



Viral Gastroenteritis Outbreaks: Norovirus

Norovirus: A group of viruses that cause symptoms of acute viral gastroenteritis. Everyone is susceptible to norovirus infection and for most individuals it is a self-limiting illness. However, for the very young, the elderly, and the immunosuppressed, the illness can be serious due to the risk of dehydration.

Modes of transmission: Norovirus is found in the stool and vomit of infected individuals. Infection occurs primarily in one of three ways: swallowing food/water contaminated by norovirus; touching contaminated surfaces and placing hands/fingers in the mouth; and breathing in and swallowing airborne particles from the vomit and stool of infected individuals. Norovirus is highly infectious, and outbreaks can occur in group settings where there is close contact between individuals (i.e. schools, nursing homes, day care centers, assisted living communities, cruise ships) and in places/events where there is a common food and/or water source (i.e. restaurants, banquets, wedding receptions, parties, etc.).

Symptoms: Primary symptoms include nausea, vomiting, diarrhea, and stomach cramping, although some individuals also have low-grade fever, chills, headache, muscle aches, and/or general fatigue. Onset of symptoms is very sudden, beginning 12-48 hours after exposure and typically lasting for 24-60 hours. However, asymptomatic infection may occur in up to 30% of cases, and the virus can shed in the stool for up to two weeks after symptoms cease. If at least 50% of the ill individuals report vomiting, norovirus should be considered as a possible cause of the outbreak.

Clinical Case Definition

1. Diarrhea AND Vomiting OR
2. Three or more loose stools in 24 hours OR
3. Three or more vomiting episodes in 24 hours OR
4. Diarrhea with two additional symptoms OR
5. Vomiting with two additional symptoms

Additional Symptoms:

- low-grade fever (usually less than 101F)
- myalgia (muscle aches)
- malaise (fatigue)
- abdominal cramping/pain
- headache
- nausea
- chill

Fecal (Stool) Specimen Testing:

- Need to determine if infection is being caused by a bacterial pathogen or a norovirus.
- Testing for bacterial pathogens (i.e. Salmonella, Shigella, Campylobacter, E. coli) can be done by a local lab or by the Michigan Department of Community Health (MDCH) lab in Lansing.
- Testing for norovirus is performed only at the MDCH lab and must be coordinated through the Washtenaw County Public Health Department at (734) 544-6770. Testing is only done in the event of an outbreak situation, not for individual diagnosis.
- For norovirus testing, 4 to 8 individuals must provide stool specimens, which will be sent as a batch to MDCH.
- The bacterial tests and norovirus tests can be carried out at the same time.

Criteria for Laboratory Diagnosis:

Norovirus infection is confirmed by reverse transcription polymerase chain reaction (RT-PCR) analysis (done at MDCH) of the stool. Again, this testing is done for outbreak investigations only. For sporadic cases of norovirus, EIA testing is available at some commercial labs (e.g. Focus labs).

Case Classification:

Confirmed Case: The case is laboratory confirmed (whether or not the individual is symptomatic).

Probable Case: The clinical case definition is met but the case has not been lab confirmed.

Suspect Case: The individual has not been interviewed but is reported to have symptoms similar to those which define a clinical case.