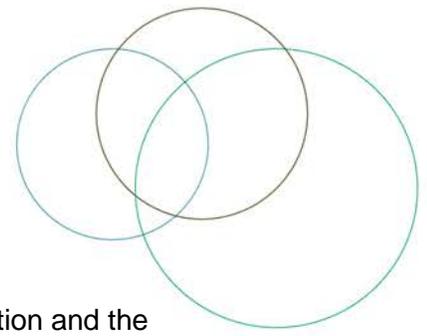


HOSPITAL HARM IMPROVEMENT RESOURCE

Viral Gastroenteritis



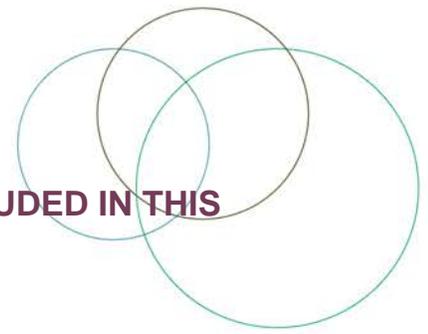
ACKNOWLEDGEMENTS



The Canadian Institute for Health Information and the Canadian Patient Safety Institute have collaborated on a body of work to address gaps in measuring harm and to support patient safety improvement efforts in Canadian hospitals.

The Hospital Harm Improvement Resource was developed by the Canadian Patient Safety Institute to complement the Hospital Harm measure prepared by the Canadian Institute for Health Information. It links measurement and improvement by providing resources that will support patient safety improvement efforts.



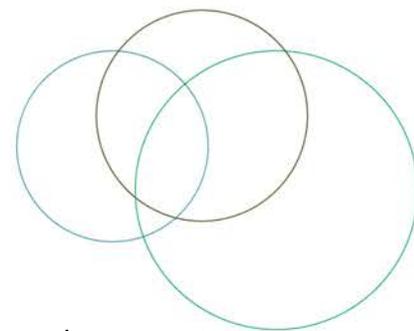


DISCHARGE ABSTRACT DATABASE (DAD) CODES INCLUDED IN THIS CLINICAL CATEGORY:

B15: Viral Gastroenteritis

Concept	Viral gastrointestinal infections during a hospital stay
Selection criteria	
A08.0 A08.1 A08.2 A08.3 A08.4	Identified as diagnosis type (2)
Exclusions	Abstracts with a length of stay less than 2 days
Codes	Code descriptions
A08.0	Rotaviral enteritis
A08.1	Acute gastroenteropathy due to Norwalk agent
A08.2	Adenoviral enteritis
A08.3	Other viral enteritis
A08.4	Viral intestinal infection, unspecified





OVERVIEW AND IMPLICATIONS

Viral Gastroenteritis

Gastroenteritis is an inflammation of the lining of the stomach and intestines, causing an acute onset of severe vomiting and diarrhea (Centers for Disease Control and Prevention (CDC) 2010). Infections that cause gastrointestinal illness (GI) may be caused by a variety of agents including bacteria, viruses and protozoa. Outbreaks of infectious GI can be devastating and lead to significant increased costs, increased patient morbidity, and in some instances patient mortality. The most important characteristic of pathogens responsible for infectious gastroenteritis is their ability to be rapidly transmitted in healthcare settings among individuals who often are highly susceptible. Episodes of infectious gastroenteritis account for a significant proportion of all patients/residents/clients in healthcare settings who develop diarrhea with or without nausea and/or vomiting (Provincial Infection Control Network of British Columbia 2016).

Healthcare-associated infections (HAIs) are defined as infections that occur as a result of healthcare interventions in any healthcare setting where care is delivered (Provincial Infectious Diseases Advisory Committee (PIDAC) & Ontario Agency for Health Protection and Promotion 2012). HAIs, such as gastroenteritis, result in a substantial burden of disease in Canadians, and are an important hospital and public health concern in Canada (PIDAC & Ontario Agency for Health Protection and Promotion 2014; Public Health Agency of Canada (PHAC), 2012)

The Clinical Group “Viral Gastroenteritis” in the Hospital Harm Indicator focuses only hospital associated gastroenteritis caused by viral agents such as rotavirus, norovirus, adenovirus.

