



RECOMMENDATIONS FOR PREVENTION AND CONTROL OF ACUTE GASTROENTERITIS OUTBREAKS IN WISCONSIN LONG-TERM CARE FACILITIES

Wisconsin Department of Health Services
Division of Public Health | Division of Quality Assurance

December 2017

P-00653



CONTENTS

INTRODUCTION AND PURPOSE.....	2
PREVENTION AND PLANNING.....	3
SUVEILLANCE AND OUTBREAK IDENTIFICATION	4
NOTIFICATION.....	5
SPECIMEN COLLECTION AND CLINICAL TESTING.....	6
TYPES OF ACUTE GASTROENTERITIS OUTBREAKS.....	7
MANAGEMENT OF RESIDENTS	8
MANAGEMENT OF WELL STAFF.....	9
MANAGEMENT OF ILL STAFF.....	10
CLEANING MANAGEMENT.....	11
OTHER FACILITY CONSIDERATIONS	12
INFECTION PREVENTION AND CONTROL MEASURES CHECKLIST	13
CLEANING CHECKLIST.....	14
DISINFECTION AND PREPARATION OF CHLORINE SOLUTIONS.....	15
LINE LIST INSTRUCTIONS.....	16
EXAMPLE LINE LIST FOR RESIDENTS DURING NOROVIRUS OUTBREAKS	17
EXAMPLE LINE LIST FOR STAFF DURING NOROVIRUS OUTBREAKS.....	18
LTCF AGE OUTBREAK DATA	19
GLOSSARY AND SELECT DEFINITIONS.....	20
REFERENCES AND ACKNOWLEDGEMENTS.....	21
RESOURCES	22



INTRODUCTION AND PURPOSE

Gastroenteritis is an inflammation of the stomach and intestines. This usually results in vomiting and/or diarrhea. Outbreaks of acute gastroenteritis (AGE) in long-term care facilities (LTCFs) are almost always due to a group of viruses called caliciviruses, which includes norovirus and sapovirus. Bacteria such as *Salmonella*, *Shigella*, or *Campylobacter* also occasionally cause gastroenteritis in LTCFs, but the patterns of illness reported are usually different in length of illness and severity when compared to viral gastroenteritis. When viral gastroenteritis occurs during the winter it is often incorrectly referred to as “intestinal influenza” or “stomach flu,” although it has no relationship to respiratory infections caused by the influenza virus.

Outbreaks of AGE in LTCFs are not uncommon and can become epidemic during the winter and early spring. Viruses (norovirus specifically) cause most of these outbreaks and they are typically transmitted from **person to person** (including between residents, staff, visitors, and volunteers). Norovirus can persist in the environment and is resistant to most disinfectants and, as a result, **contamination of the environment** plays a key role in transmission.

While norovirus infection is usually mild in otherwise healthy adults, illness can be severe in older adults, particularly in those with underlying medical problems. Norovirus outbreaks can be detected early by recognizing the typical symptoms of illness, and can be controlled **by promptly implementing aggressive infection prevention and control measures** to prevent environmental or person-to-person transmission. When appropriate prevention and control measures are not implemented immediately, outbreaks can continue to cause illnesses for weeks, leading to hospitalization in some cases and occasionally to death from dehydration and other complications of vomiting and diarrhea.

In general, an outbreak of AGE in a facility is defined as the presence of more diarrhea or vomiting than would usually be expected in the facility, or in a particular unit, for that time of year. A simple threshold for when to **suspect** an AGE outbreak is when three or more residents and/or staff experience AGE symptoms within a 72-hour period and have a geographic commonality (i.e., same wing, unit, floor).

A specific case definition for norovirus could be: *Acute onset of vomiting and/or diarrhea (three or more loose stools in a 24-hour period) in a resident or staff member and whose symptoms have no other apparent cause.*

The Wisconsin Division of Public Health (DPH), Bureau of Communicable Diseases (BCD) developed these recommendations in cooperation with the Wisconsin Division of Quality Assurance (DQA). This information was developed to assist facility staff assigned to infection prevention and control with the development of a rational approach to the prevention and control of viral gastroenteritis outbreaks in LTCFs.

These recommendations are not exhaustive and implementation of all strategies and measures may not be appropriate or feasible in all situations. Facility level assessment of the situation should be made by infection prevention and control staff.



PREVENTION AND PLANNING

The following recommendations may enhance the response to a sudden increase in AGE among residents and/or staff within an LTCF, reduce the risk of significant increases in the numbers of new cases, and shorten the length of the outbreak.

