

Norovirus Toolkit for School and Childcare Center Outbreaks



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Infectious Diseases Branch

California Department of Public Health

Introduction

The California Department of Public Health developed this toolkit to assist local health department employees who investigate suspected and confirmed norovirus outbreaks in schools and childcare settings. While the target audience is local health departments, parts of the toolkit may also be useful for school and childcare staff as well.

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General Norovirus Information

What is norovirus? Norovirus is a highly contagious virus that causes acute gastroenteritis (inflammation of the stomach and intestines). As few as 18 virus particles can cause an infection (1). Norovirus can survive for weeks on surfaces, such as desks, doorknobs, and toys. Norovirus can spread quickly from person to person in places such as schools and childcare centers. It is sometimes called the “stomach flu” but is not related to influenza (flu) viruses, which primarily cause respiratory infection.

How common is norovirus infection? Norovirus is the most common cause of acute viral gastroenteritis in the United States, and causes an estimated 19–21 million illnesses each year (2). The U.S. Centers for Disease Control and Prevention estimates that norovirus contributes to 56,000-71,000 hospitalizations and 570-800 deaths each year in the United States (2).

When does norovirus infection occur? It is possible to become infected with norovirus any time of the year, but infections are most common between November and April.

Can a person get norovirus infection more than once? A person can get norovirus more than once in their lifetime, because there are many different strains, which can circulate at different times and in different geographic areas. When new strains emerge, there can also be an increase in norovirus cases.

How do people get norovirus infection? Norovirus is found in the vomit and feces of infected people. When an infected person vomits, norovirus can be sprayed into the air and contaminate nearby surfaces. Contamination of surfaces with fecal matter from unwashed hands can also occur. Norovirus can spread easily from person to person, through contaminated food or water, or by touching contaminated surfaces. Typically, a person is contagious as soon as they begin feeling sick and remains contagious until a few days after they recover. However, sometimes an ill person can remain contagious for two weeks or longer after symptoms have ended. People can become infected in several ways, including:

- Having direct contact with an infected person (for example, by caring for or sharing foods or eating utensils with an infected person or changing diapers of a sick child).
- Eating food or drinking liquids contaminated with norovirus, such as food touched by an ill person, or undercooked shellfish from contaminated waters.
- Touching contaminated surfaces or objects, and then touching one’s mouth before handwashing.
- Sharing toilet facilities with an ill person.
- Cleaning up vomit or diarrhea from an infected person without proper protective equipment, such as gloves, masks, and gowns.

What are the symptoms of norovirus infection? Symptoms usually begin 12 to 48



hours after a person has been exposed to the virus, and last for 1 to 3 days. The most common symptoms are vomiting, diarrhea, nausea, and stomach cramps. Other symptoms can include a low-grade fever, headache, and body aches. People with norovirus can feel very ill, and may vomit or have diarrhea many times a day. This can lead to dehydration, especially in young children, older adults, and people with other medical conditions. Symptoms of dehydration include decreased urination, dry mouth and throat, and feeling dizzy when standing up. Children who are dehydrated may cry with few or no tears and be unusually sleepy or fussy.

How is norovirus infection diagnosed? Norovirus infection can be diagnosed by testing a person's stool for the presence of norovirus. Confirmation of the cause of illness by a public health laboratory during an outbreak is important to investigate and control the source of infection.

How is norovirus infection treated? There are no specific treatments for norovirus. It cannot be treated with antibiotics because it is not a bacterial infection. A person should drink plenty of fluids to prevent dehydration due to vomiting and diarrhea.

How can you prevent norovirus infection? Things you can do to reduce the risk of norovirus infection include:

- Proper hand hygiene.
- Safe food handling, such as washing fruits and vegetables and cooking shellfish thoroughly.
- When you are sick with norovirus or any diarrheal illness, do NOT go to school or work, prepare food, or care for others.
- Clean and disinfect contaminated surfaces or objects as soon as possible.

For more information, please see the ["Control Measures"](#) section on page 9.



Outbreak Detection and Case Definition

Detecting a Norovirus Outbreak: All outbreaks of gastrointestinal illness should immediately be reported to the local health department. The local health department can conduct an investigation to determine the cause of the outbreak, identify risk factors for infection, confirm and identify the strain of norovirus, and educate the public on how to prevent further infections.

An outbreak of norovirus-like illness is defined as: the presence of more vomiting or diarrhea than would usually be expected in the facility, or in a particular unit, for that time of year. For example, if two children in the same classroom are sick with vomiting or diarrhea within one week, and that number of illnesses is more than typically seen, then an outbreak may be occurring. It is important to continually monitor for an increase in illnesses in the entire school.

Norovirus Case Definition: During an outbreak, it is important to use specific criteria to determine which persons will be counted as “cases” or ill people. The following case definition is recommended for a suspected norovirus case during a norovirus outbreak in facilities:

- Vomiting and/or diarrhea (three or more loose stools in a 24-hour period) in a student or staff with symptom onset since (specified date) and whose symptoms have no other apparent cause.*

* The use of a new medication or laxative, or other pre-existing health conditions, can cause norovirus-like symptoms.

Outbreak Classifications: An outbreak of norovirus may be classified as “confirmed” or “suspected.”

- Confirmed norovirus outbreak: The signs and symptoms of illness are consistent with norovirus infection; and norovirus is detected in laboratory specimens from two or more ill persons.
- Suspected norovirus outbreak: The signs and symptoms of illness are consistent with norovirus infection; however, stool specimens were not collected, stool was tested only for bacterial pathogens, norovirus was detected in only one specimen, or norovirus was not detected at all.

When it is not possible to get laboratory confirmation, an outbreak is very likely caused by norovirus if all four Kaplan criteria are met:

- 1) Mean (or median) illness duration of 12 to 60 hours;
- 2) Mean (or median) incubation period of 24 to 48 hours;
- 3) More than 50% of people with vomiting;
- 4) And no bacterial agent found.

