Guidelines for the management of norovirus outbreaks in acute and community health and social care settings

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Authors' contribution:

All authors except AB and GM provided advice and contributed to writing; AB and GM conducted searches, evidence syntheses, and contributed to writing.

"NICE has accredited the process used by the Healthcare Infection Society to produce: "Guidelines for the management of norovirus outbreaks in acute and community health and social care settings." The NICE accreditation of HIS methodology is valid for five years from March 2020. More information on accreditation can be viewed at http://www.nice.org.uk/about/what-we-do/accreditation"

Keywords: norovirus, acute gastro-enteritis, health facilities, guidelines

1. Executive summary

Norovirus remains the most prevalent gastrointestinal pathogen. Outbreaks in healthcare and non-healthcare settings are still reported and norovirus is still estimated to cost the UK National Health Service (NHS) more than £100 million annually. Previous UK guidelines[1] were published over a decade ago and new knowledge and technologies have since emerged. These updated guidelines focus on infection prevention and control (IPC) principles which aim to reduce the norovirus burden in health, care and social settings (e.g. acute hospitals, nursing and residential homes, child care, day centres and prisons), while maintaining essential services and minimising disruptions during the outbreaks. Specifically, they discuss the currently available evidence for outbreak prevention, outbreak control at ward/unit level and the management of infected individuals. Additionally, the guidelines highlight the poor quality of evidence that underpins the current IPC strategies for controlling norovirus outbreaks and emphasise the gaps in knowledge with recommendations for future research.

Summary of recommendations and good practice points:

What is the role of building design in the occurrence of norovirus outbreaks?

1.1: No recommendation

GPP 1.1: Perform risk assessment of the ward/unit "hierarchy of controls" to establish the risk of norovirus transmission between patients.

GPP 1.2: Where risk of transmission is high, consider making small changes to the ward/unit layout e.g. installing partitions, bay doors or including flexible designs. However, consider and risk assess any potential adverse effects of doing this, e.g. on ventilation systems.

GPP 1.3: Assess individual risk of norovirus infection to the patient and consider additional control measures for patients at the highest risk (i.e. those who are immunocompromised).

What is the clinical and cost effectiveness of preparing for an outbreak of norovirus?

2.1: No recommendation.

GPP 2.1: Wherever possible, prepare staff for potential norovirus outbreaks by providing reminders, guidance, training and education so that staff are able to act quickly.

What is the clinical and cost-effectiveness of avoiding admission/ incarceration (in prisons) of the individuals who are suspected or confirmed to be infected by norovirus?

3.1: No recommendation

GPP 3.1: Where feasible, avoid admitting suspected/confirmed norovirus patients and offer suitable supportive treatment (e.g. rehydration therapy) in the community.

When should the beginning and the end of the outbreak be declared?

4.1: No recommendation.

GPP 4.1: If an outbreak is suspected, consider introducing control measures (including transmission based precautions) before laboratory results are available.

GPP 4.2: If a sporadic case of norovirus is identified, consider introducing control measures (including transmission based precautions) to prevent an outbreak (for the next 72 hours).

GPP 4.3: Whenever possible, maintain the control measures in place for 72 hours after the last episode of vomiting or diarrhoea in the last known case, before declaring the end of an outbreak.

What is the effective communication at the start of an outbreak?

5.1: Communicate with the IPC team, patients and their family as soon as an outbreak of norovirus infection is suspected or confirmed.

GPP 5.1: Seek support from the local IPC team about the management of sporadic (suspected and confirmed) norovirus cases.

GPP 5.2: Inform all local facilities of any outbreaks occurring in your area, i.e. if they occur in the community and vice versa.

What is the clinical and cost-effectiveness of testing all patients with vomiting and/or diarrhoea at admission?

6.1: No recommendation

GPP 6.1: Wherever possible, test all symptomatic patients for norovirus at admission.

What is the clinical and cost-effectiveness of testing all individuals who develop vomiting and/or diarrhoea?

7.1: No recommendation

GPP 7.1: Wherever possible, test all symptomatic patients to establish whether their symptoms are due to norovirus infection.

What is the clinical and cost-effectiveness of follow-up testing for norovirus?

8.1: No recommendation

GPP 8.1: Do not offer routine follow-up testing for norovirus.

GPP 8.2: Consider follow-up testing if there is a suspicion that the individual may be chronically infected with norovirus.

What is the cost effectiveness of using different types of testing for screening/diagnosing norovirus infection?

9.1: Wherever possible, use PCR (single or multiplex) for confirmation of presence or absence of norovirus infection.

9.2: Do not use enzyme or immunochromatography assays as a sole negative test to exclude cases of norovirus.

GPP 9.1: Consider using enzyme or immunochromatography assays testing if PCR is not readily available and where these assays may provide a more rapid confirmation of positivity.