Develop and implement routine surveillance for gastrointestinal infection in residents and staff to more rapidly identify illnesses and outbreaks. The system should routinely monitor and record illness among residents and staff and provide a baseline for illness to identify increases in disease that may signal an outbreak. A systematic daily review of 24-hour logs can help monitor for AGE outbreaks in a facility.

Ensure that contact information for the local health department and other key health care partners is readily available. Post the local health department or health officer's telephone number in a visible location in the facility to aid in reporting a cluster of illnesses.

Provide information to residents and staff (e.g., in-services, notices, posters) to reinforce facility policy regarding proper hand hygiene. Ensure there is adequate access to handwashing stations and supplies.

Ensure that a clear, fair, safe policy on workers with illness is in place, and identify and remove barriers to absence due to illness. A contingency staffing plan should be developed that identifies the minimum staffing needs and prioritizes critical and nonessential services.

Review facility cleaning guidelines and identify potential gaps. Observe routine housekeeping procedures to identify cross-contamination issues (e.g., using the same cloth to clean bathroom surfaces and wiping down ice buckets). Identify high-risk surfaces (e.g., surfaces with frequent hand contact, high risk of exposure to fecal matter or vomitus, food preparation surfaces, common medical equipment). Develop an outbreak-specific cleaning plan to supplement routine protocols.

Plan for promptly acquiring additional resources (e.g., signs, and other educational material, cleaning supplies, personal protective equipment [PPE]). There will be an increased need for support (e.g., increased waste management) as well as the increased consumption of some materials (e.g., paper towels, toilet paper). Estimate the quantities of essential materials and equipment that would be needed.

Identify specific individuals to form a multidisciplinary planning committee or team to provide guidance and response to potential cases or outbreaks. This planning committee should designate specific individuals to manage communications for various audiences (e.g., families, visitors, media, and the local health department), inter-facility coordination, training, and education of staff, and staffing needs during an outbreak.



SURVEILLANCE AND OUTBREAK IDENTIFICATION

All facility staff should be monitoring for and reporting gastrointestinal illness among their residents and staff year round, as infection prevention and control is everyone's responsibility. Since norovirus is more common during the winter, a heightened level of surveillance should be initiated. Staff should document any signs of AGE in their residents. Communication between care staff on different shifts is essential, and reporting signs and symptoms of AGE in residents and staff to the infection prevention and control staff, as well as nursing directors, is key to identifying an outbreak early.

Facility-wide surveillance may include one or more of the following strategies:

- Maintaining line lists of ill residents and staff with specific disease syndromes (i.e., gastrointestinal illness, respiratory illness).
- Reviewing 24-hour logs for residents with GI illness and tracking how many residents on each wing or floor are experiencing similar symptoms.
- Plotting ill residents on a facility map to identify increased GI illness and spread of disease within units and floors.

Each facility should have a surveillance mechanism in place that will monitor for GI illness as well as other illnesses in residents throughout the facility to rapidly identify when a unit, wing, or floor has an increase in illness.

Staff illnesses and call-ins should be monitored. When staff call in, it is important to understand what symptoms the ill staff member is experiencing (GI, respiratory, sore throat) to monitor for increase in certain disease syndromes.

When there is a suspect outbreak of only ill staff members, efforts should be made to determine if there is likely disease transmission **within** the facility. Since the maximum incubation period of norovirus is 50 hours, any staff member who did not work in the two days before becoming ill likely did not become infected at the facility. Staff members that likely did not obtain their illness at the facility should not be counted in the outbreak case counts but should still be documented on line lists.

Regardless of where the staff member likely acquired their infection, they should remain off of work until asymptomatic for 48 hours to prevent spread of illness within the facility.

Early recognition of outbreaks and immediate implementation of aggressive infection prevention and control measures is crucial to interrupting disease transmission and stopping outbreaks quickly.



NOTIFICATION

- Each resident unit should immediately report any resident(s) or staff member(s) with a sudden onset of symptoms suggestive of viral gastroenteritis to the person in charge and the infection prevention and control practitioner, who should immediately take appropriate action.
- The medical director should be consulted any time the facility suspects an outbreak.
- New cases of ill residents and staff should be recorded each shift using a line list.
- **Notify the local health department of any suspected or confirmed outbreak** and consult with them about laboratory testing. The local health department will request the following information:
 - Number of ill residents and staff
 - Onset of illness
 - Signs and symptoms of the illness
 - Any laboratory tests complete or pending
 - Job duties of any ill staff
- Notify “sister” facilities that may share staff, facilities, or other resources with the affected facility or unit so they can implement proper infection prevention and control measures and monitor for illness.