For more information regarding the Kaplan Criteria, please visit the [U.S. Centers for Disease Control and Prevention](https://www.cdc.gov/norovirus/php/responding.html) (<https://www.cdc.gov/norovirus/php/responding.html>).



Checklist for Responding to an Outbreak

If an outbreak of norovirus-like illness is identified, it is crucial that affected facilities immediately employ infection control measures to help prevent the spread of illness. To ensure a comprehensive response to an outbreak, the California Department of Public Health recommends that affected facilities take the following steps:

- Notify the Local Health Department:** Notify the local health department of the outbreak immediately. [A list of local health department contacts](#) is located on the California Department of Public Health’s website. Refer to the [“Outbreak Detection and Case Definition”](#) section on page 6 for more information.
- Track Ill Persons:** Track the number of ill persons using a log sheet such as the [Sample Acute Gastrointestinal/Norovirus Illness Line List](#) (Appendix A).
- Educate Staff, Students, and Parents:** Inform staff, students, and parents or guardians about the outbreak, symptoms of norovirus and suggested prevention measures to use at home and school (that is, frequent handwashing and staying home when ill), during and even after the outbreak to reduce transmission. Useful tools which could be employed together include:
 - [Centers for Disease Control and Prevention “Norovirus Illness: Key Facts”](#) (Appendix B).
 - [Centers for Disease Control and Prevention “Norovirus: Facts for Food Workers”](#) (Appendix C).
 - [Clean-up and Disinfection for Norovirus \(“Stomach Bug”\)](#) (Appendix D).
 - [Sample Notification Letter](#) (Appendix E).
 - [Sample Press Release](#) (Appendix F).
 - Post [outbreak notices](#) and [handwashing signs](#) throughout the facility (for example, entrances, restrooms, dining areas) to remind all students and staff to practice frequent handwashing (Appendices G and H).
- Implement Facility-Wide Control Measures:**
 - Restrict sick students and staff from coming to the school or facility until at least 48 hours after their vomiting and diarrhea have ended.
 - Clean and disinfect frequently-touched surfaces and all possibly contaminated areas. Please see the [“Cleaning and Disinfection Guidelines”](#) section on page 11 for more information. Refer to the [Clean-up and Disinfection for Norovirus \(“Stomach Bug”\)](#) sheet (Appendix D) for more information.
 - Enforce strict handwashing policies for all students and staff (have staff supervise the handwashing of younger students). For more information, please see the [“Control Measures”](#) section on page 9.



- ❑ Consider cancelling or postponing group activities. Consult with the local health department if you plan to have an event at your facility.
- ❑ **Consider Limiting Visitors from Accessing Affected Areas of Facility:** If possible, limit visitor access, especially to areas that may be contaminated (for example, encourage parents or guardians to pick children up at the front of the facility rather than coming inside).
- ❑ **Consult with the Local Health Department on Laboratory Testing:** Work with the local health department to coordinate stool specimen collection and laboratory testing. For more information, please see the [“Laboratory Testing Information”](#) section on page 13.
- ❑ **Work with the Local Health Department to Assess How the Outbreak is Evolving:** Outbreaks can be prolonged, sometimes lasting months. An outbreak that begins at one school or childcare center can continually spread through the community by person-to-person transmission. Students, staff, family, and friends can become infected and further spread the virus to other facilities. It is important to keep the local health department informed about the spread of norovirus infections within your facility and to other facilities, localities, or regions.
- ❑ **Determine When the Outbreak is Over:** In general, an outbreak in a facility may be over if no new illnesses have occurred after two incubation periods (the average incubation period for norovirus infection is two days). However, it is important to work with the local health department to determine when the outbreak is over.



Control Measures

Because norovirus is highly contagious, it is critical that infection control measures are carried out as soon as an outbreak is suspected. The California Department of Public Health recommends enacting the following control measures:

Handwashing: It is critical that students and staff wash their hands often. It may be helpful to schedule handwashing breaks for students and staff to encourage frequent handwashing. During outbreaks, facilities may consider periodically broadcasting public announcements to remind students and staff to practice frequent handwashing, especially before lunch and snack times. Proper handwashing includes covering all parts of the hands, including fingernails, with soap; rubbing lathered hands together vigorously for at least 20 seconds; thoroughly rinsing hands with water; and drying hands with a paper towel ([Appendix H](#)). Staff should supervise the handwashing of young students to ensure that hands are thoroughly washed. Of note, **hand-sanitizers are not an acceptable substitute for handwashing because they are usually not effective against norovirus.**

- Wash hands after using the restroom, changing diapers, sneezing or coughing, cleaning up vomit or diarrhea, handling soiled items, or helping students in the restroom.
- Wash hands before eating, preparing or serving food, or feeding children.

Exclusion: Exclusion of sick and recovering persons will reduce the likelihood that more students and staff will be exposed. Any students and staff who are sick with either vomiting or diarrhea should be excluded from coming to the school or facility until at least 48 hours after symptoms have ended. (For example, if Mary last vomited at noon on Tuesday, then she should not return to school until Friday.)

Grouping: Try to keep all staff who worked with sick students in the same classroom or area to limit the spread of infection. (For example, if there is an outbreak in the “Toddlers” room, then keep the same staff working in the “Toddlers” room until the outbreak is over, rather than allowing them to work in the “Infants” or “Preschool” rooms.) In settings such as boarding schools or college dormitories, sick students should use separate toilets and be housed separately from well students if possible. Be sure to keep sick persons who are waiting to be picked up away from others. Sick persons should not be sitting in common areas such as hallways.