Rotaviral enteritis

Rotaviruses are the most common cause of severe diarrhoeal disease in young children throughout the world. According to WHO estimates in 2013 about 215,000 children aged under five years die each year from vaccine-preventable rotavirus infections; the vast majority of these children live in low-income countries (World Health Organization (WHO) 2018).

Rotavirus disease is characterized by vomiting and watery diarrhea for three to eight days. Fever and abdominal pain also are common. Additional symptoms include loss of appetite and dehydration. Symptoms usually start about two days after a person is exposed to rotavirus. Vomiting and watery diarrhea can last three to eight days. (CDC 2019b).

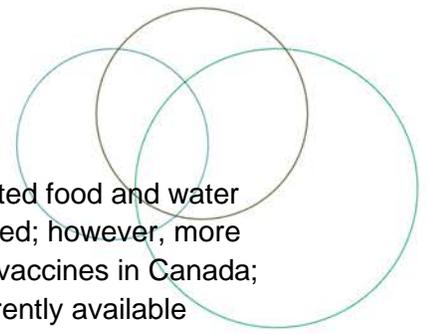
Rotavirus infections are generally more severe and clinically significant in children aged three to 35 months. Adults tend to be asymptomatic and/or may demonstrate subclinical infection. Immunocompromised individuals are susceptible to developing more severe disease manifestations (PHAC 2010).

Chances of spread of infection within hospitals are high. Nosocomial infections are common and are a major cause of diarrhoea in newborns and infants. Several outbreaks have been observed in geriatric groups within hospitals. The most common mode of transmission for rotavirus is through faecal-oral spread, either from person-to-person or contact with contaminated



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VIRAL GASTROENTERITIS



environmental surfaces. The possibility of spread through faecally contaminated food and water also exists. Transmission through respiratory droplets has also been suggested; however, more investigation is required. Health Canada has approved RotaTeq and Rotarix vaccines in Canada; however, they are not part of the routine immunization programs that are currently available (PHAC 2010).

Acute gastroenteropathy due to Norwalk agent

Norovirus is the official genus name for the group of viruses provisionally described as “Norwalk-like viruses” (CDC 2011). Norovirus causes acute gastroenteritis (CDC 2019c).

Norovirus illness is usually brief in people who are otherwise healthy. Young children, the elderly, and people with other medical illnesses are most at risk for more severe or prolonged infection. Like all viral infections, noroviruses are not affected by treatment with antibiotics (CDC 2010).

Norovirus is characterized by rapid onset of nausea, vomiting, diarrhea, abdominal cramps, abdominal pain, mucus in stool, malaise, headache, and fever (PHAC 2017). Diarrhea is more common in children and vomiting is more common in adults. In some cases, people develop dehydration because they are unable to drink enough liquids to replace the liquids they lost from frequent vomiting and diarrhea (CDC 2010).

Up to 30 per cent of Norovirus infections are asymptomatic, however, these individuals are able to transmit the virus (PHAC 2017). Noroviruses are found in the feces and vomit of infected people (CDC 2010). Norovirus transmission is usually person to person through the fecal-oral route. It can also be transmitted through the environment, contaminated surfaces, food, water, fomites, and aerosols (PHAC 2017).

Norovirus infections are very contagious and spread very rapidly. Healthcare facilities and other institutional settings (e.g., daycare centers, schools, etc.) are particularly at-risk for outbreaks because of increased person-to-person contact (CDC 2010; PHAC 2017).

