**INFECTION PREVENTION IN LONG TERM CARE**

**Gastrointestinal Disease**

**Massachusetts Department of Public Health**

# DISEASE OVERVIEW

The elderly (65 years of age) are more susceptible to gastrointestinal infections than younger individuals. This population is at increased risk for gastroenteritis due to the age-related decrease in secretions of gastric acid, as well as a higher prevalence of incontinence (where the risk for fecal-oral transmission due to cross-contamination is substantial). In long term care facilities (LTCFs), it is important to prevent gastrointestinal outbreaks by implementing and sustaining appropriate food handling procedures and strict adherence to infection control measures.

During 2018 - 2022, approximately 80% of all clusters of gastrointestinal disease reported to the Massachusetts Department of Public Health (MDPH) occurred in either LTCFs, assisted living facilities or hospitals. Of those clusters where an etiologic agent had been identified, nearly 25% were confirmed norovirus outbreaks.

***Gastrointestinal illness is not valid grounds for denial of admission to a long*-*term care facility.***

**Infectious Agents:** Numerous enteric pathogens cause gastrointestinal disease, including bacteria such as *Campylobacter*, Shiga toxin-producing *Escherichia coli* (STEC), *Salmonella, and Shigella*; parasites, such as *Cryptosporidium*, *Cyclospora*, and *Giardia*; and viruses, such as norovirus. *Clostridium difficile* can also cause cases and outbreaks of diarrhea but is addressed in separate guidelines.

**Reservoirs:** Variable, depending upon what agent is involved; may include humans, animals, water, and soil.

**Modes of Transmission:** Variable, depending upon the agent; may be foodborne, waterborne and/or spread person-to-person via the fecal-oral route.

**Incubation Periods:** Variable, depending upon what agent is involved.

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| ***Organism*** | ***Usual incubation period (range)*** |  | ***Organism*** | ***Usual incubation period (range)*** |
| *Campylobacter* | *2-5 days (2-10 days)* | *Giardia* | *7 days (3-25 days)* |
| *Salmonella (nontyphoidal)* | *6-48 hours (6 hours-10 days)* | *Cryptosporidium* | *7 days (2-28 days)* |
| *Shigella* | *2-4 days (12 hours-6 days)* | *Cyclospora* | *7 days (1-14 days)* |
| Shiga toxin-producing *E. coli* | *3-4 days (1-10 days)* | Norovirus | *12-48 hours* |

**Diagnosis and testing:** Stool specimens can be tested for the presence of any of the above enteric pathogens. In outbreak situations, arrangements can be made on a case-by-case basis to test stool specimens at the Massachusetts State Public Health Laboratory (MA SPHL) for enteric pathogens using the BioFire FilmArray Gastrointestinal Illness Panel, a molecular test which can detect 22 different pathogens that are commonly associated with gastroenteritis.

**Treatment:** Treatment of gastrointestinal illness, including the use of antimicrobials, should be addressed by the patient’s clinician.

# INFECTION CONTROL AND PREVENTION

**Infection Control Measures:** Standard Precautions should be used consistently and at **all** times by all staff, in LTCFs. Most asymptomatic residents can be cared for using standard precautions, with an emphasis on strict adherence to hand hygiene and appropriate glove use. In addition to standard precautions, contact precautions should be used when caring for residents with gastrointestinal symptoms; especially those who are vomiting or incontinent of stool. General infection control measures, including standard and contact precautions can be found at: [Transmission-Based Precautions | Basics | Infection Control | CDC](https://www.cdc.gov/infectioncontrol/basics/transmission-based-precautions.html)

In isolated cases of gastrointestinal illness, the individual’s health care provider will decide whether or not stool tests are indicated. Single cases of reportable disease should be reported to the local health department according to 105 CMR 300.100. If more than one case of enteric illness (vomiting and/or

diarrhea) occurs in any LTCF within a limited time period, the patient’s healthcare providers should be notified and stool and other specimens as appropriate, should be submitted for testing as soon as possible.