Cleaning: Immediately remove vomit or diarrhea, and use soap and water to wash any surfaces that may be contaminated. Norovirus can remain on surfaces that have been cleaned and can still cause infection. Be sure to disinfect all surfaces after cleaning. Wash laundry soiled by vomit or diarrhea with hot water and detergent right away. Wear disposable gloves and masks when cleaning contaminated surfaces or handling contaminated items. Handle items carefully to avoid spreading the virus, and machine wash and dry. For more information on proper cleaning practices, please see the



[“Cleaning and Disinfection Guidelines”](#) section on page 11.

Disinfection: Bleach is widely recommended because it is the most effective disinfectant for norovirus; however, it may be an irritant to some persons and may damage textiles or vulnerable surfaces. Quaternary ammonia solutions (which are often found in schools) are **not** effective against norovirus. Alternatively, a U.S. Environmental Protection Agency (EPA)-approved disinfectant can also be used. For the list of EPA-approved disinfectants for norovirus, see [EPA List G](#). For more information on proper disinfection practices, please see the [“Cleaning and Disinfection Guidelines”](#) section on page 11.

Food Handling: Norovirus can spread through contaminated food or water, so it is critical that facilities employ safe food-handling techniques, including:

- Excluding ill food service staff from work until at least 48 hours after symptoms have ended.
- Requiring food service staff to wear personal protective equipment (such as disposable gloves and masks) when handling, serving, or preparing food.
- Throwing away all potentially contaminated food.
- Cleaning and disinfecting food preparation equipment and surfaces.
- Ensuring that all food service staff have access to a dedicated bathroom facility that is not shared with students or other non-food service staff.
- Ensuring that all food service staff wash their hands thoroughly before food handling and immediately after using the restroom.
- Providing individual meals to students and staff instead of family-style meals, self-serve buffets, or communal food items.
- Prohibiting the use of shared food utensils and cups.
- Running dishes, utensils, and cups through a dishwasher (using hot water and dishwasher detergent) immediately after use; consider using single-use dining materials if reusable ones are not available and cannot be thoroughly cleaned.

For more information on proper food handling practices, see the [Centers for Disease Control and Prevention “Norovirus: Facts for Food Workers”](#) sheet (Appendix C).

Postponing or Canceling Group Activities: Consider postponing or canceling group activities, such as communal meals, sporting events, or social/recreational groups, until the outbreak is over. This will minimize person-to-person contact and transmission risk.

Facility Closures: In general, facilities are not required to close during a norovirus outbreak. However, closures may be considered on a case-by-case basis if a large number of illnesses are occurring, recommended control measures have not been effective, and closure is needed to perform effective environmental cleaning. Consult with the local health department. The [California Conference of Local Health Officers \(CCLHO\) webpage](#) on the California Department of Public Health’s website provides information on recovery of school attendance funds lost due to epidemic-related absences. Please see [Appendix J](#) for specific information on school average daily attendance reimbursement.



Cleaning and Disinfection Guidelines

General Principles: Remove vomit or diarrhea right away! Remember that norovirus particles can settle on and contaminate objects and surfaces, especially if an ill person has vomited nearby. All areas, items, and surfaces that may have been contaminated (within a 10- to 25-foot radius of the vomit incident) should be cleaned and disinfected. Cleaning removes visible dirt and debris on objects and surfaces, and results in the removal of some germs. Disinfection kills any remaining germs on the objects and surfaces. If possible, increase the frequency of cleaning and disinfection to at least twice a day. High-touch surfaces may need to be cleaned multiple times a day. In addition, facilities may need to bring in additional cleaning staff to manage the outbreak. Make sure rooms are well ventilated. Students and staff should stay away from contaminated objects and areas until proper cleaning and disinfection has occurred. Refer to the [Clean-up and Disinfection of Norovirus \(“Stomach Bug”\)](#) sheet (Appendix D) for more information.

Be careful and wear protective materials (such as disposable gloves, masks, safety goggles, and gowns) when handling anything contaminated with vomit or diarrhea, and when cleaning and disinfecting contaminated areas. All contaminated objects and areas, including classrooms, restrooms, hallways, and kitchens, must be cleaned and disinfected in order to kill norovirus germs. Start by cleaning and disinfecting surfaces with a lower likelihood of norovirus contamination (such as light switches or door handles) then moving to surfaces likely to be highly contaminated (such as, bathroom surfaces or desks). Consider using disposable mop heads and change mopping water often. Wash hands with soap and water after any cleaning of vomit or diarrhea.

Cleaning: First, soak up vomit and diarrhea using disposable absorbent materials, such as cloth, baking soda, paper towels, or kitty litter. Do not vacuum material; pick it up using paper towels. Then, use soap and water to wash and rinse the area or object. Wipe dry with paper towels. Dispose of all waste in a plastic trash bag or biohazard bag.

Disinfection: After an area or object has been cleaned, it must be disinfected. Although there may be health concerns with using bleach because it can be an irritant, a bleach solution is recommended for norovirus outbreaks. Please note that bleach should never be mixed with other cleaners/disinfectants as it can create poisonous gases. Bleach may damage metal surfaces, floor finishes, carpets, clothing, and other textiles.

To prepare a bleach solution, use 3/4 cup concentrated bleach (or 1 cup of regular strength bleach) to one gallon of water; the disinfection method will vary depending on the type of surface or material being disinfected (see below). Be sure to prepare fresh bleach solutions daily, because bleach can lose effectiveness if left out and exposed to air. When disinfecting, leave bleach on the surface for at least 5 minutes covering the entire surface and then rinse thoroughly with clean water.

A U.S. Environmental Protection Agency (EPA)-approved disinfectant for norovirus ([EPA List G](#)) can be used in certain situations. However, these disinfectants were tested



against a different virus similar to norovirus and may not be as effective as bleach. The use of a bleach solution is recommended for use during norovirus outbreaks whenever possible. Be sure to read the product labels, as there may be separate directions for using the products as disinfectants versus as cleaners. Follow the manufacturer's instructions to ensure appropriate dilution and contact time, which will also vary depending on the type of surface.