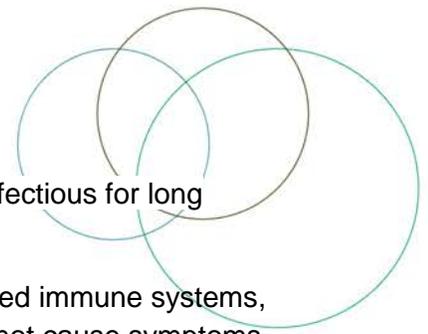
Adenovirus

Adenoviruses can cause a wide range of illnesses such as common cold or flu-like symptoms, fever, sore throat, pneumonia, conjunctivitis, and **acute gastroenteritis**. Adenoviruses can cause mild to severe illness, though serious illness is less common. People with weakened immune systems, or existing respiratory or cardiac disease, are at higher risk of developing severe illness from an adenovirus infection. Adenoviruses are usually spread from an infected person to others through:

- close personal contact, such as touching or shaking hands
- the air by coughing and sneezing
- touching an object or surface with adenoviruses on it, then touching your mouth, nose, or eyes before washing your hands
- an infected person’s stool, for example, during diaper changing.



HOSPITAL HARM IMPROVEMENT RESOURCE VIRAL GASTROENTERITIS



Adenoviruses are resistant to many common disinfectants and can remain infectious for long periods on environmental surfaces and medical instruments.

Some people infected with adenoviruses, especially those who have weakened immune systems, can have ongoing infections in their tonsils, adenoids, and intestines that do not cause symptoms. They can shed the virus for weeks or longer. (CDC 2019a)

GOAL

Reduce the incidence of viral gastroenteritis.

IMPORTANCE FOR PATIENTS AND FAMILIES

When patients get an infection while in hospital, it delays healing, extends the patient's length of stay and increases their risk for harm and readmission. By implementing infection prevention and control practices, patients are safer.

Viruses can be spread from person to person in the hospital in different ways. Most bacteria and viruses are usually spread between patients on pieces of equipment and on unwashed hands. Since germs can live on many surfaces, staff, family and visitors can spread infections without knowing. Healthcare workers, patients, family, friends and visitors all have a role to play in preventing healthcare-associated infections.

Hand hygiene is one of the most important ways to stop the spread of infections (Canadian Patient Safety Institute 2012).

Patient Stories

We are looking for a patient story related to viral gastroenteritis associated. If you have one, please share it with the Canadian Patient Safety Institute at info@cpsi-icsp.ca.

Gastroenteritis in the News

Norovirus outbreak affects 10 patients in Duncan hospital (Adam Chan 2019).

<https://www.victoriabuzz.com/2019/01/norovirus-outbreak-affects-10-patients-in-duncan-hospital/>

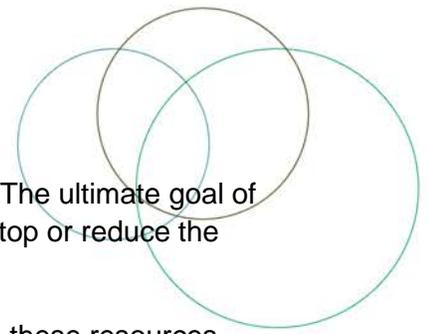
SURVEILLANCE, OUTBREAK MANAGEMENT

HAI surveillance: should be performed to guide infection prevention and control interventions and detect outbreaks, with timely feedback of results to healthcare workers and stakeholders and through national networks (World Health Organization 2016)

Outbreak Management: outbreaks of both infectious and noninfectious adverse events can occur in any healthcare setting and pose a threat to patient safety. Regardless of scope, investigation of a potential outbreak involves certain epidemiological components. Cooperation between healthcare epidemiologists, infection preventionists, and public health experts is



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important in effectively managing outbreak responses in healthcare settings. The ultimate goal of any outbreak investigation is to identify probable contributing factors and to stop or reduce the risk for future occurrences (Campbell 2014).

For guidance on how to conduct surveillance and / or outbreak management, these resources maybe helpful.