SPECIMEN COLLECTION AND CLINICAL TESTING

- Decisions regarding testing for norovirus should be made after reviewing policies and procedures developed by the facility.
- **Decisions to institute aggressive infection prevention and control measures should not be delayed while waiting for results, since laboratory confirmation may take two days or more.**
- Viral gastroenteritis cannot be diagnosed by traditional stool cultures (for bacteria) or by the examination of stool for ova and parasites.
- Norovirus can be reliably identified by reverse transcription polymerase chain reaction, which is available through the Wisconsin State Laboratory of Hygiene, the Milwaukee City Health Department Laboratory, and many private laboratories.
 - During outbreaks that are clinically and epidemiologically consistent with a viral etiology, it is typically unnecessary to test for bacteria or parasites.
 - Testing for bacterial pathogens should be considered if the clinical and epidemiologic data are suggestive or if testing for viral pathogens is negative. Testing for parasites is rarely necessary, especially when illness durations are short (i.e., less than a week).
- After the suspected outbreak has been reported to the local health department, **if there are at least five ill residents and staff**, authorization will be provided for fee-exempt norovirus testing at the Wisconsin State Laboratory of Hygiene.
 - Kit #10 (Cary Blair Transport Media), routinely used for enteric bacterial pathogens, can be used for norovirus testing.
 - Private clinical laboratories may also be used for norovirus testing as long as results are shared with the local health department.
- The local health department will typically request collection of three stool samples from ill residents or staff. Priority in testing should be given to currently ill or recently ill individuals (within 48-72 hours of symptom onset). However, reverse transcription polymerase chain reaction testing can often detect viral particles for up to a week after the symptoms have resolved. It is acceptable to submit formed stools for testing if no one is currently symptomatic.
- Efforts should be made, when possible, to collect stool specimens and submit them for testing at the Wisconsin State Laboratory of Hygiene or a private laboratory. Positive clinical specimens may not be obtained during every outbreak. All acute gastrointestinal outbreaks should be treated with the same precautions regardless of whether an etiology is determined.
- **Contact precautions should continue to be used on symptomatic patients experiencing nausea or vomiting even if test results are negative.**



COMMON CAUSES OF ACUTE GASTROENTERITIS OUTBREAKS

Etiological Agent	Symptoms	Considerations	Testing
Viral (Norovirus, Sapovirus, Astrovirus)	<ul style="list-style-type: none"> • Acute-onset watery, non-bloody diarrhea • Acute onset vomiting • No or low-grade fever 	<ul style="list-style-type: none"> • Short incubation period • Highly infectious • Common outbreak organism 	<ul style="list-style-type: none"> • Norovirus PCR • Enteric PCR Panel
<i>Clostridium difficile</i>	<ul style="list-style-type: none"> • Frequent, foul-smelling watery stool • Often diarrhea contains blood and/or mucus 	<ul style="list-style-type: none"> • Typically associated with antibiotic usage • Not a typical cause of rapidly spreading AGE outbreaks 	<ul style="list-style-type: none"> • PCR Panel • <i>C. difficile</i> toxin testing (only unformed stools should be tested)
Other Bacteria (<i>Salmonella</i> , Shiga-toxin <i>E. coli</i> , <i>Campylobacter</i>)	<ul style="list-style-type: none"> • Watery or bloody diarrhea • Fever • Occasional vomiting 	<ul style="list-style-type: none"> • Not a typical outbreak organism in LTCF facilities • Foodborne transmission should be considered • Suspect when illnesses are associated with fevers, bloody diarrhea, or hospitalization 	<ul style="list-style-type: none"> • Enteric culture • Enteric PCR Panel

PCR: polymerase chain reaction



MANAGEMENT OF RESIDENTS

- Restrict ill residents' activities until 48 hours after they are well.
- Efforts should be made to minimize movement of residents from an affected unit or facility to an unaffected location. In most circumstances, asymptomatic, exposed residents should **not** be moved from an affected to an unaffected resident unit. The value in moving asymptomatic residents who have been exposed (e.g., to a symptomatic roommate) is uncertain since they may already be infected and be incubating the virus.
- Evaluate the need to cancel communal meals and group activities until 48 hours after the well date of the last resident case.
- Clean and disinfect all equipment between residents including, but not limited to: blood pressure cuffs, stethoscopes, electronic thermometers and transfer equipment. Consider dedicating commonly used equipment for use in affected areas only.
- Ensure health care providers managing a symptomatic resident's medical care are aware of their resident's illness to determine if any changes to medical management are warranted.
 - Consult with health care providers for residents experiencing vomiting or diarrhea who are also taking fluid-depleting drugs and/or laxatives.
 - Consult with health care providers regarding the use of anti-emetics or anti-motility agents.
 - For residents experiencing vomiting or diarrhea, monitor hydration status to include implementation of intake and output monitoring.
- Limit new admissions until all cases have been asymptomatic for at least 48 hours. **If new admissions are being considered, consult with the infection prevention and control practitioner and the facility medical director first.**
 - Consider admitting resident(s) to an unaffected unit or to a unit where all cases have been asymptomatic for 48 hours.
 - Inform prospective residents and their health care provider about the ongoing outbreak in the admitting facility.
- If any resident, regardless of symptoms, is transferred to a hospital or other facility, you should notify the facility (and EMS or private ambulance service if used) that the resident is coming from a facility experiencing an outbreak of AGE.
- Discourage sharing of resident's personal food supplies for the duration of the outbreak.