Cleaning Specific Surfaces/Items:

- **High-Touch Surfaces:** Objects that are frequently touched include door handles, hand rails, light switches, toilets, faucets, tables, counters, chairs, walls, toys, phones, playground equipment, activity centers, and shared items. Carefully remove any vomit and diarrhea, and clean contaminated objects and surfaces with soap and hot water. Then, disinfect with the bleach solution. Be sure to clean nearby objects that may also have been contaminated by vomit or diarrhea. This should be done multiple times a day if possible.
- **Non-Porous (Hard) Surfaces:** For toilets, sinks, furniture, walls, floors and other hard, non-porous surfaces, carefully remove vomit and diarrhea, and clean contaminated objects and surfaces with soap and hot water. Then, disinfect with the bleach solution.
- **Porous Surfaces (Carpets/Upholstery):** For carpets, upholstery, and other porous surfaces, carefully remove vomit and diarrhea, and clean with soap and hot water. Then, steam clean at a temperature of 158° F for five minutes or 212° F for one minute. To minimize aerosolization of particles, do not vacuum.
- **Food/Mouth Contact Items:** For objects that may come in contact with food or the mouths of people (such as toys or dishes), carefully remove vomit and diarrhea. Then, disinfect with the bleach solution. Rinse thoroughly with clean water afterwards. Alternatively, dishes, utensils, and cups can be cleaned with a dishwasher (using hot water and dishwasher detergent) immediately after use.
- **Cloth and Plush Items:** For clothing/linens/textiles and plush items, including stuffed animals, bedding, curtains, and mattress covers, carefully remove vomit and diarrhea. Then, wash items in a pre-wash cycle, followed by a regular wash cycle with detergent. Dry items at a temperature greater than 170° F. Do not mix contaminated and uncontaminated items in one load; it is better to discard soiled materials than to risk exposure during cleaning.
- **Diaper Changing Surfaces and Potty Chairs:** For diaper changing stations and potty chairs, clean with soap and hot water, and disinfect using the bleach solution after each use (including equipment or supplies that were touched). Rinse thoroughly with clean water afterwards.
- **Objects Not Easily Cleaned:** Items that are difficult to clean, like puzzle pieces, chalk, crayons and clay, should be discarded.



Laboratory Testing Information

Importance of Testing: The symptoms of norovirus alone cannot distinguish it from other gastroenteric viruses (such as rotavirus, sapovirus, astrovirus, and adenovirus) or bacterial causes (such as *Salmonella*). Tests must be conducted on stool specimens from ill persons to confirm that norovirus is the cause of illness, and to help determine if other illnesses or outbreaks are linked. The information provided by tests can help local and state health departments to identify sources of outbreaks and implement infection control measures to prevent the spread of illnesses.

Coordinating Tests: A minimum of two virus positive specimens from two or more ill persons is needed to confirm the etiology of an acute viral gastroenteritis outbreak. In order to increase the likelihood of laboratory confirmation of an outbreak (i.e., to detect virus in at least two specimens), the California Department of Public Health requests that local health departments attempt to collect stool specimens from three or more ill persons for each school or childcare center outbreak for laboratory confirmation of norovirus or other gastroenteric viruses. For a sample template to document verbal consent to test for norovirus, see [Appendix I](#).

Ideally, stool specimens should be collected within 48-72 hours of diarrhea onset. However, norovirus can sometimes be detected up to 7-10 days after diarrhea onset. Stool specimens should be stored in a tightly closed container (away from food) and kept refrigerated at 4° C (39.2° F), the typical temperature of a functioning refrigerator, until they can be sent to the public health laboratory. Specimens stored at 4° C can be kept for 2-3 weeks without compromising diagnostic yield. Specimens should be frozen at -70° C (-94° F) if they cannot be shipped to the laboratory within 3 weeks.

A number of local public health laboratories that are part of the California Norovirus Laboratory Network provide norovirus polymerase chain reaction testing services for outbreak investigation; please contact the local health department for more information. Specimens that are positive for norovirus should then be sent to the California Department of Public Health Viral and Rickettsial Disease Laboratory or another California public health laboratory that is a certified CaliciNet laboratory for genetic sequencing. Specimens that are negative for norovirus can also be sent to the California Department of Public Health Viral and Rickettsial Disease Laboratory to be tested for other gastroenteric viruses; follow [guidelines for specimen submission](#).

Surveillance: [CaliciNet](https://www.cdc.gov/norovirus/reporting/calicinet/index.html) (<https://www.cdc.gov/norovirus/reporting/calicinet/index.html>) is a national norovirus outbreak surveillance network of federal, state, and local public health laboratories in the United States. Participating public health laboratories submit data, including genetic sequences of norovirus strains and epidemiological data from norovirus outbreaks, to the CaliciNet database. Submitted norovirus strains can be compared with other norovirus strains in the database, helping the Centers for Disease Control and Prevention link outbreaks to a common source, monitor norovirus strains that are circulating, and identify newly emerging norovirus strains.



