI No 452 of 2011). Medical practitioners/clinical laboratory directors are required to notify specified infectious diseases.

Prompt establishment of an outbreak control team as directed by the Department of Public Health coupled with early communication and the rapid institution of early control measures are the most effective ways of restricting the extent of outbreaks (NDSC 2003; HPA 2011).

Outbreaks are shortened when control measures at healthcare settings are implemented quickly. Outbreaks usually affect both residents/clients and staff sometimes with an attack rate of over 50%.
Early control measures are the best way to control an outbreak

- In a healthcare setting, report the suspected outbreak to the Infection Prevention Control Nurse or Senior Medical Officer (SMO) who will advise on the appropriate precautions to be taken. If the Infection Prevention and Control Nurse is not available, inform the SMO in Public Health of the suspected outbreak.
- Limit the movement of those who are ill from those who are not.
  - In a healthcare residential setting isolate or cohort affected residents/clients if possible and as advised by the IPC/SMO. These measures should continue until at least 48 hours following their last symptoms.
  - In a day care setting clients who become unwell should go home as soon as possible. Care for in a separate room or area until they can go home. The client should be advised to stay at home until at least 48 hours following last symptoms. They should be advised to contact GP for advice.
- Immediate cleaning and environmental disinfection of any area where residents/clients have vomited or had diarrhoea should take place
- Limit the movement of staff between affected and unaffected areas. Staff may become infected. Ill staff should be excluded from work for 48 hours from their last episode of vomiting or diarrhoea.
- Commence Infection Prevention and Control stool chart (2011) Appendix 10.1.2
- Collection of diarrhoeal specimens for culture and sensitivity and for Norovirus is required.
- Maintain a record of those who have symptoms (See Appendix 10.0.1 sample record sheet).
- Sensible visiting would be advised.

Environmental Cleaning.
Refer to appendix 10.2.1 for healthcare setting.
Refer to appendix 10.2.2 for home setting.

Work Exclusion
It is extremely important that people who have been ill with vomiting or diarrhoea should remain out of work for 48 hours after their symptoms have stopped. This advice particularly applies to food handlers and health care staff.
Infection Prevention and Control Precautions for Clients with Suspected Norovirus in the Home Setting

In the home setting, the following precautions are advised for Healthcare workers when caring for a person suspected Norovirus

Hand hygiene is the single most important infection control measure:
- Thorough hand washing with liquid soap using the correct technique followed by drying with paper towels is essential for healthcare workers.
- **Alcohol hand rubs alone are not always effective against Norovirus and therefore hand washing with soap and water is recommended.**
- Carers, including family, should be advised to wash their hands thoroughly with soap and water and dry hands thoroughly, when assisting with personal care.
- Clients should be advised to wash their hands thoroughly with soap and warm water and dry them after using the bathroom, and before eating. While symptomatic it is recommended that the clients use their own separate towel for hand drying.

Personal Protective Equipment e.g. gloves and aprons:
- Disposable gloves and aprons should be worn by healthcare workers when attending to a client who has vomiting and/or diarrhoea. These should be removed and disposed of immediately after the episode of care. Hand washing must be then carried out as described above.

Laundry
- While a client continues to have vomiting and/or diarrhoea it is advisable that laundry including bedding, towels and nightwear is washed separately in the hottest wash cycle suitable for the material of the item.
- Soiled laundry should be machine-washed separately from other washing on the hottest wash cycle suitable for linen and clothing. A cold pre-wash cycle is advised for soiled clothing prior to a hot wash. Hand washing/rinsing of soiled laundry clothing is not advised.

Waste.
- Waste soiled with diarrhoea (e.g. incontinence wear) should be disposed of in a safe manner i.e., the waste is sealed to ensure that the bag will not leak or that the outside of the bag will not become contaminated and may need to be double bagged.

Environmental Cleaning
See Appendix 10.2.2
References.


Appendix 10.2.1.
General Guidance on Cleaning during an Outbreak of Norovirus in a Healthcare Setting.

When cleaning up spills
1. Wear disposable gloves and apron.
2. Use paper towels to soak up excess liquid. Transfer these and any solid matter directly into a bag according to local waste segregation policy.
3. Clean the soiled area with detergent and warm water, using a disposable cloth.
4. Disinfect the contaminated area as below*
5. Dispose of gloves, apron and cloths according to local waste segregation policy.
6. Wash hands thoroughly using soap and water and dry thoroughly with paper towels.

Disinfectants*
1. Chlorine-based disinfectant/ hypochlorite at 1,000 parts per million (ppm) concentration, – e.g. Milton or Klorosept with a concentration of 1,000ppm available chlorine, rinse and dry OR
2. Use a combined cleaner/disinfectant e.g. Chlor-clean which is a one step process. Manufacturer’s instructions must be followed to ensure correct dilution, rinse and dry after use.