**Outbreaks**

Outbreaks of gastrointestinal infection in LTCFs are not uncommon. An outbreak is usually defined as the occurrence of a disease or condition in excess of what is normally expected. In a LTCF outbreaks are usually defined as more diarrhea and/or vomiting in a unit or facility than would be expected at a particular time of year. While outbreaks can be caused by many enteric pathogens, most outbreaks of gastrointestinal illness in these settings are caused by viruses and are often transmitted from person-to- person among staff, residents and visitors.

**Reporting:** Outbreaks should be reported to your local board of health and/or the MDPH Division of Epidemiology and your licensing or certifying agency.

Long-Term Care Facilities must report clusters to the Department of Public Health’s Bureau of Health Care Safety and Quality by using the web-based Health Care Facility Reporting System (HCFRS). Enter the incident type as “epidemic/disease”. Reports can also be made by calling (617) 753-8150 during normal business hours or (800) 462-5540 outside of business hours.

Incident reporting for Assisted Living Residences should be done to the Certification Unit Program at the Executive Office of Elder Affairs per 651CMR 12.04(11). All Reportable Assisted Living Incident Reports (Individual and/or Facility Wide) are submitted via the Automated Quickbase Reporting system which is accessed at [http://alrir.800ageinfo.com/.](http://alrir.800ageinfo.com/) For residence-wide outbreaks or complaints, call the Assisted Living Ombudsman Program at Elder Affairs: (617) 727-7750.

Outbreaks should be reported to the MDPH Division of Epidemiology by completing the online Gastrointestinal Illness Healthcare Cluster Reporting Form found here: <https://infectious-disease-reporting.dph.mass.gov/pages/CaseReportForms#gi_outbreak_crf>

Once the form is received, an epidemiologist or local board of health will contact you directly to provide additional advice or assistance with control measures.

**Investigation:** It is important to identify all new cases of enteric illness. This includes a daily symptom review and temperature checks on each resident in the unit(s) affected, chart reviews, and interviews with staff. During a suspected outbreak, include in daily surveillance all individuals with loose bowel movements (even if, on occasion, this normally occurs), and individuals with elevated temperatures who may appear to have illness due to different causes (e.g., respiratory illnesses and urinary tract infections.).

Collect the following information to create a line listing of ill residents and staff:

1. age and sex of cases
2. symptoms
3. date and time of onset of symptoms
4. duration of symptoms
5. foods consumed in the 72 hours (or other appropriate time frame) prior to onset of symptoms

The pattern of illness can help determine if transmission is occurring from person- to- person or from a single source, such as a common food item. Person-to-person transmitted outbreaks often begin with a small number of cases and then cases rise either gradually or quickly. In a common source outbreak, there is a tight clustering of cases in time, with a sharp increase in cases followed by a gradual decline in number of cases.

If food is suspected as a possible cause of the illness, the MDPH Division of Epidemiology and the MDPH Food Protection Program will assist with investigating an outbreak. You may be asked to interview and obtain food histories from individuals who are not ill. Stool testing of symptomatic and/or asymptomatic food handling staff may be considered depending on the extent of the outbreak.

**Control Measures:**

1. Cohorting of symptomatic residents is essential. Individual staff should be restricted to caring for only one cohort (either ill or not ill) of residents.
2. Staff floating should be minimized.
3. If norovirus is suspected or confirmed as the cause of an outbreak, symptomatic staff should be excluded from all food handling duties for 72 hours past symptom resolution or 72 hours past the date a specimen positive for norovirus was collected, whichever occurs last. If a bacterial or parasitic agent is suspected or confirmed, symptomatic staff should be tested and allowed to return to food handling duties when diarrhea is resolved and requirements of [105 CMR 300.200](https://www.mass.gov/regulations/105-CMR-30000-reportable-diseases-surveillance-and-isolation-and-quarantine-requirements) are met. Please note that food handling duties include direct patient care activities such as feeding or assisting clients in eating, giving oral medications, or giving mouth or denture care.
4. Residents with gastrointestinal symptoms should be placed on standard plus contact precautions for

the duration of their illness. During confirmed or suspected norovirus outbreaks, symptomatic residents should remain on precautions for 72 hours past the resolution of their symptoms.