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Appendix A: Sample Acute Gastrointestinal/Norovirus Illness Line List



Sample Acute Gastrointestinal/Norovirus Illness Line List

Reporting Facility:	Contact Person:	Phone Number:	Date:
Street Address:	Setting of Exposure (school, childcare center, etc.): _____		
County:	Estimated Number of Exposed: Students _____ Employees _____		

Demographics					Case Location		Symptoms						Outcome		Notes			
Ex	Name (Last, First)	Student or Employee (S/E)	Sex (M/F)	Age	Grade	Homeroom Number	Teacher/Instructor	Symptom Onset Date (MM/DD/YY) and Time (including AM or PM)	Nausea (Y/N)	Vomiting (Y/N)	Diarrhea (≥3 loose stools within 24 hours) (Y/N)	Bloody Diarrhea (Y/N)	Abdominal Cramps (Y/N)	Fever (Y/N)	Date of Last Diarrhea or Vomit (MM/DD/YY) and Time (including AM or PM)	Medical Visit (Y/N)	Stool Specimen (Y/N)	Additional Comments (e.g. other symptoms, exposure details, etc.)
1	Doe, Jane	S	F	11	5	D-129	Smith	09/17/16 10:10 AM	Y	Y	N	N	Y	N	9/19/2016 1:30PM	Y	Y	Sibling is also ill; stool sent to Kaiser
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
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15																		

Return to: _____

Appendix B: Centers for Disease Control and Prevention “Norovirus Illness: Key Facts”



Norovirus Illness: Key Facts

Norovirus—the stomach bug

Norovirus is a highly contagious virus. Norovirus infection causes gastroenteritis (inflammation of the stomach and intestines). This leads to diarrhea, vomiting, and stomach pain.

Norovirus illness is often called by other names, such as food poisoning and stomach flu. Noroviruses can cause food poisoning, as can other germs and chemicals. Norovirus illness is not related to the flu (influenza). Though they share some of the same symptoms, the flu is a respiratory illness caused by influenza virus.



Anyone can get norovirus illness

- Norovirus is the most common cause of acute gastroenteritis in the U.S.
- Each year, norovirus causes 19 to 21 million cases of acute gastroenteritis in the U.S.
- There are many types of norovirus and you can get it more than once.

Norovirus illness can be serious

- Norovirus illness can make you feel extremely sick with diarrhea and vomiting many times a day.
- Some people may get severely dehydrated, especially young children, the elderly, and people with other illnesses.
- Each year, norovirus causes 56,000 to 71,000 hospitalizations and 570 to 800 deaths, mostly in young children and the elderly.

Norovirus spreads very easily and quickly

- It only takes a very small amount of norovirus particles (fewer than 100) to make you sick.
- People with norovirus illness shed billions of virus particles in their stool and vomit and can easily infect others.
- You are contagious from the moment you begin feeling sick and for the first few days after you recover.
- Norovirus can spread quickly in enclosed places like daycare centers, nursing homes, schools, and cruise ships.
- Norovirus can stay on objects and surfaces and still infect people for days or weeks.
- Norovirus can survive some disinfectants, making it hard to get rid of.

Norovirus can spread in many ways

Norovirus can spread to others by—

- having direct contact with an infected person, for example, touching an infected person while caring for them,
- eating food or drinking liquids that are contaminated with norovirus,
- touching objects that have norovirus on them and then putting your fingers in your mouth, for example, touching a countertop that has vomit droplets on it and then putting your fingers in your mouth and
- sharing utensils or cups with people who are infected with norovirus.

There's no vaccine to prevent norovirus infection and no drug to treat it

- Antibiotics will not help with norovirus illness because antibiotics do not work on viruses.
- When you have norovirus illness, drink plenty of liquids to replace fluid loss and prevent dehydration.
- If you or someone you are caring for is dehydrated, call a doctor.



What is the Right Way to Wash Your Hands?

1. Wet your hands with clean, running water (warm or cold) and apply soap.
 2. Rub your hands together to make a lather and scrub them well; be sure to scrub the backs of your hands, between your fingers, and under your nails.
 3. Continue rubbing your hands for at least 20 seconds. Need a timer? Hum the "Happy Birthday" song from beginning to end twice.
 4. Rinse your hands well under running water.
 5. Dry your hands using a clean towel or air dry them.
- See Handwashing: Clean Hands Saves Lives (www.cdc.gov/handwashing/)

5 Tips to Prevent Norovirus From Spreading

1. Practice proper hand hygiene

Always wash your hands carefully with soap and water—

- after using the toilet and changing diapers, and
- before eating, preparing, or handling food.

Alcohol-based hand sanitizers can be used in addition to hand washing. But, they should not be used as a substitute for washing with soap and water.

2. Wash fruits and vegetables and cook seafood thoroughly

Carefully wash fruits and vegetables before preparing and eating them.

Cook oysters and other shellfish thoroughly before eating them.

Be aware that noroviruses are relatively resistant. They can survive temperatures as high as 140°F and quick steaming processes that are often used for cooking shellfish.

Food that might be contaminated with norovirus should be thrown out.

Keep sick infants and children out of areas where food is being handled and prepared.

3. When you are sick, do not prepare food or care for others

You should not prepare food for others or provide healthcare while you are sick and for at least 2 to 3 days after you recover. This also applies to sick workers in schools, daycares, and other places where they may expose people to norovirus.

4. Clean and disinfect contaminated surfaces

After throwing up or having diarrhea, immediately clean and disinfect contaminated surfaces. Use a chlorine bleach solution with a concentration of 1000–5000 ppm (5–25 tablespoons of household bleach [5.25%] per gallon of water) or other disinfectant registered as effective against norovirus by the Environmental Protection Agency (EPA).

5. Wash laundry thoroughly

Immediately remove and wash clothes or linens that may be contaminated with vomit or stool (feces).

You should—

- handle soiled items carefully without agitating them,
- wear rubber or disposable gloves while handling soiled items and wash your hands after, and wash the items with detergent at the maximum available cycle length then machine dry them.



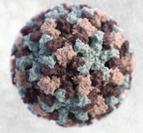
Visit CDC's Norovirus Web site at www.cdc.gov/norovirus for more information.

Appendix C: Centers for Disease Control and Prevention “Norovirus: Facts for Food Workers”



Norovirus: Facts for Food Workers

Norovirus spreads easily and can make you very sick with diarrhea, throwing up, and stomach pain. All food workers should know how to prevent the spread of norovirus.



