

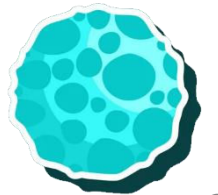
WASH YOUR HANDS OR YOU GO POO-DINI – MANAGING NOROVIRUS

CoP MEETING - RVH IPAC HUB | FEBRUARY 15, 2024

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WHAT IS NOROVIRUS?

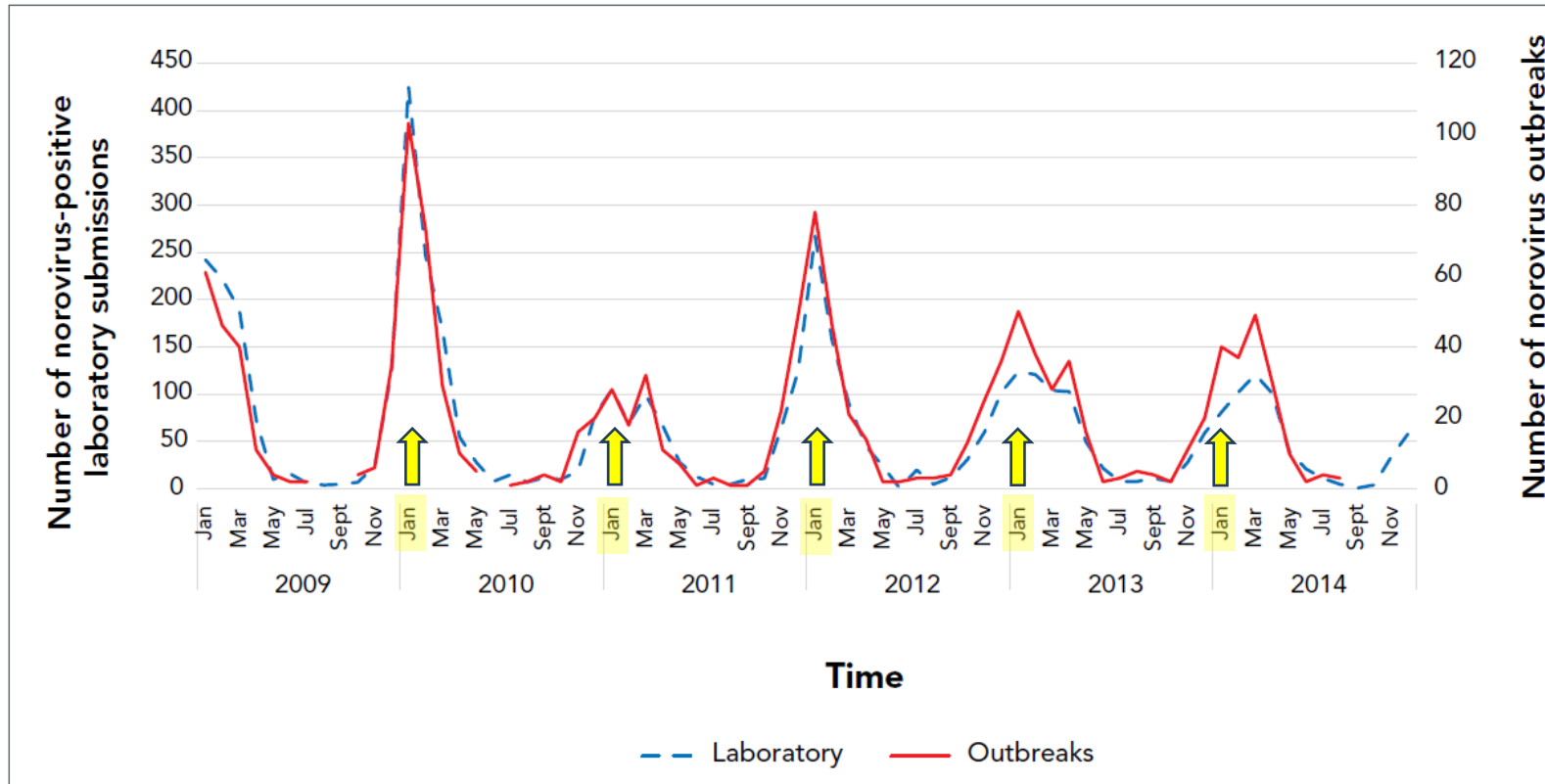
- Noroviruses are a genetically diverse group of single-stranded positive-sense RNA, **non-enveloped** viruses that belong to the family *Caliciviridae*.
- It is the most common cause of acute gastroenteritis and foodborne illness worldwide.
- It was previously called the Norwalk virus after the town in Ohio, US where a big outbreak in 1968 allowed scientists to isolate the first strain.
- Most outbreaks occur in hospitals, long-term care homes, dining locations, schools, daycare centres, and vacation venues.
- Because of persistence of norovirus in the environment, outbreaks can last for a long time, sometimes even over 3 months.