What is the best method for storing and transport of specimens intended for norovirus screening/diagnosis?

10.1: No recommendation

GPP 10.1: Use faecal samples when sending specimens for norovirus testing.

GPP 10.2: If there is an expected delay in transport or processing of the specimens intended for norovirus testing, store the faecal samples at 4°C or below.

What are the alternatives to faecal (stool) sampling for screening/diagnosing norovirus infection?

11.1: Use faeces to test.

GPP 11.1: Use a rectal swab or vomit sample if it is not possible to use faeces but be aware that detection of norovirus from this specimen type is less sensitive than from a faecal sample.

What is the clinical and cost-effectiveness of closing and cohorting in the areas/facilities affected by norovirus?

12.1: Regularly undertake a clinical risk assessment with regards to consideration of rapid closure of an affected area(s) during an outbreak of norovirus infection.

What is the effectiveness of restricting staff and visitor access in the areas affected by norovirus?

13.1: No recommendation

GPP 13.1: Undertake a risk assessment and consider whether staff and visitor restrictions are necessary in particular outbreaks or settings.

GPP 13.2: Consider communication with visitors before restrictions are introduced.

GPP 13.3: When visitor restrictions are not in place, communicate with visitors about the control measures that the visitors are expected to follow, e.g. hand-hygiene policies, use of personal protective equipment etc.

GPP 13.4: When visitor restrictions are in place, consider alternatives for the patients to maintain contact with their family and friends e.g. by providing facilities for virtual/no contact visits.

What is the effectiveness of a hand gel in comparison to hand washing in removing norovirus from contaminated hands?

14.1: During norovirus outbreaks, encourage all individuals to perform hand hygiene as per defined technique using soap and water.

14.2: Consider monitoring whether appropriate hand washing takes place.

GPP 14.1: Encourage the use of appropriate hand washing technique with the WHO five moments of hand hygiene.

GPP 14.2: Support patients with appropriate hand hygiene. Consider the use of a suitable hand hygiene alternative (e.g. detergent hand wipes) when it is not feasible for the patients to use soap and water.

GPP 14.3: Provide appropriate information to educate staff, patients and visitors that the use of soap and water is more effective than alcohol hand rubs in preventing norovirus transmission.

GPP 14.4: Ensure suitable facilities are provided to enable appropriate hand hygiene. Consider using hand wipes and portable hand wash stations where fixed sinks are not available.

What is the effectiveness of different types of personal protective equipment in preventing norovirus transmission?

15.1: Use gloves and aprons when caring for symptomatic norovirus patients.

GPP 15.1: Consider using type IIR fluid-resistant surgical mask/eye protection when there is a risk of splashes of bodily fluids to the face.

What is the value of performing environmental sampling in the management of norovirus outbreaks?

16.1: Do not routinely screen the environment for norovirus, neither during outbreaks, nor in non-outbreak situations.

GPP 16.1: Consider environmental sampling for norovirus to inform IPC measures during prolonged, unusual, or uncontrolled outbreaks.

What are the most effective cleaning agents and technologies for reducing contamination of the environment and minimising the transmission of norovirus?

17.1: Ensure that appropriate cleaning, including the removal of organic soiling, precedes disinfection.

17.2: Ensure that all staff involved in the environmental cleaning are trained to achieve appropriate cleaning standards.

GPP 17.1: Use 0.1% (1000ppm) hypochlorite for disinfection of all appropriate surfaces during norovirus outbreaks.

GPP 17.2: Consider using automated room decontamination devices for norovirus outbreaks when, despite the standard IPC measures being in place, there is evidence of ongoing transmission from the environment.

GPP 17.3: Avoid soft furnishings and use wipeable materials that are non-permeable and easy to decontaminate (e.g. vinyl).

How should terminal cleaning be conducted?

18.1: Conduct terminal cleaning as per local policy.

GPP 18.1: For occupied single rooms, delay terminal cleaning until at least 48 hours after the patient's symptoms of norovirus have resolved. Consult the IPC team to establish if there is a need for this period to be extended.

GPP 18.2: For occupied, shared patient areas or multi-occupancy rooms, undertake terminal cleaning a minimum of 72 hours after symptoms in the last case of norovirus have resolved.

How should the cleaning equipment be handled after being used in areas affected by norovirus?

19.1: Ensure that appropriate decontamination is performed on any reusable cleaning equipment following the cleaning of contaminated areas.

GPP 19.1: Provide training to staff to ensure that an appropriate sequence of cleaning takes place and that the equipment is changed when required.

What is the clinical and cost-effectiveness of enhanced routine cleaning during an outbreak of norovirus?

20.1: No recommendation

GPP 20.1 Introduce a higher frequency of manual cleaning and disinfection during outbreaks with particular emphasis on high-touch areas and toilets/commodes.