MANAGEMENT OF WELL STAFF

- Staff assignments:
 - Maintain the same staff to resident assignments, if possible.
 - Limit staff from moving between affected and unaffected units. If staffing does not allow complete separation:
 - Have staff work in unaffected units or with well residents prior to working in affected units or with ill residents.
 - Have staff change clothes after providing care to ill residents and before providing care to well residents.
 - Discontinue “floating” staff or “universal workers” from affected units to food service.
 - Provide education and DPH disease fact sheet on norovirus gastroenteritis to staff (<https://www.dhs.wisconsin.gov/publications/p4/p42075.pdf>), including work exclusion guidelines.
 - If feasible during the outbreak, to avoid transmission to food service personnel, staff from the affected unit should deliver food items to the affected area.
 - Food service personnel should consult with infection prevention and control personnel before resuming routine food service delivery to the affected unit.
- **Use soap and water for hand hygiene** after providing care or having contact with residents suspected or confirmed with norovirus gastroenteritis.
 - Nursing homes using alcohol-based hand sanitizers that are experiencing an AGE outbreak should reconsider its use during the outbreak based on current infection prevention and control guidelines.
 - Follow World Health Organization’s guidelines in “Hand Hygiene in Health Care” (http://apps.who.int/iris/bitstream/10665/44102/1/9789241597906_eng.pdf)
- Implement contact precautions:
 - Wear PPE including gloves and gown (mask and goggles or face shield if vomitus present) upon entry to the room and when in contact with a resident that has been symptomatic with vomiting or diarrhea at any time during the previous 48 hours (CDC, 2004).
 - Remove gloves, goggles or face shield, gown, and mask, and then perform hand hygiene immediately after removing all PPE and before contact with an unaffected resident in the same room or when exiting the resident’s room (CDC, 2004).
 - After glove and gown removal and hand hygiene, ensure that hands and clothes do not touch potentially contaminated environmental surfaces or items in the resident’s room, such as bed rails, light switches, door knobs, and tables.
- Educate staff about the need to maintain strict hand hygiene and a clean environment to minimize the risk of household transmission of norovirus infection.



MANAGEMENT OF ILL STAFF

- A staff illness policy should be developed and implemented and all employees should be educated about the policy.
 - The policy should clearly outline staff responsibilities for when and how to inform management of illness so appropriate furlough or other leave policies can be implemented and should outline the policy for returning to work (48 hours after signs and symptoms subside).
 - Consider developing a sick leave policy that provides compensation or other non-punitive approaches to encourage self-reporting of ill staff and appropriate exclusion.
- Staff should exclude themselves from resident care and food service duties at the onset of symptoms, including nausea, vomiting, abdominal pain, and/or diarrhea.
 - **Such exclusions shall remain in effect until the employee is asymptomatic and free of diarrhea and vomiting for 48 hours.**
 - Negative norovirus test results are not required before ill staff return to work.
 - Virus may be excreted in stool for two or more weeks. Because of continued excretion of virus, the need for meticulous hand hygiene should be stressed to staff returning from illness.
- The loss of a large number of staff may place a significant burden on those remaining at work, but exclusion of ill staff is an essential transmission control strategy.
- A log should be maintained to record ill staff symptoms, date when they became ill, date they became well, and date they returned to work (see page 18 for template log).
- Educate food service personnel about the need to adhere to strict handwashing regimens and cleanliness of the kitchen area and food service equipment used outside the kitchen area (e.g., tray containers). **Any food service employee experiencing symptoms of acute gastrointestinal illness resembling norovirus shall be excluded from working until 48 hours after symptoms end.**