Foods contaminated with norovirus can make people sick

Norovirus is the leading cause of illness from contaminated food in the United States. The virus can easily contaminate food because it is very tiny and spreads easily. It only takes a very small amount of virus to make someone sick.

Food can get contaminated with norovirus when—

- infected people who have poop or vomit on their hands touch the food,
- food is placed on counters or surfaces that have infectious stool or vomit on them, or
- tiny drops of vomit from an infected person spray through the air and land on the food.

Foods can also be contaminated at their source. For example:

- oysters that are harvested from contaminated water, or
- fruit and vegetables that are contaminated in the field.

Food workers with norovirus illness can spread the virus to others

People ill with norovirus can shed billions of norovirus particles

You are most contagious—

- when you are sick with norovirus illness, and
- during the first few days after you recover.

If you work with food when you have norovirus illness, you can spread the virus to others. You can easily contaminate food and drinks that you touch. People who consume the food or drinks can get norovirus and become sick. This can cause an outbreak.

Outbreaks of norovirus illness occur in nursing homes, hospitals, restaurants, cruise ships, schools, banquet halls, summer camps, and even at family dinners. These are all places where people often eat food handled or prepared by others.

Norovirus causes about half of all outbreaks of food-related illness. Food workers cause most reported norovirus outbreaks from contaminated food.



Norovirus causes about half of all outbreaks of food-related illness.

Foods commonly involved in outbreaks include—

- leafy greens (such as lettuce)
- fresh fruits
- shellfish (such as oysters)

Any food served raw or handled after being cooked can get contaminated

5 Tips to Prevent Norovirus From Spreading

1. Practice proper hand hygiene

Always wash your hands carefully with soap and water—

- especially, after using the toilet and changing diapers, and
- always before eating, preparing, or handling food.

Alcohol-based hand sanitizers can be used in addition to hand washing. However, they should not be used as a substitute for washing with soap and water.

2. Wash fruits and vegetables and cook seafood thoroughly

Carefully wash fruits and vegetables before preparing and eating them. Cook oysters and other shellfish thoroughly before eating.

Thorough cooking is important because noroviruses can survive temperatures as high as 140°F and quick steaming processes that are often used for cooking shellfish.

Food that might be contaminated with norovirus should be thrown out.

3. When you are sick, do not prepare food for others

Food workers should stay home when sick and for at least 48 hours after symptoms stop. This also applies to sick workers in schools, daycares, healthcare facilities, and other places where they may expose people to norovirus.

Tell your manager if you have symptoms of norovirus illness or were recently sick.

For more information see the FDA Food Code (<http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/FoodCode/>)

4. Clean and disinfect contaminated surfaces

After throwing up or having diarrhea, immediately clean and disinfect contaminated surfaces. Use a chlorine bleach solution with a concentration of 1000–5000 ppm (5–25 tablespoons of household bleach [5.25%] per gallon of water) or other disinfectant registered as effective against norovirus by the Environmental Protection Agency (EPA).

See EPA's Registered Hospital Disinfectants Effective Against Norovirus (Norwalk-like virus) (https://www.epa.gov/sites/production/files/2016-06/documents/list_g_norovirus.pdf)

5. Wash laundry thoroughly

Immediately remove and wash clothes or linens that may be contaminated with vomit or stool (poop).

You should—

- handle soiled items carefully without agitating them,
- wear rubber or disposable gloves while handling soiled items and wash your hands after, and
- wash the items with detergent at the maximum available cycle length then machine dry them.

What is the Right Way to Wash Your Hands?

1. Wet your hands with clean, running water (warm or cold) and apply soap.
2. Rub your hands together to make a lather and scrub them well; be sure to scrub the backs of your hands, between your fingers, and under your nails.
3. Continue rubbing your hands for at least 20 seconds. Need a timer? Hum the “Happy Birthday” song from beginning to end twice.
4. Rinse your hands well under running water.
5. Dry your hands using a clean towel or air dry them.

See Handwashing: Clean Hands Saves Lives (www.cdc.gov/handwashing/)



Visit CDC's Norovirus Web site at www.cdc.gov/norovirus for more information.

Appendix D: Clean-up and Disinfection for Norovirus ("Stomach Bug")



Clean-up and Disinfection for Norovirus ("Stomach Bug")

THESE DIRECTIONS SHOULD BE USED TO RESPOND TO ANY VOMITING OR DIARRHEA ACCIDENT

Note: Anything that has been in contact with vomit and diarrhea should be discarded or disinfected.

1 Clean up

- Remove vomit or diarrhea right away!**
 - Wearing protective clothing, such as disposable gloves, apron and/or mask, wipe up vomit or diarrhea with paper towels
 - Use kitty litter, baking soda or other absorbent material on carpets and upholstery to absorb liquid; do not vacuum material: pick up using paper towels
 - Dispose of paper towel/waste in a plastic trash bag or biohazard bag
- Use soapy water to wash surfaces that contacted vomit or diarrhea and all nearby high-touch surfaces, such as door knobs and toilet handles**
- Rinse thoroughly with plain water**
- Wipe dry with paper towels**

DON'T STOP HERE: GERMS CAN REMAIN ON SURFACES EVEN AFTER CLEANING!

2 Disinfect surfaces by applying a chlorine bleach solution

Steam cleaning may be preferable for carpets and upholstery. Chlorine bleach could permanently stain these. Mixing directions are based on EPA-registered bleach product directions to be effective against norovirus. For best results, consult label directions on the bleach product you are using.

a. Prepare a chlorine bleach solution

Make bleach solutions fresh daily; keep out of reach of children; never mix bleach solution with other cleaners.