GPP 20.2 Immediately clean up spills of blood or body fluids.

How should food and drinks be stored and handled in areas affected by norovirus?

21.1 No recommendation

GPP 21.1 To reduce potential transmission, offer food which is covered, individually wrapped, or placed in closed drawers/cupboards.

GPP 21.2 Remove all exposed and communal food and utensils.

GPP 21.3 In addition to a regular replacement and disinfection of the crockery/glasses/utensils, immediately replace all drinks and drinking vessels which have been exposed to contamination (i.e. uncontained vomiting and diarrhoea).

GPP 21.4 Ensure that appropriate support is offered to maintain nutrition and hydration status.

How should communal items/equipment be handled in areas affected by norovirus?

22.1: No recommendation.

GPP 22.1: Ensure that any shared (communal) re-usable items are decontaminated as per manufacturers' instructions and local policy.

GPP 22.3: Where manufacturers' instructions do not provide sufficient detail on equipment decontamination, use local guidelines or contact the Infection Control Team for advice.

GPP 22.4: Ensure that appropriate decontamination notification/certification is addressed where equipment requires transfer for maintenance.

GPP 22.5: Be aware that disinfectants may cause damage to some equipment and ensure this issue is addressed in local cleaning guidelines.

GPP 22.6: For equipment that is not readily decontaminated, provide single-use items which can be removed easily, discarded and replaced.

GPP 22.7: To ensure that shared items are easily decontaminated, perform a risk assessment at the time of procurement.

How should used and/or infectious linen be handled to avoid norovirus transmission?

23.1: No recommendation

GPP 23.1: Ensure that all laundry is handled and segregated according to national guidance.

What is the clinical and cost-effectiveness of excluding from work the staff affected by norovirus? When should these staff be allowed to return to work and how should their return be managed to ensure patient safety?

24.1: Consider excluding symptomatic staff with norovirus infection for a minimum of 48 hours after symptoms resolve.

GPP 24.1: In outbreaks where staff exclusion policy is not feasible, (i.e. when it is not possible to replace skilled members of staff), conduct a local risk assessment that takes into account skills and staffing levels before allowing staff to return within 48 hours of symptomatic norovirus infection.

What approaches to the management of transfer of individuals infected with norovirus are most practical and effective at minimising the risk to others?

25.1: Avoid transfers to/from affected areas during norovirus outbreaks. This includes transfers within and between the facilities.

GPP 25.1: Use a local risk assessment to determine whether the transfer of the individual is clinically necessary.

GPP 25.2: Where a transfer is clinically necessary, inform the receiving institution/departments that the patient is infected with norovirus, so that appropriate precautions can be taken.

GPP 25.3: Where transfer is necessary, and where appropriate (e.g. for urgent radiology), consider placing patients last on the list in order to minimise opportunities to transmit norovirus to others.

GPP 25.4: Ensure that appropriate cleaning takes place post transfer.

When should a patient affected by norovirus be discharged home or to another facility?

26.1: No recommendation

Good practice points:

GPP 26.1: If a patient is medically stable (fit), discharge them home only when there is no clinically vulnerable person in the same household.

GPP 26.2: Unless the individual risk assessment dictates otherwise, avoid discharging individuals with known or suspected norovirus infection to another facility until 48 hours have elapsed since the last episode of diarrhoea or vomiting.

GPP 26.3: If the patient with norovirus infection is discharged to another facility sooner than 48 hours after symptoms cease, inform the receiving facilities so that appropriate arrangements can be made.

GPP 26.4: If receiving discharged patients with confirmed or suspected norovirus infection from other facilities, ensure that appropriate arrangements are in place so that norovirus is not transmitted to others (e.g. isolation is recommended for at least 24 hours for asymptomatic/suspected patients and 48 hours after the symptoms have resolved for infected/confirmed patients).

What is the clinical effectiveness of different medications given to alleviate the symptoms of norovirus infection?

27.1: No recommendation

GPP 27.1: Consider appropriate treatment for secondary conditions (e.g. rehydration therapy for individuals at risk of dehydration).

What are the best strategies for preventing and managing norovirus infection in immunocompromised patients? How should patients with chronic norovirus excretion be managed?

28.1: No recommendation

What is the clinical effectiveness of conducting norovirus surveillance in different settings?

29.1: Introduce surveillance for symptoms/cases during an outbreak of norovirus infection.

GPP 29.1: If initiating surveillance for norovirus is considered outside outbreaks, ensure that appropriate resources are available to put in place.

GPP 29.2: Participate in national surveillance programmes for norovirus outbreaks.

Overarching recommendations

OR 1: During norovirus outbreaks, undertake continuous risk assessment to establish which good practice points need to be introduced to minimise transmission.

OR 2: Provide staff with sufficient information and training so that they are able to recognise and quickly act when norovirus outbreak occurs.