CLEANING MANAGEMENT

- Increase the frequency of routine environmental cleaning including bathrooms and the area surrounding the resident's living space. Particular attention should be given to cleaning objects that are frequently touched.
- CDC recommends that chlorine bleach should be applied to hard, nonporous, environmental surfaces at a minimum concentration of 3500 ppm.
 - Bleach solutions should be labeled with concentration and date of preparations.
 - Bleach solutions should be prepared every 24 hours.
 - Health care facility staff should use appropriate PPE (e.g., gloves and goggles) when working with bleach.
 - The reliability of disinfectants other than those containing chlorine to kill norovirus is uncertain. Recent studies have shown that certain oxidizing agents registered by the U.S. Environmental Protection Agency (EPA) are effective virucidal agents. The effectiveness of other EPA-approved disinfectants for norovirus clean-up is uncertain.
- Clean and disinfect vomit and fecal spills promptly.
 - All individuals cleaning surfaces soiled with vomitus or fecal material should wear a gown, gloves, and a surgical or procedure mask. **It is important to remember norovirus is shed in both vomitus and fecal material.**
 - After glove and gown removal and handwashing, ensure that hands and clothes do not touch potentially contaminated environmental surfaces.
 - Exposed food items as well as cups or glasses with straws should be discarded.
- Clean and disinfect surfaces starting from the areas with a lower likelihood of norovirus contamination (e.g., tray tables, counter tops) to areas with highly contaminated surfaces (e.g., toilets, bathroom fixtures). This includes cleaning rooms of non-affected wings and well residents' rooms prior to rooms of ill residents.
- Carts used for food or drug distribution should be **continually disinfected immediately before and after usage** since they are handled by more than just food staff.
- Change mop heads when a new bucket of cleaning solution is prepared or after cleaning large spills of emesis or fecal material.
- Change privacy curtains when they are visibly soiled and upon discharge or transfer.
- Norovirus may remain viable for up to 12 days in carpeting or other environmental surfaces.
 - Consider steam cleaning of carpets, curtains, walls, and equipment wherever contamination with vomit or feces has occurred.
 - Dry vacuuming has the potential to re-circulate the viruses and is not recommended for surfaces that have been visibly soiled.
- Enhanced cleaning and disinfection should continue for at least 72 hours after the last documented case has recovered.



OTHER FACILITY CONSIDERATIONS

Laundry

- Ensure laundry personnel are made aware of the potentially infected linen and are provided with appropriate PPE.
- Avoid shaking soiled linens and laundry.
 - Aerosols created may pose a risk for transmission.
 - Soiled linens should be placed directly into a bag at the point of removal.
 - Minimize the number of staff handling this material.
- Contaminated pillows should be laundered as infected linen unless they are covered with an impermeable cover, in which case they should be disinfected with a hypochlorite solution.
- Ensure proper segregation of clean and soiled laundry.

Management of Visitors

- The facility should always request that visitors with symptoms consistent with norovirus infection consider rescheduling their visit until they have been well for 48 hours.
- Establish visitor policies for acute gastroenteritis outbreaks.
 - Post signage that the facility is experiencing an increase in gastrointestinal illness.
 - Encourage nonessential visitors to affected areas of the facility to consider rescheduling their visit until after the outbreak is over.
 - Visitors that decide to visit during an outbreak should be provided with education on norovirus, follow handwashing recommendations, and follow contact precautions while visiting.



INFECTION PREVENTION AND CONTROL MEASURES CHECKLIST

Report and Inform

- Report the outbreak to the local health department and facility management.
- Inform all residents, staff, and visitors of the situation and what they are to do.
- Provide all staff with information and training in infection prevention and control precautions.

Control Measures

Residents

- Ensure that all residents have their hands washed after going to the toilet, before meals, and after any episode of diarrhea or vomiting.
- Avoid transferring residents to other institutions while cases of gastroenteritis are occurring, or, if a transfer is necessary, ensure receiving institution has been notified of the outbreak.
- Whenever possible, restrict admissions of new residents until AGE cases have resolved.

Staff

- Allocate dedicated staff to care for ill residents whenever possible.
- Ensure all staff wash their hands before and after all resident contact and have access to and knowledge of appropriate PPE.
- Ensure food staff are aware of the precautions required in food service area and the importance of handwashing.
- Ensure all staff with symptoms are excluded from work until 48 hours after resolution of symptoms.

Facility

- Post signs at appropriate locations throughout the facility.
- Ask nonessential visitors to reschedule their visit and ask any visitors with symptoms to avoid visiting until 48 hours after symptoms cease.



CLEANING CHECKLIST

- Provide sufficient gloves, gowns, aprons, masks, goggles, and face shields, and ensure that they are easily accessible to cleaning staff.
- Ensure all staff members are aware of the precautions required when handling soiled linen, the correct laundering procedures, and the importance of handwashing.
- Ensure cleaning and other relevant staff members are aware of the correct cleaning procedures and the importance of handwashing.
- Ensure sufficient soap and hand-drying facilities are available.
- Mix new bleach solutions daily.
- Clean rooms of residents experiencing AGE last.
- Avoid dry vacuuming over areas that have been contaminated with vomit.
- Avoid shaking contaminated laundry.