General Cleaning and Disinfection Considerations
• Contaminated linen and curtains should be placed carefully into laundry bags (as per guidelines for contaminated linen) without generating further aerosols.
• Contaminated pillows if in use should also be laundered as infected linen unless they are covered with an impermeable cover, in which case they should be cleaned with detergent and warm water and then disinfected as above.
• Contaminated (soiled) hard surfaces should be washed with detergent and warm water, using a disposable cloth, then disinfected as above*
• Cloths should be disposed according to local waste segregation policy.
• Horizontal surfaces, furniture and soft furnishings in the vicinity of the soiled area should be cleaned with detergent and warm water, using a disposable cloth, then disinfected using a chlorine releasing solution OR cleaned and disinfected using the combined cleaner /disinfectant ( i.e. one step process ).Soft furnishing may be steam cleaned.
• Fixtures and fittings in toilet areas should be cleaned with detergent and warm water using a disposable cloth, then disinfected using a chlorine releasing solution OR cleaned and disinfected using the combined cleaner /disinfectant (i.e. one step process)

• Use freshly prepared chlorine releasing solution to disinfect hard surfaces after cleaning or by using the approved one step process to both clean and disinfect.

• Before re-opening an area and prior to initiating environmental cleaning and disinfection,
  • all privacy, shower and window curtains in the affected area/bed space must be removed and sent for laundering,
  • all disposable items including paper towels, toilet paper, sterile and non-sterile supplies, in the affected area/bed space must be discarded,
  • dispose of any exposed food, food that may have been contaminated and food that has been handled by an infected person
  • the resident’s clothing in the affected area/bed space should be sent for laundering e.g. dressing gowns, soft slippers, blankets etc

• Cleaning should commence at the highest point working to the lowest

• Vacuum cleaning is not recommended in the affected during an outbreak in a healthcare setting. Dust control mop should be used.

• Contaminated carpets and soft furnishings should be cleaned with detergent and warm water, then disinfected with a chlorine releasing agent (if bleach – resistant) or steam cleaned.

• In food preparation areas, destroy any exposed food, food that may have been contaminated and food that has been handled by an infected person.
Appendix 10.2.2
General Guidance on Cleaning During Suspected Norovirus in a Home Setting.

Careful cleaning up of vomit is very important to prevent the spread of Norovirus to other family members and carers.

When cleaning up spills
- The healthcare worker should wear disposable gloves and apron if available. Use household gloves if not available.
- Use paper towels/kitchen roll or disposable cloth to soak up excess liquid. Transfer these and any solid matter directly into a plastic bag and dispose of carefully by tying the top and put into your domestic waste.
- Clean the soiled area with detergent and warm water, using a disposable cloth.
- Disinfect the contaminated area with a low concentration of household bleach. This can be achieved by using, for example
  - Milton Sterilising Fluid (2%) – 50 mls (generally 2 capfuls) mixed with 1 litre of cold water
  - Household bleach e.g. Domestos (4%) 25mls (generally a capful) mixed with 1 litre of cold water or 125 mls mixed with 5 litres of cold water for larger areas.
  - Note chlorine based disinfectants are corrosive and may bleach furnishings and fabrics – use according to manufacturers instructions and only in well ventilated areas. Rinse and dry areas after use.
- Dispose of gloves, apron and cloths. Rubber gloves if used must be washed thoroughly and disinfected and dried.
- Wash hands thoroughly using soap and water and dry thoroughly with a clean dry towel. Launder the towel after use. Paper towels should ideally be available for the healthcare worker.

General Cleaning and Disinfection Considerations

Cleaning.
- Environment
  - The clients’ immediate environment should be cleaned and then disinfected paying particular attention to hand contact surfaces. It is recommended to clean and disinfect all hard surfaces within the vicinity of the incident.
  - Horizontal surfaces, furniture and soft furnishings in the vicinity of the soiled area should be cleaned with detergent and warm water, using a disposable cloth.
  - Particular attention should be paid to surfaces touched by hands and including wash hand basins, work surfaces, taps, toilets and bath rails, telephones etc.
  - Use freshly prepared disinfectant to disinfect hard surfaces after cleaning as above.
  - Disposable cloths should be used for cleaning areas soiled with diarrhoea and discarded after use.

- Equipment:
  - All client equipment should be cleaned at least daily with detergent and water. i.e., beds, bed rails, bed tables, commodes, and then disinfected as above.
The client should be encouraged and facilitated to maintain a high standard of personal hygiene:

- Personal items such as towels and face cloths should not be shared.
- Clients should avoid using the same toilet as everyone else in the home where possible while they have symptoms of diarrhoea.
- If it is not possible for the client to have a separate toilet, after an episode of vomiting and/or diarrhoea, the bathroom must first be cleaned with detergent and water and then disinfected as mentioned above.
- Special attention should be paid to the frequently touched sites (e.g. sink taps, flush handle, toilet seats) and the toilet bowl. Fixtures and fittings in toilet areas should be cleaned with detergent and warm water using a disposable cloth, then disinfected as above. Frequent cleaning of toilet and bathroom areas (including the toilet flush handle, taps and door handles) are important aspects of preventing spread to other family members or carers.

Other Considerations include:
- Contaminated linen and curtains should be placed carefully into the washing machine without generating aerosols.
- Contaminated pillows should also be laundered.
- Contaminated hard surfaces should be washed with detergent and warm water, using a disposable cloth, then disinfected as above.
- Dispose of any exposed food, food that may have been contaminated and food that has been handled by an infected person.
- If carpets become contaminated they should be cleaned with detergent and warm water, then disinfected with hypochlorite (if bleach-resistant) or steam cleaned if possible.