IF HARD SURFACES ARE AFFECTED...
e.g., non-porous surfaces, vinyl, ceramic tile, sealed counter-tops, sinks, toilets

3/4 CUP OF CONCENTRATED BLEACH + **1 GALLON WATER**

CONCENTRATION ~3500 ppm

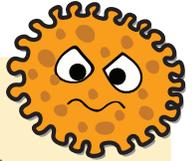
IF USING REGULAR STRENGTH BLEACH (5.25%), INCREASE THE AMOUNT OF BLEACH TO 1 CUP.



- Leave surface wet for at least 5 minutes**
- Rinse all surfaces intended for food or mouth contact with plain water before use**

3 Wash your hands thoroughly with soap and water

Hand sanitizers may not be effective against norovirus.



Facts about Norovirus

Norovirus is the leading cause of outbreaks of diarrhea and vomiting in the US, and it spreads quickly.

Norovirus spreads by contact with an infected person or by touching a contaminated surface or eating contaminated food or drinking contaminated water. Norovirus particles can even float through the air and then settle on surfaces, spreading contamination.

Norovirus particles are extremely small and billions of them are in the stool and vomit of infected people.

Any vomit or diarrhea may contain norovirus and should be treated as though it does.

People can transfer norovirus to others for at least three days after being sick.

IF CLOTHING OR OTHER FABRICS ARE AFFECTED...

- Remove and wash all clothing or fabric that may have touched vomit or diarrhea
- Machine wash these items with detergent, hot water and **bleach** if recommended, choosing the longest wash cycle
- Machine dry



Scientific experts from the U.S. Centers for Disease Control and Prevention (CDC) helped to develop this poster. For more information on norovirus prevention, please see <http://www.cdc.gov/norovirus/preventing-infection.html>.



co.somerset.nj.us/health



neha.org



waterandhealth.org



americanchemistry.com



cfour.org

disinfect-for-health.org

Updated March, 2015

Appendix E: Sample Notification Letter

<Date>

Dear Parent, Guardian, or Staff,

Some students and/or staff at <Facility> are sick with vomiting or diarrhea. We are working with the <local health department> to investigate the situation. From the information we currently have, it seems that the illness might be caused by norovirus. Fortunately, people infected with norovirus usually recover quickly with rest and hydration.

What is norovirus? Norovirus is a highly contagious virus that causes inflammation of the stomach and intestines. Norovirus can spread quickly from person-to-person in closed environments and group settings, such as schools and childcare centers. It is sometimes called the “stomach flu” but is not related to influenza (flu) viruses, which usually cause respiratory infection. Therefore, flu shots do not protect against norovirus.

What are the symptoms of norovirus infection? Symptoms of norovirus usually begin 12 to 48 hours following exposure, and last for 1 to 3 days. The most common symptoms are vomiting, diarrhea, nausea, and stomach cramps. Other symptoms can include a low-grade fever, chills, headache, muscle aches, or fatigue. People with norovirus can vomit or have diarrhea many times a day, which can lead to dehydration. Symptoms of dehydration include decreased urination, dry mouth and throat, and feeling dizzy when standing up. Children who are dehydrated may cry with few or no tears and be unusually sleepy or fussy.

How is norovirus infection treated? There are no specific treatments for norovirus. It cannot be treated with antibiotics, because it is not a bacterial infection. Drink plenty of fluids to replace fluid lost from vomiting and diarrhea, and to prevent dehydration.

What to do if your child is infected:

- Keep your child home for at least 48 hours AFTER symptoms have ended.
- Ensure that your child stays hydrated by sipping fluids. Talk to your healthcare provider about the best types of fluids.
- Ensure that all members of your household wash their hands often, especially after using the bathroom, cleaning, changing diapers, or before preparing or eating food. Cover all parts of hands with soap, rub lathered hands together vigorously for at least 20 seconds, and thoroughly rinse the hands with water.
- Avoid sharing household items with your child, and if possible, have your child use only one bathroom (and increase cleaning of used bathroom).
- Disinfect household surfaces with a solution of 3/4 cup of concentrated bleach (or one cup of regular strength bleach) in one gallon of water.
- Work with your school or local health department to coordinate laboratory testing.
- Contact a healthcare provider if your child is dehydrated, or if you have any concerns.



Appendix F: Sample Press Release

<Insert Local Health Department> Works on Controlling Norovirus Outbreaks

Date: <Date>

Contact: <Name of contact person>, <Phone number>

_____ <Insert Local Health Department> is working to help control norovirus outbreaks that have increased in the past few weeks, some of which are occurring in schools and childcare centers. Norovirus is highly contagious and can spread quickly in settings where people come in close contact with each other such as schools, childcare centers, and summer camps.

Most norovirus cases do not require medical care and may go undiagnosed. The Centers for Disease Control and Prevention (CDC) estimates that there are 19-21 million norovirus cases each year in the U.S. Additionally, CDC estimates that norovirus contributes to 56,000-71,000 hospitalizations and 570-800 deaths each year in the U.S. Fortunately, norovirus illnesses are usually self-limiting and resolve with supportive care.

Norovirus causes inflammation of the stomach and intestines. Common symptoms include diarrhea, vomiting, nausea and stomach cramps. While most people with norovirus get better within 1 to 3 days, the virus can make a person feel extremely ill with vomiting and diarrhea many times a day. This can lead to dehydration, especially in young children, older adults and people with other illnesses. Symptoms of dehydration include decreased urination, dry mouth and throat, and feeling dizzy when standing up. Children who are dehydrated may cry with few or no tears and be unusually sleepy or fussy. It is important that children with norovirus stay well-hydrated.

The best ways to stop the spread of norovirus is to properly wash hands and handle food safely. Infected people should stay at home and avoid caring for or preparing food for other people until at least 48 hours after symptoms have ended. Surfaces and objects in contact with vomit or diarrhea should be washed with soap and hot water, and disinfected with a bleach solution or washed in a washing machine with detergent. Wear gloves and wash hands carefully after any contact with contaminated objects.