DISINFECTION AND PREPARATION OF CHLORINE SOLUTIONS

Examples of items to disinfect:

Doorknobs, faucets, sinks, toilets, commodes, bath rails, phones, counters, chairs, bottles, hand rails, food and drug delivery carts, elevator buttons, light switches, mattress covers, aprons, uniforms, bedding, and computer keyboards.

Chlorine bleach concentrations and mixing instructions (3500 ppm):

- Use for nonporous surfaces, tile floors, countertops, sinks, toilets
- 3/4 cup concentrated bleach in 1 gallon of water; for regular strength bleach (5.25%), increase the amount of bleach to 1 cup
- Leave surfaces wet for at least five minutes
- Rinse all surfaces intended for food or mouth contact with plain water before use
- Mix a fresh solution daily

EPA's Registered Antimicrobial Products Effective Against Norovirus

https://www.epa.gov/sites/production/files/2017-07/documents/20171207.listg_.pdf

Ineffective disinfectants:

- Quaternary compounds
- Ethanol anionic compounds

Resources:

- CDC. Help Prevent the Spread of Norovirus. https://waterandhealth.org/wp-content/uploads/2019/12/norovirus-poster-preventstamp_Letter_COLOR_Dec2019.pdf
- CDC. Clean-up and Disinfection for Norovirus. https://waterandhealth.org/wp-content/uploads/2019/12/norovirus-poster-cleanupstamp_Letter_COLOR_Dec2019.pdf



LINE LIST INSTRUCTIONS

- A line list is a log of ill staff and residents with similar signs and symptoms. It should be used as a tool to track illnesses within a facility when an outbreak is suspected and **while an outbreak is occurring** in real time.
- A line list is a resource for those managing an outbreak and can help identify when restrictions can be lifted, when ill staff can return to work, and when the outbreak is over.
- A line list should capture the following information:
 - Patient name
 - Age
 - Sex
 - Building/unit
 - Room
 - Onset date
 - Well date
 - Symptoms
 - Hospitalization data
 - Fatality data
 - Laboratory results
- A final line list should be provided to the local health department 7-10 days after the last case has recovered.
- Epidemiologists at DPH analyze the line lists to determine potential causes of the outbreak. DPH also shares de-identified outbreak summary data with the Centers for Disease Control and Prevention to contribute to national outbreak surveillance.
- When completing line lists it is important that:
 - Every person that had a stool specimen submitted and tested appears on the line list so patient's symptoms and lab results can be linked.
 - Only patients with acute gastroenteritis appear on the line list.
 - The line list be maintained in real time so it can be used as a management tool.
 - All fields be filled out completely so the outbreak can be fully assessed.



EXAMPLE LINE LIST FOR RESIDENTS DURING NOROVIRUS OUTBREAKS

Facility: _____

Unit: _____

No.	Name	Age	Sex	Building or Unit	Room	Onset	Well	N	V	D	AC	Fe	Ch	Hosp.	Died	Lab Results
Ex	Jane Doe	75	F	Unit A	100	1/1/2016	1/2/2016	Y	N	Y	Y	N	N	N	N	Norovirus +

Onset=Onset of Illness; N=Nausea, V=Vomiting, D=Diarrhea; AC=Abdominal Cramping; Fe=Fever; Ch=Chills; Hosp=Hospitalization

Case Definition:



EXAMPLE LINE LIST FOR STAFF DURING NOROVIRUS OUTBREAKS

Facility: _____

Unit: _____

No.	Name	Age	Sex	Assignment	Lst Work	Onset	Well	N	V	D	AC	Fe	Ch	Ret - Wk	Hosp.	Lab Results
Ex.	<i>John Doe</i>	25	<i>M</i>	<i>Cook</i>	<i>12/31/2016</i>	<i>1/1/2016</i>	<i>1/2/2016</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>N</i>	<i>N</i>	<i>N</i>	<i>1/4/2016</i>	<i>N</i>	<i>Norovirus (-)</i>