- Association for Professionals in Infection Control and Epidemiology (APIC).
 - Recommended practices for surveillance:
http://www.apic.org/Resource_/TinyMceFileManager/Practice_Guidance/AJIC-Surveillance-2007.pdf
 - Outbreak investigations. APIC Text of Infection Control and Epidemiology..
<http://text.apic.org/toc/epidemiology-surveillance-performance-and-patient-safety-measures/outbreak-investigations>
- Centers for Disease Control and Prevention (CDC). *Healthcare-associated infection (HAI) outbreak investigation toolkit*. <https://www.cdc.gov/hai/outbreaks/outbreaktoolkit.html>
- Government of Ontario: Ministry of Health and Long-Term Care. Institutional/facility outbreak management protocol
http://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/protocols_guidelines/Inst_Fac_Outbreak_Protocol_2018_en.pdf
- Public Health Ontario- Best practices for surveillance of health care-associated infections.
https://www.publichealthontario.ca/en/eRepository/Surveillance_3-3_ENGLISH_2011-10-28%20FINAL.pdf
- World Health Organization (WHO). Infection prevention and control in health care for preparedness and response to outbreaks.
http://www.who.int/csr/bioriskreduction/infection_control/publications/en/

CLINICAL AND SYSTEM REVIEWS, INCIDENT ANALYSES

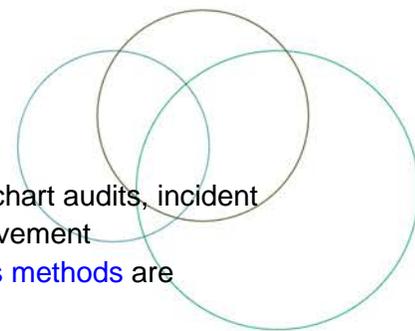
In addition to surveillance and outbreak investigation a system review maybe indicated to identify potential causes of outbreaks and determine appropriate recommendations.

Occurrences of harm are often complex with many contributing factors. Organizations need to:

1. Measure and monitor the types and frequency of these occurrences.
2. Use appropriate analytical methods to understand the contributing factors.
3. Identify and implement solutions or interventions that are designed to prevent recurrence and reduce risk of harm.
4. Have mechanisms in place to mitigate consequences of harm when it occurs.



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To develop a more in-depth understanding of the care delivered to patients, chart audits, incident analyses and prospective analyses can be helpful in identifying quality improvement opportunities. Links to key resources for [conducting chart audits](#) and [analysis methods](#) are included in the [Hospital Harm Improvement Resources Introduction](#).

If your outbreak investigation or system review reveals that your cases of viral gastroenteritis are linked to breaks in infection prevention and control practices, these resources may be helpful:

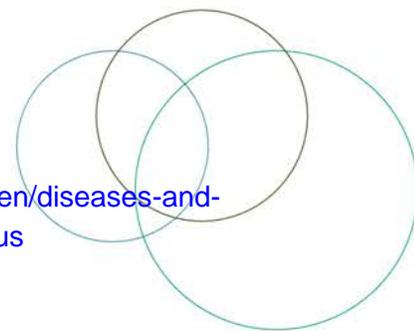
Infection Prevention and Control

- Association for Professionals in Infection Control and Epidemiology: Practice guidance for infection prevention <https://apic.org/Professional-Practice/overview/>
- Centers for Disease Control and Prevention (CDC) : Infection Control <https://www.cdc.gov/infectioncontrol/index.html>
- Infection Prevention and Control Canada: Resources and Publications <https://ipac-canada.org/resources.php>
- Provincial Infection Control Network of British Columbia (PICNet): Guidelines and Toolkits <https://www.picnet.ca/guidelines/>
- Public Health Agency of Canada, [Infection Control Guideline Series](#)
- Public Health Ontario: Infection Prevention and Control <https://www.publichealthontario.ca/en/health-topics/infection-prevention-control>
- World Health Organization: Infection Prevention and Control <https://www.who.int/infection-prevention/en/>