EPIDEMIOLOGY

- Norovirus illness is self-limiting in healthy individuals. Severe outcomes are more common in children, the elderly, and the immunocompromised.
- People of all ages can get infected and sick with norovirus.
- Outbreaks occur throughout the year, but have a distinct winter seasonality.
- Noroviruses cause approximately 90% of all outbreaks of epidemic gastroenteritis. They are an important source of foodborne outbreaks globally.
- Human feces and vomit are the primary reservoirs for norovirus.

Figure 2: Seasonality of norovirus laboratory submissions^a and outbreaks^b in Ontario by month and year, 2009–2014



^a Laboratory submissions were confirmed using Public Health Ontario Laboratories (PHOL) data

^b Outbreaks were confirmed using integrated Public Health Information System (iPHIS) data

SIGNS AND SYMPTOMS

- The incubation period for norovirus infections is **12 to 48 hours**.
- Norovirus infection causes sudden onset of gastrointestinal illness due to stomach or intestine inflammation, and common symptoms include:
 - Diarrhea (non-bloody)
 - Vomiting, nausea
 - Stomach cramps
 - Headache, muscle aches
 - Low-grade fever, and fatigue
- Frequent diarrhea and projectile vomiting can occur multiple times a day, resulting in **dehydration**, fatigue, and weakness.
- Gastrointestinal symptoms typically last **2 to 3 days** with rapid recovery in healthy adults.
- Symptoms of dehydration include decrease in urination, dry mouth and throat, and feeling dizzy when standing up.

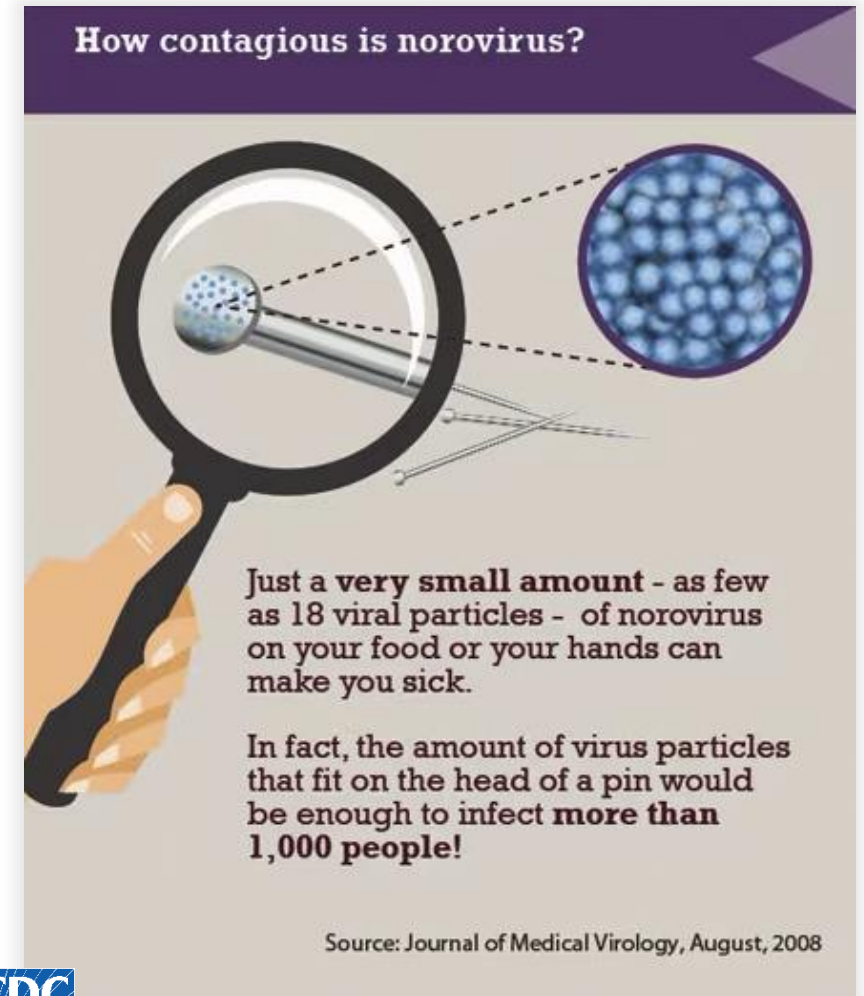
TRUE OR FALSE?