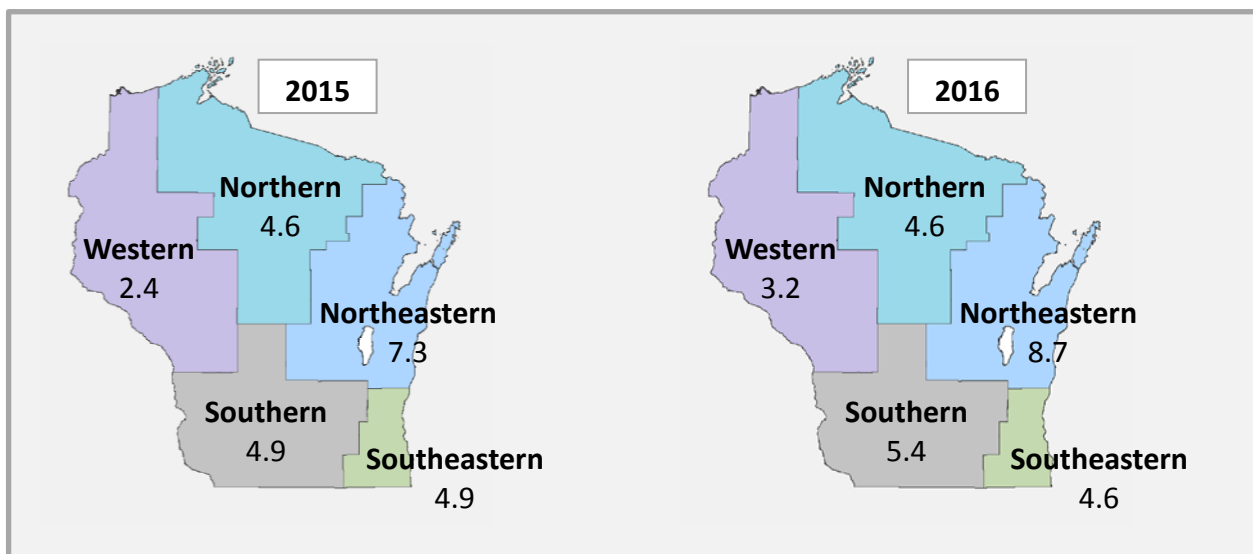
Lst Work= Last day worked before onset of illness; Onset=Onset of illness; Well=Well Day; N=Nausea, V=Vomiting, D=Diarrhea; AC=Abdominal Cramping; Fe=Fever; Ch=Chills; Ret - Wk=Return to work date; Hosp=Hospitalization

WISCONSIN LTCF AGE OUTBREAK DATA

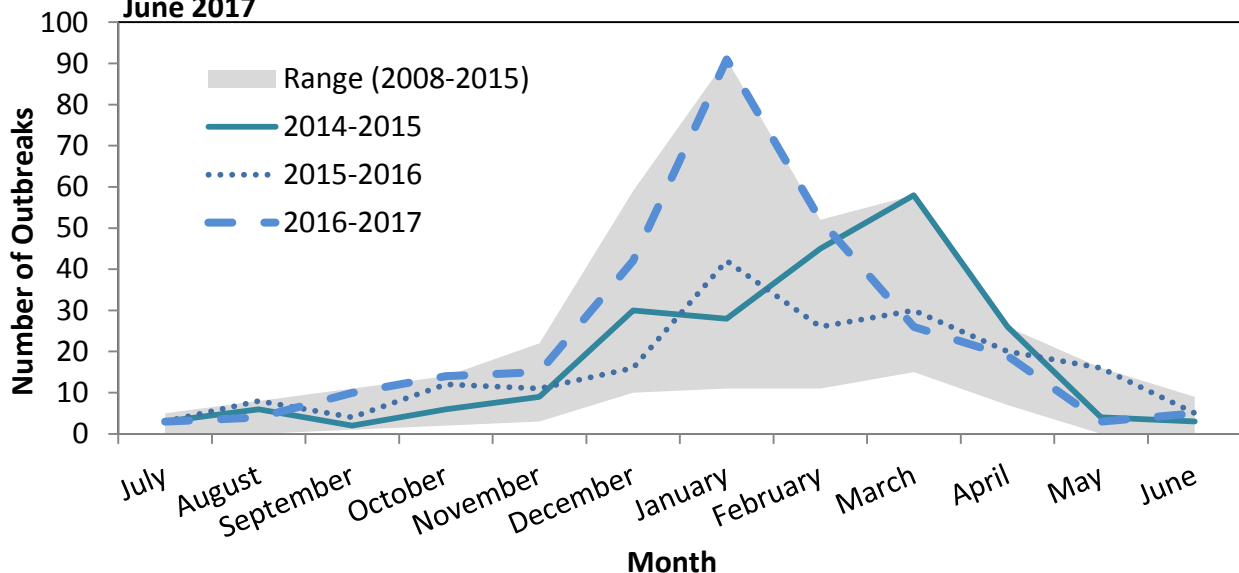
Wisconsin LTCF AGE Outbreaks by Year, 2012-2016

Year	No. of Outbreaks	No. of Residents Ill	No. of Staff Ill
2012	200	3,921	2,199
2013	189	3,472	2,022
2014	234	3,674	2,069
2015	218	3,782	2,102
2016	227	2,918	1,722