Gastroenteritis

- Centers for Disease Control and Prevention:
 - Guideline for the Prevention and Control of Norovirus Gastroenteritis Outbreaks in Healthcare Settings <https://www.cdc.gov/infectioncontrol/guidelines/norovirus/index.html>
 - Norovirus Prevention Toolkit <https://www.cdc.gov/hai/organisms/norovirus.html>
- Infectious Diseases Society of America, www.idsociety.org
 - Clinical Practice Guidelines for the Diagnosis and Management of Infectious Diarrhea (2017) <https://www.idsociety.org/practice-guideline/infectious-diarrhea/>
- Provincial Infection Control Network of British Columbia (PICNet): Gastrointestinal Infection Outbreak Guidelines for Healthcare Facilities https://www.picnet.ca/wp-content/uploads/PICNet-GI-Outbreak-Guidelines_Revised-June-2016.pdf





- Public Health Ontario: Rotavirus <https://www.publichealthontario.ca/en/diseases-and-conditions/infectious-diseases/vaccine-preventable-diseases/rotavirus>

MEASURES

Vital to quality improvement is measurement, and this applies specifically to implementation of interventions. The chosen measures will help to determine whether an impact is being made (primary outcome), whether the intervention is actually being carried out (process measures), and whether any unintended consequences ensue (balancing measures).

In selecting your measures, consider the following:

- Whenever possible, use measures you are already collecting for other programs.
- Evaluate your choice of measures in terms of the usefulness of the final results and the resources required to obtain them; try to maximize the former while minimizing the latter.
- Try to include both process and outcome measures in your measurement scheme.
- You may use different measures or modify the measures described below to make them more appropriate and/or useful to your particular setting. However, be aware that modifying measures may limit the comparability of your results to others.
- Posting your measure results within your hospital is a great way to keep your teams motivated and aware of progress. Try to include measures that your team will find meaningful and exciting (IHI 2012).

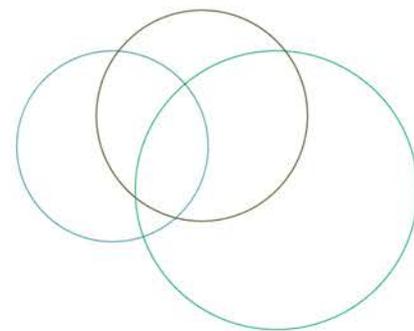
GLOBAL PATIENT SAFETY ALERTS

[Global Patient Safety Alerts](#) (GPSA) provides access and the opportunity to learn from other organizations about specific patient safety incidents including alerts, advisories, recommendations and solutions for improving care and preventing incidents. Learning from the experience of other organizations can accelerate improvement.

Recommended search terms:

- Gastroenteritis
- Rotavirus
- Rotaviral enteritis
- Norovirus
- Norwalk
- Adenovirus
- Adenoviral enteritis
- Healthcare Associated Infection





SUCCESS STORIES

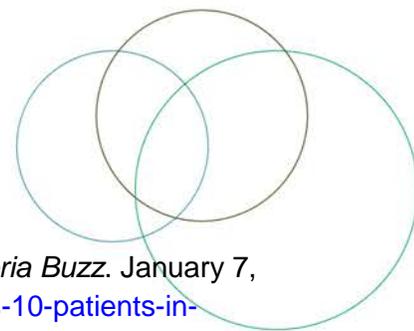
National Immunization Awareness Week

Celebrating the success of Ontario's rotavirus immunization program.

<https://www.publichealthontario.ca/-/media/documents/national-immu-awareness.pdf?la=en>

(Wilson & Deeks 2017).



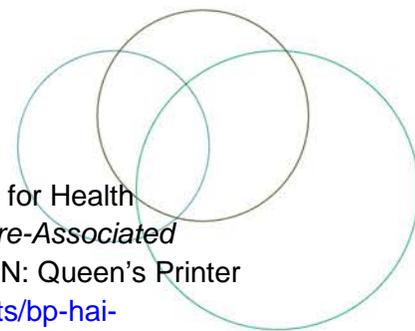


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HOSPITAL HARM IMPROVEMENT RESOURCE VIRAL GASTROENTERITIS



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