You can get infected with norovirus when tiny droplets of vomit, sprayed in the air from a person infected with norovirus, enters your mouth.

 TRUE

HOW DOES NOROVIRUS SPREAD?

- Norovirus spreads through the **fecal-oral route**, either via direct person-to-person contact, or via indirect transmission through contaminated food, water, or environmental surfaces.
- An infected person can shed billions of norovirus particles via vomit and diarrhea but it takes only a few virus particles to make another person sick.
- A person is most contagious when they are sick, and for a few days after they recover.
- Transmission via contaminated food.



HOW DOES NOROVIRUS SPREAD? (CONT.)

- Aerosolized droplets of vomit from a person with norovirus.
- Contaminated water that is not treated properly.
- Fruits and vegetables that are irrigated with contaminated water.
- Sharing utensils with people infected with norovirus, or touching objects or surfaces contaminated with norovirus.
- Norovirus is also relatively **heat resistant** and able to survive temperatures as high as 60°C or 140°F.

AVOID RAW SHELLFISH AND OYSTERS



IPAC MEASURES AND RECOMMENDATIONS



- Place a client/resident on **Contact Precautions** immediately if norovirus infection is suspected or confirmed.
- Additional Precautions should be in place for at least **48 hours** after symptoms have resolved.
- Hand sanitizer **does not** work well against non-enveloped viruses, including norovirus. Staff, visitors, and clients/residents should wash their hands often with soap and water for at least 20 seconds, especially after using the washroom, after touching contaminated surfaces, and before and after eating, preparing, or handling food.
- Hand sanitizers can be used in addition to hand washing but *should not* replace it.
- Discard all ready-to-eat foods, that is food not to be cooked, prepared by dietary staff that became ill while on shift. This may include salads, sandwiches, and baked goods.

IPAC MEASURES AND RECOMMENDATIONS (CONT.)

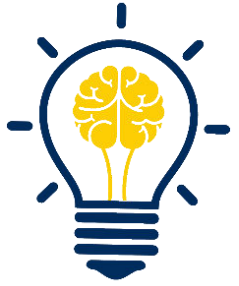
- When preparing food, wash fruits and vegetables well, and cook shellfish thoroughly to an internal temperature of at least 65°C. Quick steaming processes may not heat foods enough to kill noroviruses.
- For disinfection, use either a Health Canada-approved disinfectant with specific claim against norovirus or a chlorine bleach solution with a dilution of 1:10 to 1:50.
- For laundry, immediately remove and wash soiled clothes and linen with detergent and hot water at maximum available cycle length, and machine dry at the highest heat setting.
- Staff that are symptomatic should be excluded from work until they are symptom-free for at least **48 hours**.
- Soiled carpets and furnishings should be cleaned with hot water and detergent or **steam cleaned**. Vacuum cleaning is not recommended.

TRUE OR FALSE?

Norovirus is also sometimes called “stomach flu” because it’s related to influenza virus.

 FALSE

WHAT YOU SHOULD KNOW



- Norovirus infection is also sometimes called the “stomach flu”. However, the flu or influenza is a respiratory illness with symptoms of cough, sore throat and fever. Norovirus **is not** related to the flu.
- Multiple norovirus infections can occur in a lifetime as the result of limited duration of acquired immunity and cross-protection among different strains of norovirus.
- There is no specific treatment for norovirus infection. Due to the risk of severe dehydration, a person with norovirus infection should get bed rest and drink plenty of fluids.
- Norovirus can be detected in stool, vomitus, food, water, and environmental samples using RT-qPCR assays that are highly sensitive and specific.
- Norovirus infections are typically not reportable to public health. However, **outbreaks** of enteric illness that may be caused by norovirus in long-term care homes, retirement homes, and other congregate living settings **are reportable** to public health unit (PHU).

IMPORTANT CONSIDERATIONS FOR OUTBREAK MANAGEMENT

- A **confirmed outbreak** of norovirus is defined as two or more cases of clinical illness compatible with norovirus that can be epidemiologically linked to one another.
 - ✓ Cases are associated by exposure if onset of symptoms is within a **48-hour period**.
 - ✓ At least one of the cases should be laboratory confirmed.
- Begin a line listing by adding surveillance data from the daily sheets. Prepare separate line lists for clients/residents and staff. If useful, keep a separate line listing for each affected unit/floor.
- Special attention should be given to rule out **non-infectious** causes of gastroenteritis symptoms such as new medications, use of laxatives, or non-infectious diseases.

OUTBREAK MANAGEMENT (CONT.)