1. Proper hand hygiene should be emphasized to all staff and residents especially in outbreaks caused by noroviruses. Noroviruses are highly infectious, requiring only a few particles to cause illness. They are easily spread from one person to another and are found in large quantities in the stool or vomitus of an infected person. Staff should wash their hands with soap and water after patient care. Hands should be dried with a dry, disposable paper towel, and faucets should be turned off using a paper towel. If residents cannot wash their own hands after bathroom use, their hands should be washed for them. Since there are insufficient data to determine the efficacy of alcohol-based hand sanitizers against norovirus, it is recommended that staff caring for residents with suspect or confirmed norovirus infection wash their hands with soap and water, which then can be followed with use of an alcohol- based sanitizer.
2. Articles contaminated with infective material, such as soiled linens and clothing, should be discarded or bagged and labeled before being sent for washing.
3. Special attention should be paid to environmental cleaning and disinfection. For norovirus outbreaks, the Centers for Disease Control and Prevention (CDC) recommend either diluted chlorine bleach or U.S. Environmental Protection Agency (EPA) approved disinfectants. A list of hospital disinfectants registered by the EPA with specific claims for activity against noroviruses can be found on the EPA website: [https://www.epa.gov/pesticide-registration/list-g-epa-registered-hospital-disinfectants-](https://www.epa.gov/pesticide-registration/list-g-epa-registered-hospital-disinfectants-effective-against-norovirus) [effective-against-norovirus.](https://www.epa.gov/pesticide-registration/list-g-epa-registered-hospital-disinfectants-effective-against-norovirus) Please note that quaternary ammonium compounds do not have significant activity against noroviruses.
4. During an outbreak, closing the facility to new admissions should be considered. Also, family members and visitors should be notified of the outbreak and counseled about preventive behaviors, especially appropriate hand hygiene, if they visit.
5. In the event of a suspected foodborne outbreak, you may consider restricting foods being brought into the facility by visitors until the source of the outbreak is known.
6. Depending on how widespread the outbreak is, group activities and group dining may need to be restricted.

# REPORTING RESPONSIBILITIES

Outbreaks should be reported to your local board of health and/or the MDPH Division of Epidemiology and your licensing and certifying agency as described above. Epidemiologists at MDPH can always be reached by calling (617) 983-6800. After business hours an epidemiologist can be page for emergency situations.

Information about diseases reportable to MDPH can be found here:

[Infectious disease surveillance, reporting, and control | Mass.gov](https://www.mass.gov/infectious-disease-surveillance-reporting-and-control)

# REFERENCES

CDC: Norovirus. <https://www.cdc.gov/norovirus/>

CDC: Guide to Confirming an Etiology in Foodborne Disease Outbreak <https://www.cdc.gov/foodsafety/outbreaks/investigating-outbreaks/confirming_diagnosis.html>

CDC: Guidelines for the Prevention and Control of Norovirus Gastroenteritis Outbreaks in Healthcare Settings (2011) <https://www.cdc.gov/infectioncontrol/guidelines/norovirus/index.html>

Bureau of Infectious Disease and Laboratory Sciences, *Guide to Surveillance, Reporting and Control*. Massachusetts Department of Public Health. <https://www.mass.gov/handbook/guide-to-surveillance-reporting-and-control>

Jackson, MM. and Fierer, J. Infections and infection risk in residents of long-term care facilities: a review of the literature, 1970-1984. *American Journal of Infection Control* 1985;13(2): 63-77.

Marx A, Shay DK, Noel JS et al. An outbreak of acute gastroenteritis in a geriatric long-term-care facility: combined application of epidemiological and molecular diagnostic methods. *Infection Control and Hospital Epidemiology* 1999;20:306-311.

Nicolle LE. Infection control in long-term care facilities. *Clinical Infectious Diseases* 2000; 31:752-6.

Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee, 2007 *Guidelines for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings*, June 2007. <http://www.cdc.gov/hicpac/2007ip/2007isolationprecautions.html>

Smith JL. Foodborne illness in the elderly. *Journal of Food Protection* 1998;61(9):1229-39.

Smith PW and Rusnak PG. Infection prevention and control in the long-term-care facility. *American Journal of Infection Control* 1997; 25:488-512.