



Gastrointestinal Viruses: Breaking the Yearly Cycles



Lyle Wiebe, CPHI(C); and Bill Limerick CPHI(C)

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Every year, outbreaks of gastrointestinal (GI) illnesses sweep through long-term facilities. These outbreaks reflect the presence of GI viruses in the community. Being prepared is the first step towards preventing these outbreaks.

► What is the problem?

Each year public health and healthcare facilities prepare for the anticipated and inevitable outbreaks of GI viruses. Infection prevention and control measures are usually enhanced and instituted only after an outbreak is identified so as to prevent further transmission of the organism to the resident or hospitalized population. Most often, outbreaks due to GI viruses occur during the winter months, but depending on the virus, may occur year round. Outbreaks of diarrheal illness, due to the spread of these microorganisms, are preventable.

► What are the responsible pathogens?

The enteric viruses, such as norovirus, are the most common causes of infectious diarrheal illnesses in those in healthcare facilities. However, bacteria, such as *Campylobacter spp* or *Salmonella spp* and parasites, such as *Giardia lamblia*, may also cause GI illness. The transmission of the bacteria and

parasites has been controlled by improvements in sanitary engineering, such as potable water. The viruses causing GI illnesses include:

- rotaviruses,
- noroviruses,
- adenoviruses (Type 40 or 41),
- sapoviruses and
- astroviruses.

GI viruses are mainly found in the stool and vomitus from infected persons and are primarily spread via the fecal-oral route.

► What are the symptoms?

Persons affected by GI viruses may show a variety of symptoms one-to-two days after infection including:

- nausea,
- vomiting,
- watery, foul smelling and sometimes explosive diarrhea,
- abdominal pain,
- myalgia,
- headache,
- malaise and
- low-grade fever.

Healthy persons may experience a day or two of diarrhea and/or vomiting, but symptoms may last up to 10 days depending upon the infectious agent. Susceptible individuals, such as the young, elderly

and immunocompromised, may experience a few symptoms or all symptoms at once, again depending upon the causative microorganism.

► *Is there treatment?*

There is no treatment or vaccine available against these enteroviruses and little is known about the potential for resistance to these organisms. Therefore, in severe cases, individuals may be at risk of dehydration and may require hospitalization for rehydration therapy. These microorganisms are highly communicable and affect all age groups. The small round enteric viruses are shed intermittently after the acute stage of infection, which makes them exceedingly difficult to find in a laboratory sample.

► *How does transmission occur?*

The environmental fate of these viruses makes them very easy to spread through a variety of mediums or fomites. Noroviruses, for example, may survive freezing and 60°C heat for up to 30 minutes. At room temperature (average 22°C) this organism can survive up to 20 days and, in

some instances, on environmental surfaces. Transmission is by means of ingestion of the virus, which may be in particles of feces and vomitus.

Persons infected with these GI viruses can then easily transmit them through direct or indirect contact and then ingestion of the virus. Direct transmission can occur through person-to-person where hands are improperly washed or unwashed. Indirect transmission occurs through contact with contaminated:

- environmental surfaces,
- food,
- water,
- ice, or
- eating utensils.

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GI viruses have a low infective dose and may cause severe illness in susceptible persons, making acute and long-term care facilities prime arenas for transmission.

Preventing nosocomial transmission, meaning the transmission of the organism within an institution, is not as important as simply preventing transmission. These organisms are simply not as easy to control through sanitary engineering principles as other pathogens. Some prevention strategies can include, but are not limited to, the following:

- There is no substitute to proper handwashing.



Mr. Wiebe is a Public Health Inspector and Program Manager, Environmental Health, Northwestern Health Unit, Kenora, Ontario.



Mr. Limerick is a Public Health Inspector and Director, Environmental Health and Director, Health Protection, Northwestern Health Unit, Kenora, Ontario.

It is the key to preventing the transmission of GI viruses and not specific to just healthcare facilities

- Work exclusion policy for healthcare workers (HCWs) experiencing GI illness
- Education of visitors about GI viruses and handwashing
- Improved environmental cleaning

► ***How can we break the yearly cycles?***

Every year across the nation, healthcare facilities are closed or have restrictions affecting them in some capacity due to GI viruses. Often, infection control measures are taken after illnesses are identified in the hospitalized or resident population in an institution. The average stay for a hospitalized patient infected with a GI virus is an additional four days. Ethically, HCWs have to conform to follow a higher standard of infection prevention and control measures during an outbreak. HCWs have a moral obligation to do no harm and therefore, the hospitalized and resident population (our susceptible population) should expect a higher standard of infection prevention and control year round, not just after persons are infected. Some of the easiest prevention strategies for viral gastroenteritis are perhaps the hardest to implement because the reservoir and primary transmission vehicle are human. Behaviour modification is challenging and cannot be expected only during or after an outbreak. So, if HCWs and the public adopt these strategies, healthcare facilities can change their luck and break the yearly cycle of outbreaks due to GI viruses.

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