- The IPAC lead for the home must update the line listing and inform the PHU liaison on a daily basis or as previously arranged.
- Post outbreak signage at the home entrance and affected units/areas, discouraging visitors during the outbreak period.
- Provide education to staff, residents, and visitors on what to expect.
- Communicate with family of clients/residents who are placed on Additional Precautions.

CLEANING AND DISINFECTION FOR NOROVIRUS

For cleaning and disinfection of environmental surfaces, appropriate product approved by Health Canada with a drug identification number (DIN) should be used.

- Household bleach of 1:10 to 1:50 dilution is an inexpensive disinfectant that is effective against norovirus.
 - Longer contact time
 - An irritant to mucous membranes, skin and airways
- Accelerated hydrogen peroxide (AHP) one-step cleaning and disinfectant solution and wipes (0.5% w/w) can kill noroviruses with a short contact time of usually **1-3 minutes**, and are not considered toxic or hazardous to health at their given concentration.
- Quaternary ammonium compound or quats, especially broad spectrum quats, can also kill norovirus. However, some quats may not be effective for complete disinfection of surfaces contaminated with norovirus at the concentrations recommended by the manufacturer for general disinfection.



QUESTIONS?



REFERENCES

- Norovirus (Norwalk-like) Virus Infection. *Simcoe Muskoka District Health Unit* (2017). Available at: <https://www.simcoemuskokahealth.org/Topics/InfectiousDiseases/DiseaseInformation/FactSheetsMN/Norwalk.aspx>. Accessed June 16, 2023.
- Norovirus Fact Sheet. *City of Toronto* (2023). Available at: <https://www.toronto.ca/community-people/health-wellness-care/diseases-medications-vaccines/norovirus-fact-sheet/>. Accessed February 02, 2024.
- About Norovirus. *Centers for Disease Control and Prevention (CDC)*. Available at: <https://www.cdc.gov/norovirus/about/index.html>. Accessed February 02, 2024.
- Norovirus Guidelines for Healthcare Settings. *Centers for Disease Control and Prevention* (2015). Available at: <https://www.cdc.gov/infectioncontrol/guidelines/norovirus/index.html>. Accessed February 02, 2024.

REFERENCES (CONT.)

- Thomas MK and Murray R. Estimating the burden of food-borne illness in Canada. *Can Commun Dis Rep* 2014;40(14):299-302.
- National case definition: Norovirus. *Public Health Agency of Canada* (2008). Available at: <https://www.canada.ca/en/public-health/services/diseases/norovirus/health-professionals/national-case-definition.html>. Accessed February 02, 2024.
- Norovirus. *National Collaborating Centre for Infectious Diseases* (2023). Available at: <https://nccid.ca/debrief/norovirus/>. Accessed February 02, 2024.
- Norovirus Illness: Key Facts. *Centers for Disease Control and Prevention* (2015). Available at: <https://www.cdc.gov/norovirus/downloads/keyfacts.pdf>. Accessed February 02, 2024.
- Norovirus: For health professionals. *Public Health Agency of Canada* (2022). Available at: <https://www.canada.ca/en/public-health/services/food-poisoning/norovirus/health-professionals.html>. Accessed February 02, 2024.

REFERENCES (CONT.)

- Pathogen safety data sheets: Infectious substances - Norovirus. *Public Health Agency of Canada* (2020). Available at: <https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/norovirus-pathogen-safety-data-sheet.html>. Accessed February 02, 2024.
- Prevent Norovirus. *Centers for Disease Control and Prevention*. Available at: <https://www.cdc.gov/norovirus/about/prevention.html>. Accessed February 02, 2024.
- Recommendations for the Control of Gastroenteritis Outbreaks in Long-Term Care Homes. *Population and Public Health Division - Ministry of Health and Long-Term Care* (2018). Available at: https://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/reference/Control_Gastroenteritis_Outbreaks_2018_en.pdf. Accessed February 02, 2024.
- Hughes SL, Greer AL, Elliot AJ, McEwen SA, Young I, Papadopoulos, A. Epidemiology of norovirus and viral gastroenteritis in Ontario, Canada, 2009–2014. *Can Commun Dis Rep* 2021;47(10):397-404. Available at: <https://doi.org/10.14745/ccdr.v47i10a01>. Accessed February 02, 2024.

REFERENCES (CONT.)

- Appendix 1: Case Definitions and Disease-Specific Information - Disease: Gastroenteritis Outbreaks in Institutions and Public Hospitals. 2022. *Ontario Public Health Standards - Infectious Disease Protocol*. Ministry of Health. Available at: <https://files.ontario.ca/moh-ophs-gastroenteritis-outbreaks-en-2022.pdf>. Accessed February 02, 2024.