LTCF AGE Outbreaks/100 LTCFs by State Public Health Region, 2015-2016



LTCF AGE Outbreaks by Month of First Illness Onset, Wisconsin, July 2014 to June 2017



GLOSSARY AND SELECT DEFINITIONS

AGE: Acute gastroenteritis

Asymptomatic: No symptoms of vomiting or diarrhea

CDC: Centers for Disease Control and Prevention

DPH: Division of Public Health, Wisconsin Department of Health Services

Incubation Period: The time from exposure to the causative agent until the first symptoms develop

LTCF: Long-term care facility, the term comprises the following types of licensed facilities:

- Adult day care centers (ADCC)
- Adult family homes (AFH)
- Community-based residential facilities (CBRF)
- Nursing homes (NH)
- Residential care apartment complexes (RCAC)

PPE: Personal protective equipment

Well Date: First date with no vomiting or diarrhea



REFERENCES AND ACKNOWLEDGEMENTS

References:

- CDC. “Norwalk-Like Viruses”: Public Health Consequences & Outbreak Management. *MMWR*. June 01, 2001/50(RR09):1-18.
- Rodriguez EM, Parrott C, Rolka H, Monroe SS, Dwyer DM. An Outbreak of Viral Gastroenteritis in a Nursing Home: Importance of Excluding Ill Employees. *Infection Control and Hospital Epidemiology*. 1996;17(9):587-592.
- Tu ET-V, Bull RA, Kim M, McIver CJ, Heron L, Rawlinson WD, White PA. Norovirus Excretion in an Aged-Care Setting. *Journal of Clinical Microbiology*. 2008;46(6):2119-2121.

Portions of this guide were taken from the following documents prepared by the CDC, California Department of Health, Michigan Department of Community Health, and the Virginia Department of Health:

- California Department of Health Services. Recommendations for the Prevention and Control of Viral Gastroenteritis Outbreaks in California Long-Term Care Facilities. October 2006. <https://archive.cdph.ca.gov/pubsforms/Guidelines/Documents/PCofViralGastroenteritisOutbreaks.pdf>
- CDC. Personal Protective Equipment in Healthcare Setting. <http://www.cdc.gov/HAI/prevent/ppe.html>
- CDC. Norovirus in Healthcare Facilities. <https://www.cdc.gov/hai/pdfs/norovirus/229110-anorocasefactsheet508.pdf>
- CDC. Guideline for the Prevention and Control of Norovirus Gastroenteritis Outbreaks in Healthcare Settings <https://www.cdc.gov/infectioncontrol/guidelines/norovirus/index.html>
- Michigan Department of Community Health. Michigan Local Health Department Guidelines for Environmental Cleaning and Disinfection of Norovirus. January 2009. https://www.michigan.gov/documents/Guidelines_for_Environmental_Cleaning_125846_7.pdf
- Virginia Department of Health. Norovirus Prevention Guidance for Institutions/Facilities. September 2013. <http://henrico.us/assets/Norovirus-Prevention-Guidelines-for-Facilities.pdf>



RESOURCES

General Guidance Documents

- CDC. Personal Protective Equipment in Healthcare Setting. <http://www.cdc.gov/HAI/prevent/ppe.html>
- CDC. Norovirus in Healthcare Facilities. <https://www.cdc.gov/hai/pdfs/norovirus/229110-anorocasefactsheet508.pdf>
- CDC. Guideline for the Prevention and Control of Norovirus Gastroenteritis Outbreaks in Healthcare Settings <https://www.cdc.gov/infectioncontrol/guidelines/norovirus/index.html>

Cleaning and Handwashing Recommendations

- CDC. Help Prevent the Spread of Norovirus (“Stomach Bug”). https://waterandhealth.org/wp-content/uploads/2019/12/norovirus-poster-preventstamp_Letter_COLOR_Dec2019.pdf
- CDC. Clean-up and Disinfection for Norovirus (“Stomach Bug”). https://waterandhealth.org/wp-content/uploads/2019/12/norovirus-poster-cleanupstamp_Letter_COLOR_Dec2019.pdf
- WHO. WHO Guidelines on Hand Hygiene in Health Care. http://apps.who.int/iris/bitstream/10665/44102/1/9789241597906_eng.pdf

Wisconsin Department of Health Services Resources

- Norovirus Factsheet. <https://www.dhs.wisconsin.gov/publications/p4/p42075.pdf>
- Handwashing Factsheet. <https://www.dhs.wisconsin.gov/publications/p01710.pdf>
- Attention All Visitors Sign. <https://www.dhs.wisconsin.gov/publications/p02020.pdf>
- No Hand Sanitizer Sign. <https://www.dhs.wisconsin.gov/publications/p02019.pdf>