For more information on norovirus, please visit the [CDPH website](#) or the [CDC website](#).

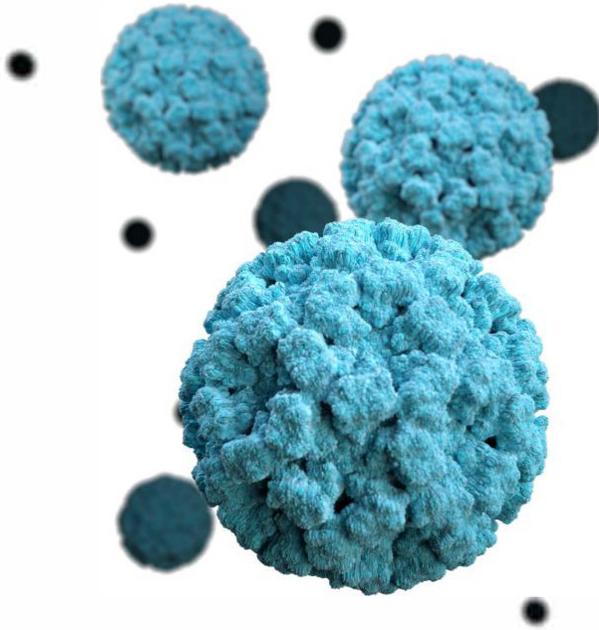
<https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Norovirus.aspx>

<https://www.cdc.gov/norovirus/index.html>



Appendix G: Sample Outbreak Notice Sign





ATTENTION!

INSERT LOGO
HERE

MANY STUDENTS AND STAFF ARE CURRENTLY ILL WITH A STOMACH BUG

1

If you or your child is sick with vomiting or diarrhea, the ill person(s) must stay home from school until at least 48 hours after vomiting and diarrhea have ended.

2

Ensure that you or your child stays hydrated by sipping fluids. Call a health provider if you or your child becomes dehydrated, or if you have any concerns.

3

Ensure that all members of your household wash their hands often, especially after using the bathroom, or before preparing or eating food.

Appendix H: Sample Handwashing Sign



ATTENTION!

INSERT LOGO
HERE

BE SURE TO WASH YOUR HANDS TO PREVENT THE SPREAD OF ILLNESS



- 1** WET hands with clean water, and apply soap
- 2** LATHER hands by rubbing them together, taking care to cover the back of hands, in between fingers, and under fingernails
- 3** SCRUB hands for at least 20 seconds (Tip: time yourself by humming the birthday song twice in a row)
- 4** RINSE hands well using clean water
- 5** DRY hands with clean towel or air dry them

Appendix I: Sample Norovirus Test Verbal Consent Form

Please consult with your County Counsel or legal department prior to using this type of a form. This template can be used to document individual consent to test for norovirus obtained verbally (e.g., via telephone) from individuals involved in an outbreak in a non-health care setting. For internal use only.

Name of individual consenting to norovirus test:

--

The above named individual providing a specimen for norovirus testing at the [Name of Local Health Department] Laboratory verbally indicates understanding that:

- Testing is voluntary.
- There is no charge for testing.
- The test has no known risks.
- Testing will be used to help determine the cause of the outbreak
- The [Name of Program] Program can tell you the results of the test, but cannot give you a medical diagnosis. For a discussion of the interpretation of the results or any other concerns or questions, you should consult with your physician.
- Your results are confidential. You will be informed of your test results by phone. For a paper copy of your test results, you must submit a signed consent form and proof of identity to our administrative secretary. In some situations, aggregate results (no names) may be shared with those responsible for managing the outbreak.

With acknowledgement of the above points:

- The individual consents to the test.

Interviewer:

Date:

Initials:

For individuals consenting to the test, collect the following information (necessary for the test request form)
Date of Birth
Address

This template provided courtesy of County of San Diego Health & Human Services Agency – Epidemiology Program.



Appendix J: Average Daily Attendance Information

School Average Daily Attendance (ADA) Reimbursement for a Disease “Epidemic” Fact Sheet

Background information

The California Codes provide a means to prevent potential funding losses from a “material decrease” in average daily attendance (ADA) due to an epidemic. A material decrease in ADA is defined as at least ten percent less attendance than normal in any given day. The ADA of the school during either the month of May or October of the same school year, at the District’s discretion, is used as the baseline for normal attendance.

What Schools need to provide to _____ County Public Health

1. A list of the dates when an increase in absences results in an ADA at least 10 percent below the October or May ADA of the same school year, as defined by the California Department of Education (CDE), along with the number of children in attendance those dates.
2. The baseline ADA for October or May.
3. Send comments as to why you think the excess absenteeism may be due to an epidemic situation (e.g. many doctors’ notes, many students ill at school).

What Public Health will do

1. Determine if an “epidemic” situation existed in the community that meets the purposes of the California Education Code. Public Health collects disease data from a variety of sources:
 - a. Monitoring of influenza, and other infectious diseases in the community
 - b. Lab reports of certain respiratory and gastrointestinal diseases
 - c. Reports of hospitalizations of children with severe influenza
 - d. Results of respiratory disease laboratory tests collected by sentinel physicians
 - e. Other reports of outbreaks of illness in the community
2. Compare disease data and reports (disease agent or syndrome, time period of community illness) with the absenteeism data sent by the school(s) to public health.
3. Determine if an “epidemic” in the community is likely contributing to a particular school’s or district’s material decrease in attendance.
4. Send a letter to the school superintendent regarding Public Health’s determination of whether an epidemic existed that is likely related to the increased absenteeism for the dates submitted. This letter may be used to support an application for reimbursement of ADA funds, via the School Board and SCOE, to CDE.

Contact Information

_____ County Health Officer:

Phone:

Email:

