

# NOROVIRUS TOOLKIT



*A TOOLKIT TO AID IN THE RESPONSE AND CONTROL  
OF NOROVIRUS OUTBREAKS.*

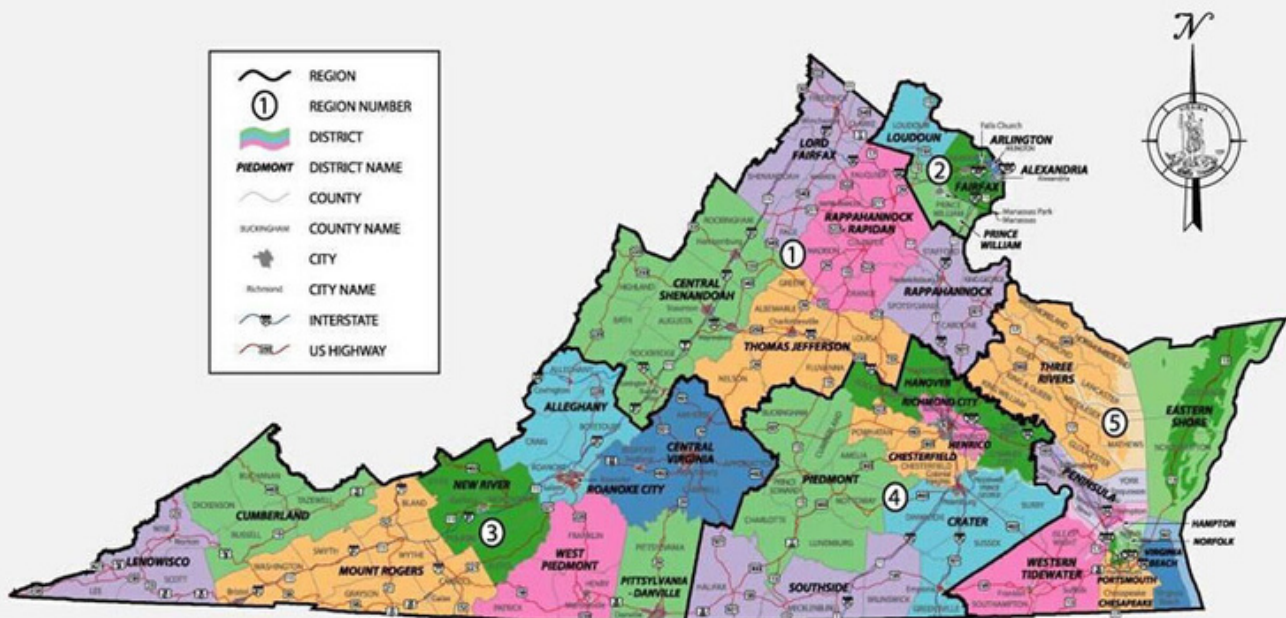
**VDH** VIRGINIA  
DEPARTMENT  
OF HEALTH

# INTRODUCTION

## Commonwealth of Virginia - Department of Health

Health Planning Region

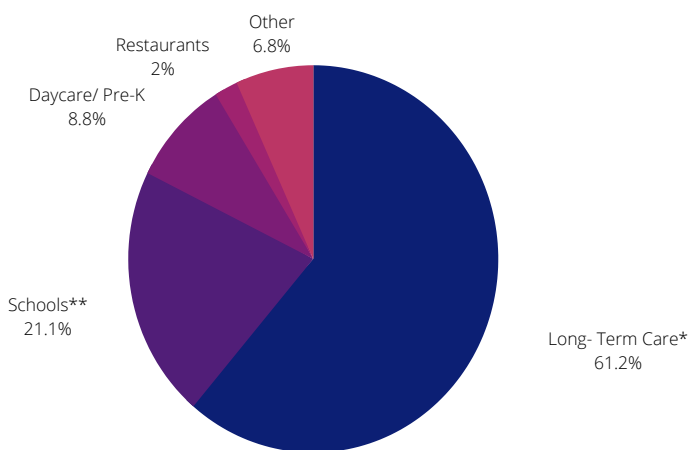
① Northwest | ② Northern | ③ Southwest | ④ Central | ⑤ Eastern



The Virginia Department of Health (VDH) developed this toolkit to assist district epidemiologist, communicable disease staff, and other local health department staff who investigate suspected and confirmed norovirus outbreaks. The goals of this toolkit are to supplement education provided by local health department staff who investigate norovirus outbreaks, as well as serve as a consolidated resource that provides all materials necessary to properly investigate a norovirus outbreak. Preventing and controlling norovirus and other types of viral gastroenteritis can be challenging in any setting. There are resources and information in this toolkit that can apply to all facilities that may be impacted by a norovirus outbreak. The burden of norovirus in Virginia is provided on the next page. This data describes the importance of preventing norovirus outbreaks and can be used as talking points, especially in long-term care facilities, schools, daycare/pre-k and restaurant settings. Providing portions of this toolkit to facilities ahead of the norovirus season may help to better equip them with the tools they need to prevent an outbreak from occurring; it also can serve as a reminder

of how to report a norovirus outbreak to the local health department. Once a facility reports a norovirus outbreak, remember to alert the regional epidemiologist or an epidemiologist in the Division of Surveillance and Investigation (DSI) at Central Office so that the outbreak can be entered into the Virginia Outbreak Surveillance System (VOSS). At VDH, outbreaks are rapidly reportable within 24 hours. The Centers for Disease Control and Prevention (CDC) require that all norovirus outbreaks are reported within 7 days of the initial report. Norovirus outbreaks are known to increase in winter months. Data is provided on the next page that displays the burden of norovirus throughout the year. Timely reporting is necessary, even when there is an increase in the number of outbreaks in your district. Entering the outbreak into VOSS is an essential step that initiates reporting that outbreak to CDC. Please reach out to an epidemiologist in DSI if you need any additional help. Please download the toolkit as a pdf file before printing to ensure that there are no formatting errors before distribution.

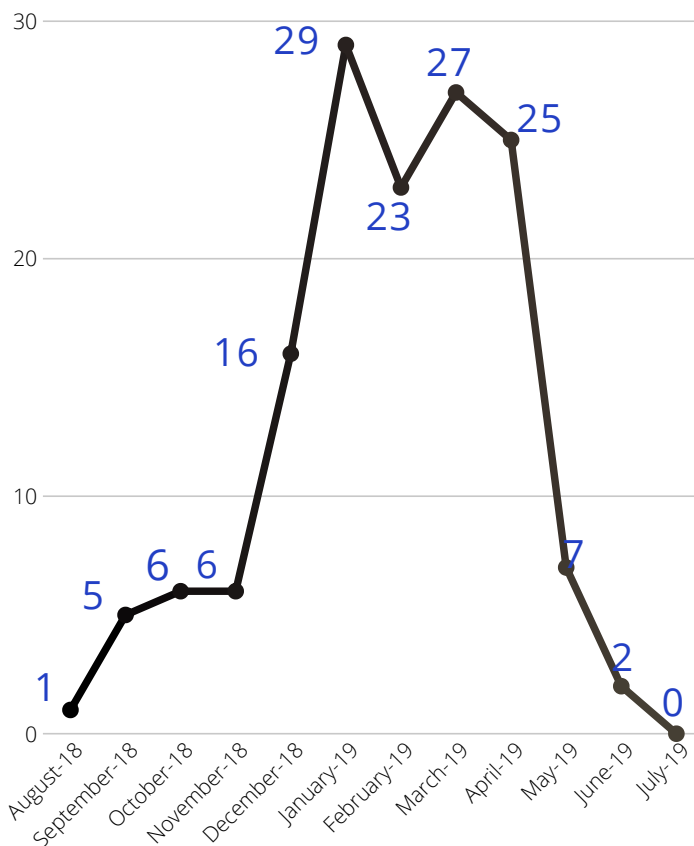
# THE BURDEN OF NOROVIRUS IN VIRGINIA



\*Long-Term Care: Nursing Homes, Multicare, Residential Behavioral Health and Assisted Living Facilities  
\*\*K-12 and Colleges/Universities

## MAJOR SETTINGS OF EXPOSURE: AUG 1, 2018- JULY 31, 2019

One hundred forty-seven norovirus outbreaks were reported during the 2018-2019 norovirus season (August 1, 2018-July 31, 2019). Norovirus outbreaks occur in a wide range of settings. Healthcare facilities, and other institutional settings, such as schools and daycare centers are particularly at-risk for outbreaks because of increased person-to-person contact. During the 2018-2019 reporting period, 61.2% (90) of norovirus outbreaks that were reported to local health departments in Virginia occurred in long-term care settings. Elderly residents are more likely to experience complications during illness than other populations. Schools were the next setting with the greatest burden of norovirus outbreaks. Twenty-one percent (31) of all norovirus outbreaks that were reported to a local health department occurred in a school setting. Norovirus outbreaks on school and university campuses have led to campus closures. Close quarters, shared spaces, and shared surfaces make it easy for norovirus to spread in schools. Two percent (3) of norovirus outbreaks reported occurred at a restaurant. Norovirus is the number one cause of foodborne illnesses nationally. Other settings that have been affected by norovirus outbreaks are churches, businesses, and other medical facilities that are non long-term care related.



## REPORTED OUTBREAKS DURING THE 2018-2019 NOROVIRUS SEASON

According to the Center for Disease Control and Prevention (CDC), about half of all norovirus cases occur between December and February. Outbreaks occur throughout the year, with increased activity during winter months which led to the nickname, "Winter Vomiting Disease". During the 2018-2019 season, there was an increase in norovirus activity during winter months that lingered into the spring time in Virginia. sixteen outbreaks were reported to local health departments in December, 29 in January, 23 in February, and 27 in March. People can become infected with norovirus many times during their lifetime. Infection with one type of norovirus does not protect you against other types. It is possible to develop immunity to specific types, but researchers at CDC are unsure exactly how long immunity lasts.

# THE TOOLKIT SECTIONS

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## **GENERAL INFORMATION**

This section describes the purpose of the toolkit, what norovirus infection is and how it's spread, and which populations and settings are at greater risk for severe norovirus infection.



## **OUTBREAK DETECTION**

This section describes the importance of initiating a norovirus investigation in the early stages of the outbreak, how to report an outbreak to your local health department, and information on specimen collection.



## **PREVENTION STRATEGIES**

This section describes the importance of promoting good hand hygiene and provides control measures that can be implemented in different settings to stop the spread of norovirus.



## **CLEAN UP & DISINFECTION**

This section describes proper cleaning and disinfecting practices after vomiting and diarrheal episodes, as well as routine disinfection of high contact surfaces during norovirus outbreaks.



## **RESOURCES**

This section provides publications to increase awareness and promote proper hand hygiene, and materials to aid in the investigation process. The resources are organized by exposure settings.





# GENERAL INFORMATION



Norovirus is often called the "stomach flu", "stomach bug", or "food poisoning". It is the most common cause of illness and outbreaks where people suffer from nausea, vomiting, and diarrhea. Norovirus spreads very easily. A single infected person can spread over 1 billion norovirus particles. Swallowing as little as 18 particles can make someone sick. This makes settings with high levels of contact in closed spaces at a greater risk for norovirus outbreaks. Virus particles are shed in feces and vomit which can spread to food, surfaces, and objects. During a vomiting or diarrheal accident, the small norovirus particles may spray through the air and spread up to 10 feet.

Ingesting food or drinks that came in contact with infected feces or vomit can cause a healthy person to become ill. Touching surfaces such as counter tops, door knobs, or telephones that have norovirus particles on them, can spread the virus. Norovirus can remain on a surface for over 2 weeks if surfaces are not properly cleaned. Shaking hands, caring for a sick family member, changing diapers, and sharing a snack with an ill person can spread norovirus.

Common symptoms of norovirus include sudden vomiting, diarrhea, stomach pain, and nausea. Some people may develop a low grade fever. Infected individuals develop symptoms 12-48 hours after coming into contact with norovirus particles. Illness may last for 1-3 days. People can shed norovirus particles for over 2 weeks after their symptoms have ended; although, they are most contagious when they have vomiting and diarrhea and during the first few days after their symptoms stopped. Most people recover on their own without treatment, but young children, the elderly, and people with other medical illnesses are more likely to develop severe dehydration and may require hospitalization.

This Norovirus Toolkit is intended to serve as a guide to prevent norovirus outbreaks from occurring at facilities that prepare restaurants, healthcare facilities and schools/childcare centers, as well as provide guidance on putting control measures into place to stop an outbreak from spreading. Information on proper cleaning practices and additional prevention resources are provided.



# FOOD & WATER SAFETY



It only takes a small number of norovirus particles in food or water to make a person sick. There are many different ways that food and drinks can be contaminated with norovirus, making them unsafe for humans and lead into a norovirus outbreak. Norovirus is the leading cause of foodborne illness in the United States. According to CDC, norovirus accounts for 26% of all foodborne illnesses in the United States.

## **Food can come in contact with norovirus when vomit or feces particles from an infected person:**

- touches food.
- touches a counter or surface that food is placed on.
- sprays through the air and lands on food.
- contaminates water that the food is grown or harvested in.

## **Drinks can come in contact with norovirus when vomit or feces particles from an infected person:**

- gets directly into drinks from contaminated hands.
- gets in drinking water that is not treated properly.
- is in a septic tank that leaks into well water.

People who are ill with norovirus shed billions of norovirus particles. If you prepare and share food when you are sick with norovirus illness, you can spread the virus to others. Outbreaks of norovirus illness occur in long-term care settings, schools, child day care centers, hospitals, restaurants, cruise ships, banquet halls, summer camps, and even at family dinners. These are all places where people often eat food handled or prepared by others. Wash your hands with warm soap and water for at least 20 seconds before preparing food and after using the restroom. Don't prepare food for others when you are sick. Please let your local health department staff know of any food workers in your facility who have been ill.



# VULNERABLE POPULATIONS

It is estimated that each year more than 21 million people in the United States are infected with norovirus. Norovirus is a self-limiting disease, and most people recover on their own without seeking medical attention. The elderly (greater than 65 years of age), young children (less than 5 years of age), and immunocompromised people are very susceptible to norovirus infection, which often results in a high risk of dehydration from the sudden onset of intense vomiting and severe diarrhea. This leads to an increase in outpatient care, emergency department visits, hospitalizations and more deaths than other populations.

Nearly two thirds of all norovirus outbreaks reported in the United States occur in nursing homes. Most outbreaks are caused by person to person transmission in these close contact settings. Each year approximately 800 people in the United States die from norovirus infection; most of these people are 65 years of age or older. It's important to recognize the potential for an outbreak in long-term care settings and implement control measures immediately to reduce the risk of a widespread outbreak. These measures include washing hands carefully with soap and warm water after caring for patients with norovirus infection, using gowns and gloves when touching or caring for ill patients, making sure that high-touch patient surfaces and equipment are routinely cleaned and disinfected, and ensuring that contaminated clothing or linens are removed and washed.

Norovirus outbreaks are also frequent in schools and daycare/pre-k centers. Norovirus is common in children because they spend a lot of time in close quarters at school, and young children and babies tend to put their hands in their mouths. A study conducted by CDC estimated that 1 in 278 U.S. children will be hospitalized for norovirus illness by the time they turn 5 years of age. It is also estimated that 1 in 14 children will visit an emergency department and 1 in 6 will receive outpatient care for norovirus infection. Dehydration is the biggest risk for young children and babies. It's important to encourage small, frequent sips of water or electrolyte-replenishing beverages (if recommended by a pediatrician) even if the child is still vomiting.

In Virginia, long-term care settings, schools and daycare/pre-k settings made up 91.1% of all norovirus outbreaks during the 2018-2019 norovirus season. Not only are these settings at a greater risk for norovirus outbreaks, but the populations are also more likely to suffer from severe norovirus infection.





# OUTBREAK DETECTION



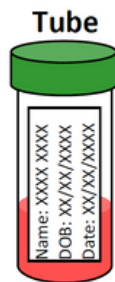
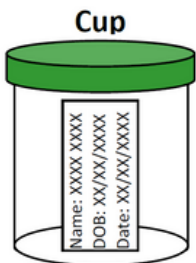
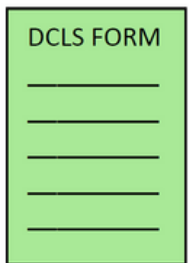
It is essential to begin investigating a gastrointestinal illness outbreak early on to contain the spread of illness. Individual norovirus infection is not a nationally notifiable disease, but outbreaks should be reported by calling your local health department (LHD) when there is a presence of more cases of diarrhea or vomiting than would usually be expected in the facility, or in a particular unit, for that time of year. Sometimes it is difficult to tell if you are dealing with norovirus or a bacteria at the beginning of an investigation. Norovirus has an incubation period of 1-2 days with a sudden onset of vomiting and diarrhea. The LHD can conduct an investigation to determine the cause of the outbreak, identify risk factors for infection, identify and confirm the strain of norovirus, provide guidance on outbreak management and control, and educate the public on how to prevent further infections. Here are some things to keep in mind when contacting your LHD.

- What date did the earliest illness start? When did the other illnesses occur?
- How many residents do you have in the facility? How many have been ill?
- What symptoms did ill individuals have? What is the approximate duration of illness?
- Have the ill individuals been in one unit or wing, or spread across the facility?
- Have any dietary or food staff been ill?

Use the sample line list that's provided in the Resource section to keep track of ill persons. This will help assess how the outbreak is evolving, and determine when the outbreak is over. At least 2 positive norovirus lab results are needed to confirm an outbreak. The LHD can provide stool collection kits for stool specimens to be tested at the Division of Consolidated Laboratory Services (DCLS), the Virginia Public Health Lab. The LHD will coordinate transporting specimens to DCLS. Below is a link to a video that provides step by step instructions on how to collect stool for lab testing. There are patient instructions for stool collection in the Resource section.

<https://www.youtube.com/watch?v=kfSEV8o6-wY>

**Notify your local health department if specimens were tested at a clinical laboratory.**







# PREVENTION STRATEGIES

Anyone can get norovirus illness. The virus spreads easily, quickly, and in many different ways. Norovirus illness can be serious and it can make you feel extremely sick with diarrhea and vomiting many times a day. There's no vaccine to prevent norovirus infection or drugs to treat it. It is important to prevent norovirus from spreading. The best ways to prevent contracting, or spreading the virus is by washing your hands often for at least 20 seconds with soap and warm water, and staying home from work or school if ill. You should wash your hands before handling food and after using the restroom. It is important to wash your hands often if you're caring for someone who is ill, especially after changing diapers or cleaning up diarrhea or vomiting episodes. Proper hand washing plays a large role in preventing the spread of norovirus. Here's a list of control measures that can be implemented to prevent the spread of norovirus in any setting.

## Control Measures:

- **Increase awareness of hand hygiene-** Wash hands thoroughly with soap and warm water for at least 20 seconds, especially after using the restroom, changing diapers, and before preparing food.
- **Exclude ill people-** Stay home from work and school, and do not care for others for at least 24 hours after symptoms stop.
- **Increase frequency of environmental cleaning-** Clean and disinfect contaminated surfaces with a bleach-based household cleaner immediately after vomiting or diarrheal accidents. Alert cleaning staff of the outbreak so that they can take steps to protect themselves when cleaning potentially infectious materials.
- **Handle and prepare food safely-** Carefully wash fruits and vegetables before preparing and eating, and do not prepare food for others for 24 hours after symptoms stop.
- **Wash laundry thoroughly-** Immediately remove and wash clothing or linens that may have vomit or poop on it. Handle items carefully—try not to agitate them. If available, wear disposable gloves to handle soiled clothing or linens, and wash your hands after. Wash soiled items with detergent and hot water at the maximum available cycle length then machine dry them at the highest heat setting.
- **Letter sent home-** In some instances it may be necessary to notify parents or family members of the outbreak. It is important to keep sick children home from the facility until they recover. Some facilities may want to send letters to family members to reduce the amount of visitors.
- **Provide health education-** Increase the general awareness of the virus and teach people how to protect themselves and others.
- **Signage posted-** Utilize prevention publications in the Resource section to increase awareness of the virus as well as promoting practices to stop the spread of the virus.



# CLEAN UP & DISINFECTION



## 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



CDC

Norovirus causes vomiting and diarrhea that comes on suddenly, often before someone ill can make it to a bathroom. Always thoroughly clean and disinfect the entire area immediately where the episode occurred. Anything that has come in contact with vomit and diarrhea should be discarded or disinfected. Put on rubber or disposable gloves before cleaning up any bodily fluids or handling disinfectants. Publications are provided in the Resource section that will go into further detail about directions for responding to any vomiting or diarrheal accident. Below are basic guidelines to follow during the clean up and disinfection processes.

### Clean Up:

- Wear personal protective equipment (PPE) such as disposable masks, gloves, eye-shields, and plastic disposable gowns.
- Use paper towels to soak up excess vomit and diarrhea and **never use a vacuum**. Transfer these and any solid matter into a plastic bag to be discarded.
- Clean the soiled area with soap and hot water, using a disposable cloth.
- Clean all nearby high-touch surfaces such as door knobs.
- Rinse thoroughly with plain water.
- Wipe dry with paper towels.

### Disinfection:

- Spray or pour a bleach-based household cleaner, as directed, on the product label or other sanitizer approved by the Environmental Protection Agency (EPA) on all surfaces that may have come in contact with vomit or poop.
- Leave the surface wet for at least 5 minutes.
- Clean all surfaces again with soap and hot water.
- Remove all PPE and place them in a plastic bag. Seal and discard.
- Wash hands thoroughly using soap and water for at least 20 seconds and then dry them thoroughly. Hand sanitizers may not be effective against norovirus.

High contact surfaces should be routinely cleaned and disinfected during a norovirus outbreak. This includes door knobs, toilet handles, handrails, ice machines, eating utensils, etc. Remove potential sources of transmission such as candy dishes, fruit baskets, communal water jugs, etc.



# RESOURCES

## General

- Norovirus Infection Fact Sheet
- Norovirus Illness: Key Facts
- Norovirus Illness: Key Facts (Spanish)
- Norovirus Facts & Prevention Tips
- Clean- Up and Disinfection for Norovirus ("Stomach Bug")
- Help Prevent the Spread of Norovirus a Stomach Bug
- Clean Up and Disinfect for Norovirus a Stomach Bug
- Stop Germs! Stay Healthy! Wash your Hands!
- Sample Line List
- DCLS Patient Instructions for Stool Collection

## Facilities with Food Preparation

- Where are Germs Hiding in your Restaurant?
- Feeling Sick? Your Manager Needs to Know
- Clean & Sanitize Pots, Pans, Glasses, Dishes, and Utensils
- Ways to Prevent Norovirus Outbreaks from Food Contamination

## Healthcare Facilities

- Norovirus in Healthcare Facilities Fact Sheet
- Stop Norovirus!
- Outbreak Notice

## Schools/ Childcare Centers

- Wash your Hands!
- Please Stay Away for 48 Hours
- Healthy Camping: Norovirus Prevention at Youth Camps
- Outbreak Notice

# GENERAL

**Materials included in this section can be distributed to any facility.**



**What is norovirus infection?**

Norovirus infection is caused by a very contagious virus called norovirus. The infection is characterized by sudden onset of nausea, vomiting, diarrhea, and stomach cramping. Although norovirus infection is sometimes called the “stomach flu,” norovirus is not related to the influenza (flu) virus that causes respiratory illness.

**Who gets norovirus infection?**

Anyone can get sick from norovirus. Because there are many different strains of norovirus, people who have been sick with norovirus can get it more than once. Outbreaks caused by norovirus occur in a variety of places, including healthcare settings (e.g., long-term care facilities, hospitals), restaurants, schools, day care centers, and cruise ships.

**How is norovirus spread?**

The virus is found in the stool and vomit of infected people and can spread easily from person to person. People infected with norovirus are most contagious from the time they first start feeling ill through three days after they feel well again. People sometimes remain contagious for up to a month after they have recovered. People can become infected by eating food or drinking liquids that are contaminated by infected food handlers, touching surfaces or objects contaminated with norovirus and then touching their mouth before hand washing, or having direct contact with another person who is infected and then touching their mouth before hand washing. Therefore, good hand washing is the key to preventing the spread of norovirus.

**What are the symptoms of norovirus infection?**

Symptoms usually include nausea, vomiting, diarrhea, and abdominal pain. Sometimes people have a low-grade fever, chills, headache, muscle aches, and a general sense of tiredness. Dehydration is the most common complication of illness.

**How soon after exposure do symptoms appear?**

Symptoms of norovirus infection usually begin 10-50 hours after exposure. The illness is usually brief, with symptoms lasting 1-3 days.

**How is norovirus infection diagnosed?**

Norovirus infection is usually diagnosed based on the symptoms a person is experiencing. During outbreaks, public health laboratories can test stool specimens to identify the virus and confirm the cause of the outbreak.

**What is the treatment for norovirus infection?**

There is no specific medication or vaccine for norovirus infection, and it cannot be treated with antibiotics. Drinking plenty of liquids, such as water or juice, is important to replace fluids lost from

vomiting and diarrhea and prevent dehydration. Mild dehydration can be treated with oral fluids obtained from a pharmacy. People who become severely dehydrated should seek medical care.

**How can norovirus infection be prevented?**

Norovirus infection can be prevented in a number of ways, including:

- Washing hands thoroughly with soap and water for at least 20 seconds, especially after using the restroom, changing diapers, sneezing, coughing, and before and after preparing food.
- Staying home from work, school, or other activities when you are sick.
- Cleaning and disinfecting contaminated surfaces with a bleach-based household cleaner immediately after vomiting or diarrheal accidents.
- Washing clothing and linens if they become soiled.
- Avoiding food preparation or caring for others while sick and for at least two days after symptoms stop.
- Washing fruits and vegetables thoroughly before eating.
- Avoiding food or water from sources that might be contaminated.
- Cooking oysters and shellfish completely (to at least 140°F) before eating.

**How long can an infected person carry norovirus?**

People infected with norovirus can shed the virus in their feces (stool), even if they do not have symptoms. People are most contagious while they are ill and during the first few days after they recover. Most people can remain contagious for two weeks or more after they recover.

**Should a person who has norovirus infection be excluded from work or school?**

Yes. People should stay home when sick and for at least two days after symptoms stop to prevent spreading norovirus to other people.

**How can I get more information about norovirus infection?**

- If you have concerns about norovirus infection, contact your healthcare provider.
- Call your local health department. A directory of local health departments is located at <http://www.vdh.virginia.gov/local-health-districts/>.
- Visit the Centers for Disease Control and Prevention website at <https://www.cdc.gov/norovirus/index.html>.

September 2018

# 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/](http://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](http://www.cdc.gov/norovirus) for more information.



# Enfermedad por norovirus: Datos importantes

## Norovirus: el virus estomacal

Los norovirus son virus muy contagiosos. La infección por norovirus causa gastroenteritis (inflamación estomacal e intestinal). Esto provoca diarrea, vómitos y dolores estomacales.

La enfermedad por norovirus frecuentemente lleva otros nombres, como intoxicación alimentaria y gripe estomacal. Los norovirus, al igual que otros microbios y sustancias químicas, pueden causar intoxicación alimentaria. La enfermedad por norovirus no está relacionada con la influenza (gripe). Aunque puede compartir algunos de los mismos síntomas, la influenza es una enfermedad respiratoria causada por el virus de la influenza.



### Cualquier persona puede enfermarse con los norovirus

- En los Estados Unidos, los norovirus son la causa más frecuente de gastroenteritis aguda.
- En los Estados Unidos, cada año los norovirus causan de 19 a 21 millones de casos de gastroenteritis aguda.
- Hay muchos tipos de norovirus y una persona los puede contraer más de una vez.

### La enfermedad por norovirus puede ser grave

- La enfermedad por norovirus puede hacer que una persona se sienta muy enferma, con diarrea y vómitos varias veces por día.
- Algunas personas pueden deshidratarse mucho, especialmente los niños pequeños, las personas de edad avanzada y las personas con otras enfermedades.
- Cada año los norovirus causan de 56 000 a 71 000 hospitalizaciones y 570 a 800 muertes, en su mayoría niños pequeños y personas de edad avanzada.

### Los norovirus se propagan fácil y rápidamente

- Una cantidad muy pequeña de partículas de norovirus (menos de 100) es suficiente para enfermar a una persona.
- Las personas con enfermedad por norovirus liberan miles de millones de partículas de virus en las heces y el vómito, y pueden infectar fácilmente a otros.
- Las personas son contagiosas desde el momento en que comienzan a sentirse mal y durante los primeros días después de recuperarse.
- Los norovirus pueden propagarse rápidamente en lugares cerrados como las guarderías infantiles, los hogares de ancianos, las escuelas y los cruceros.
- Los norovirus pueden permanecer en objetos y superficies e infectar a las personas durante días o semanas.
- Los norovirus pueden sobrevivir a algunos desinfectantes, por lo que es difícil eliminarlos.

### Los norovirus se propagan de muchas maneras

Los norovirus se propagan a otras personas de las siguientes maneras:

- al tener contacto directo con una persona infectada; por ejemplo, tocar a una persona infectada cuando se la está cuidando,
- al consumir alimentos o bebidas contaminadas por norovirus,
- al tocar objetos que tienen norovirus en su superficie y luego llevarse los dedos a la boca; por ejemplo, tocar un mesón que tiene gotas de vómito y luego llevarse los dedos a la boca, y
- al compartir utensilios o vasos con personas infectadas por norovirus.

### No existe una vacuna para prevenir la infección por norovirus, ni un medicamento para tratarla

- Los antibióticos no ayudan con una enfermedad por norovirus porque los antibióticos no tienen efecto contra los virus.
- Cuando tenga una enfermedad por norovirus, beba muchos líquidos para compensar la pérdida de fluidos y evitar la deshidratación.
- Si cree que usted o una persona que cuida está gravemente deshidratada, llame al médico.



## ¿Cuál es la forma correcta de lavarse las manos?

1. Mójese las manos con agua corriente (tibia o fría) y enjabónelas.
2. Frótese las manos hasta formar espuma y restriéguelas bien; asegúrese también de restregar el dorso de las manos, entre los dedos y debajo de las uñas.
3. Siga frotándose las manos por lo menos 20 segundos. ¿Necesita un reloj? Tararee dos veces la canción de "Feliz cumpleaños" de principio a fin.
4. Enjuáguese bien las manos con agua corriente.
5. Séquese las manos con una toalla limpia o al aire

Consulte El Lavado de las manos: Las manos limpias salvan vidas ([www.cdc.gov/handwashing/](http://www.cdc.gov/handwashing/))

## 5 Sugerencias para evitar la propagación de norovirus

### 1. Practique buena higiene de manos

Lávese siempre las manos cuidadosamente con agua y jabón—

- después de ir al baño o cambiar pañales, y
- antes de comer, preparar o manipular alimentos.

Los desinfectantes de manos a base de alcohol pueden usarse adicionalmente al lavado de manos. Pero no deben sustituir el lavado con agua y jabón.

### 2. Lave las frutas y las verduras, y cocine bien los pescados y mariscosy

Lave las frutas y las verduras cuidadosamente antes de prepararlas y comerlas. Cueza las ostras y los demás mariscos completamente antes de comerlos.

Tenga presente que los norovirus son relativamente resistentes. Pueden sobrevivir a temperaturas de hasta 140°F (60°C) y a la cocción al vapor rápida que frecuentemente se usa para los mariscos.

Los alimentos que podrían estar contaminados con norovirus deben ser desechados.

Los bebés y niños enfermos deben mantenerse alejados de las áreas en donde se manipulan y preparan alimentos.

### 3. Cuando esté enfermo, no prepare alimentos ni cuide a otras personas

No prepare alimentos para otras personas ni preste cuidados de salud cuando esté enfermo y hasta por lo menos 2 o 3 días después de que se recupere. Esto también se aplica a las personas enfermas que trabajen en escuelas, guarderías infantiles y otros lugares donde puedan exponer a otros al norovirus.

### 4. Limpie y desinfecte las superficies contaminadas

Después de vomitar o tener diarrea, limpie y desinfecte inmediatamente todas las superficies contaminadas. Use una solución hecha con cloro con una concentración de 1000 a 5000 partes por millón (mezcle de 5 a 25 cucharadas de cloro de uso doméstico en un galón de agua, es decir 5.25 % de cloro). También puede usar otros desinfectantes que están registrados por la Agencia de Protección Ambiental (EPA) como eficaces contra los norovirus.

### 5. Lave bien la ropa

Quítese la ropa o retire la ropa de cama que se pueda haber contaminado con vómito o heces y lávelas inmediatamente.

Haga lo siguiente:

- manipule los artículos sucios con cuidado sin agitarlos,
- use guantes de caucho o desechables cuando toque artículos sucios y después lávese las manos, y lave la ropa con detergente en el ciclo más largo; séquela luego a máquina.



Consulte el sitio web de los CDC para mayor información en [www.cdc.gov/norovirus](http://www.cdc.gov/norovirus)

Enero de 2017

# NOROVIRUS Facts & Prevention Tips

## Facts

*Norovirus is a highly contagious virus.*

**1 Billion**  
+

Norovirus particles shed by an infected person.

**18**

Norovirus particles are needed to make you sick.

**2 Weeks**  
+

Is the length of time norovirus can live on a surface.

19-21 million people get sick with norovirus each year in the United States.

## Prevention



Wash your hands often with soap and warm water for 20 seconds before handling food and after using the restroom.



If ill, avoid preparing food and caring for others. Stay home from work or school for at least 24 hours after symptoms stop.



Frequently clean and disinfect dirty surfaces with a bleach-based household cleaner as directed on the label or other sanitizer approved by the EPA.

**Nausea**

**Stomach Pain**

**Symptoms**

**Vomiting**

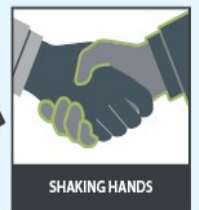
**Diarrhea**

## How You Get Norovirus From People or Surfaces



PROVIDING CARE

Norovirus spreads when a person gets poop or vomit from an infected person in their mouth.



SHAKING HANDS



CHANGING DIAPERS



TOUCHING YOUR MOUTH



TOUCHING CONTAMINATED SURFACES



YOU BECOME ILL WITH NOROVIRUS



# 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

### a. 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

### b. Use soapy water to wash surfaces that contacted vomit or diarrhea and all nearby high-touch surfaces, such as door knobs and toilet handles

### c. Rinse thoroughly with plain water

### d. 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

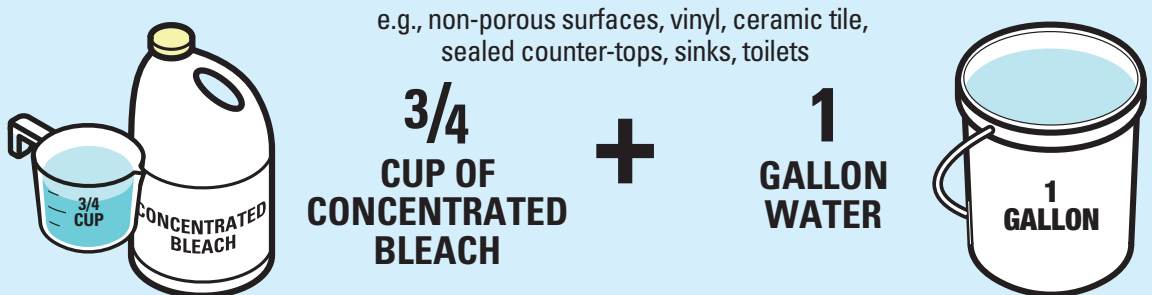
Steam cleaning may be preferable for carpets and upholstery. Chlorine bleach could permanently stain these. Mixing directions are based on EPA-registered bleach product directions to be effective against norovirus.

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

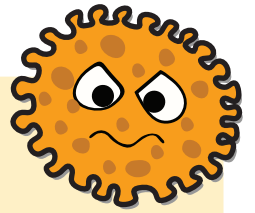
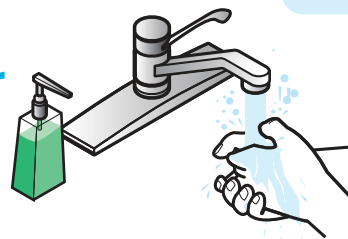
IF USING REGULAR STRENGTH BLEACH (5.25%), INCREASE THE AMOUNT OF BLEACH TO 1 CUP.

### b. Leave surface wet for at least 5 minutes

### c. 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.

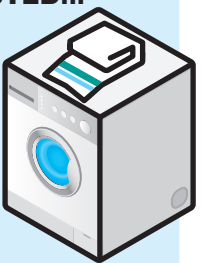
Norovirus particles are extremely small and billions of them are in the stool and vomit of infected people.

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



WATER QUALITY & HEALTH COUNCIL™

waterandhealth.org



americanchemistry.com



vdh.virginia.gov

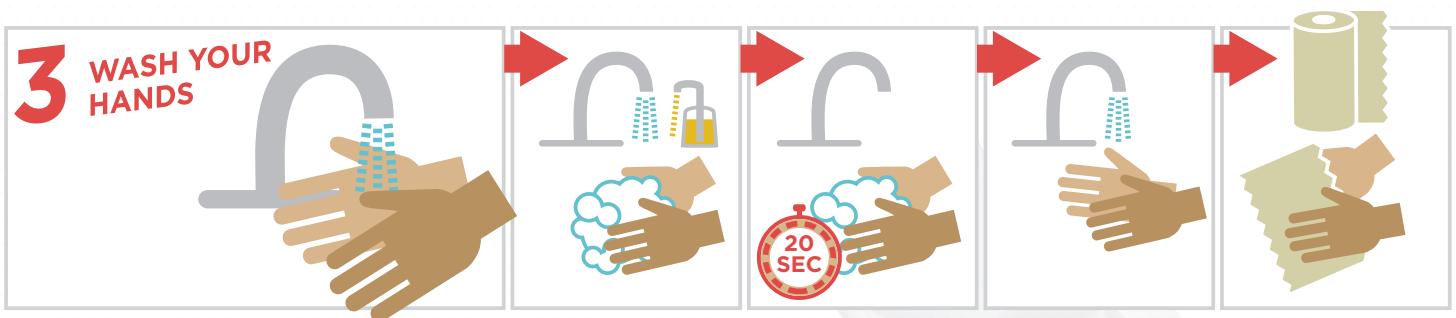
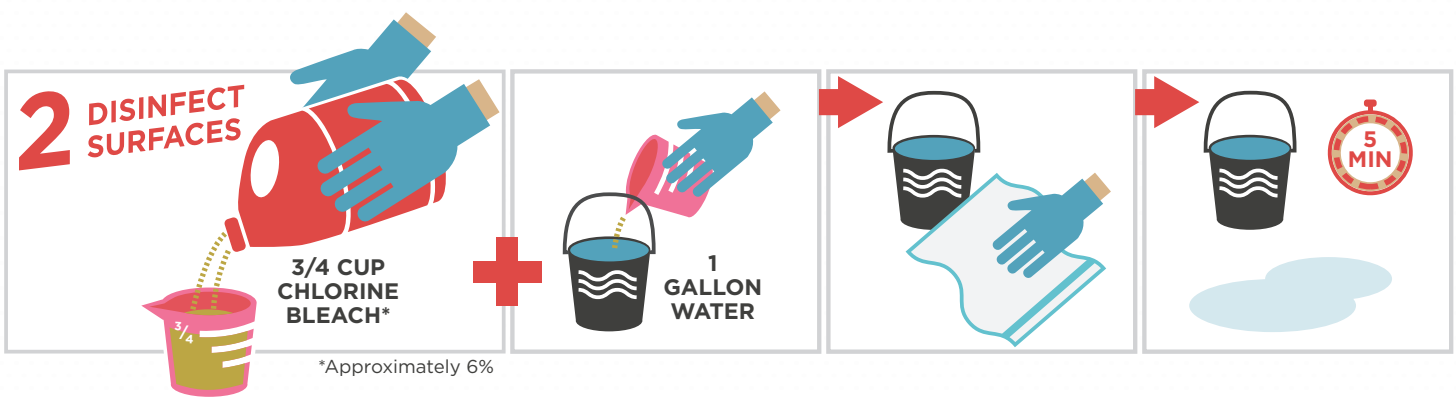
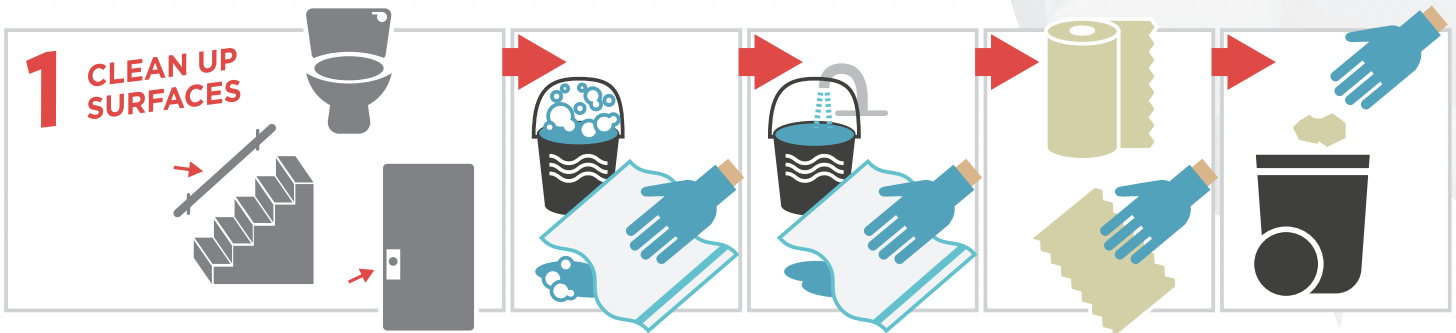
[disinfect-for-health.org](http://disinfect-for-health.org)

Updated January, 2016



# Help Prevent the Spread of **NOROVIRUS** A STOMACH BUG

Stop norovirus! Clean surfaces that are touched a lot.



Norovirus spreads by contact with an infected person or by touching a contaminated surface or eating contaminated food or drinking contaminated water.

El norovirus se propaga por el contacto con una persona infectada o al tocar una superficie contaminada o comiendo alimentos contaminados o beber agua contaminada.

Le norovirus se propage par contact avec une personne infectée, en touchant une surface contaminée, en mangeant des aliments contaminés ou en buvant de l'eau contaminée.

诺如病毒的传播途径是与感染者接触或接触污染的表面或食用被污染的食物或饮用受污染的水。

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>.

Posters are available for download at [www.waterandhealth.org/resources/posters](http://www.waterandhealth.org/resources/posters)



# Clean Up & Disinfect For **NOROVIRUS** A STOMACH BUG

Act fast! Clean up any vomit or diarrhea immediately.

**1 WIPE UP SURFACES**

Only use hot water & bleach if fabric laundering directions permit

**2 CLEAN UP SURFACES**

**3 DISINFECT SURFACES**

**3/4 CUP CHLORINE BLEACH\*** + **1 GALLON WATER**

\*Approximately 6%

**4 WASH YOUR HANDS**

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

Cualquier vomito o diarrea puede contener norovirus y debe ser tratado como si lo hiciera.

Toute vomissure ou diarrhée peut contenir un norovirus et doit être traitée comme si elle en contenait.

任何呕吐或腹泻都可能含有诺如病毒，治疗时应视为含有诺如病毒处理。

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>.

Posters are available for download at [www.waterandhealth.org/resources/posters](http://www.waterandhealth.org/resources/posters)



# Stop Germs! Stay Healthy! Wash Your Hands

## WHEN?

- Before, during, and after preparing food
- Before eating food
- Before and after caring for someone who is sick
- Before and after treating a cut or wound
- After using the toilet
- After changing diapers or cleaning up a child who has used the toilet
- After blowing your nose, coughing, or sneezing
- After touching an animal, animal feed, or animal waste
- After handling pet food or pet treats
- After touching garbage

## HOW?

- **Wet** your hands with clean, running water (warm or cold), turn off the tap, and apply soap.
- **Lather** your hands by rubbing them together with the soap. Be sure to lather the backs of your hands, between your fingers, and under your nails.
- **Scrub** your hands for at least 20 seconds. Need a timer? Hum the “Happy Birthday” song from beginning to end twice.
- **Rinse** hands well under clean, running water.
- **Dry** hands using a clean towel or air dry them.

Keeping hands clean is one of the most important things we can do to stop the spread of germs and stay healthy.



For more details on handwashing, visit CDC's Handwashing Website at [www.cdc.gov/handwashing](http://www.cdc.gov/handwashing)



U.S. Department of Health and Human Services  
Centers for Disease Control and Prevention







**Patient Instructions for Stool Collection**

**Stool collection kit contents:**

- Three (3) – 8 x 10 plastic biohazard sample bags
- One (1)- Tube with red liquid
- One (1) – Empty cup
- One (1) – Disposable scoop
- One (1)- DCLS submission form
- One (1) - Collection instruction form
- One (1) – Paper stool collection device
- Two (2) – Tube labels

**Collecting the Stool Samples:** (See back of this page for pictures)

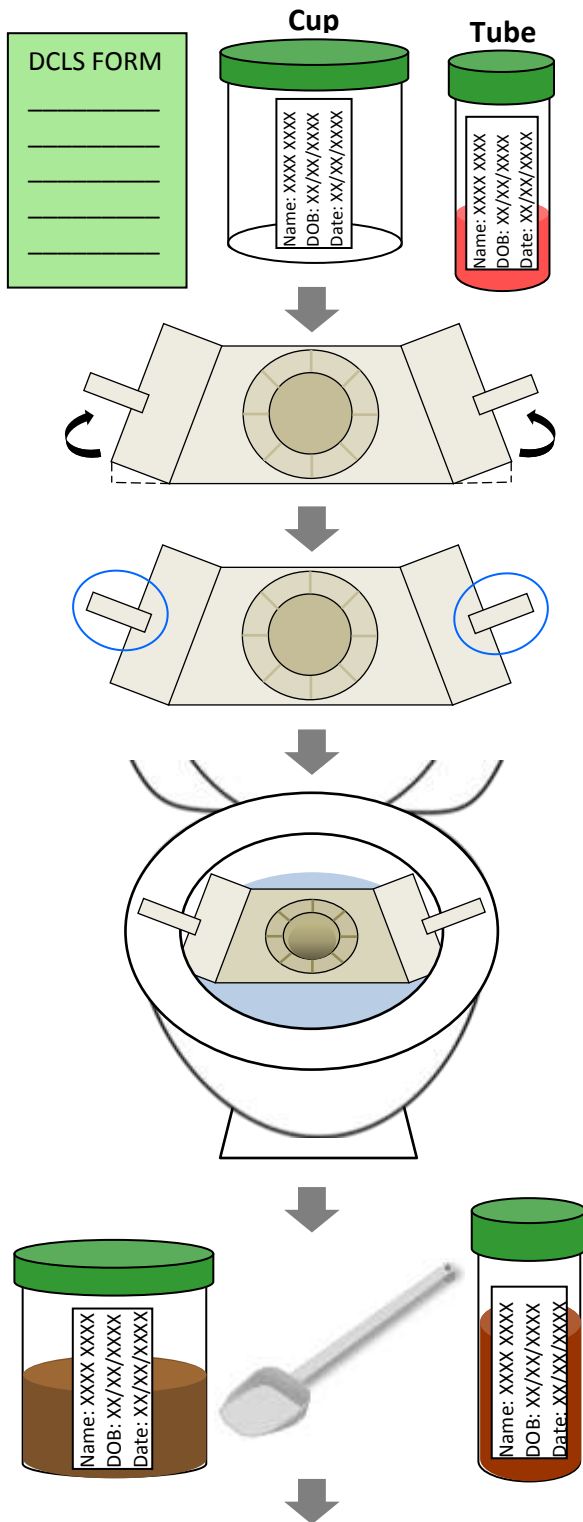
1. Fill out the following sections of the DCLS Clinical Microbiology/Virology Request Form:

<b>A. Patient information box</b>	<b>B. Patient Medical History Box</b>	<b>C. Top of back page</b>
1. Your name 2. Date of birth 3. Age	4. Gender 5. Address 6. Race/ethnicity	1. Your name 2. Date of birth

2. Using a pen or marker, write your name, date of birth, and the date of collection on the labels provided and place the labels on both the empty cup and tube containing red liquid.
3. Be sure to urinate before collecting the stool sample so that you do not get any urine in the stool sample. Do not urinate while passing the stool. Do not mix water, toilet paper, or soap with the stool sample.
4. Stool may contain germs that spread infection. **Be sure to wash your hands before and after collecting the stool.**
5. Put the paper stool collection device on a flat surface with the labeled surface up and then fold the side flaps up.
6. Peel the backing off of the adhesive tape on both sides of the collection device.
7. Attach the exposed tape to the top of the toilet seat. Ensure that the collection device is hanging below the toilet seat.
8. Gently push down the center of the collection device to make a bowl-shape. Have a bowel movement into the bowl of the collection device. **DO NOT** urinate into the collection device.
9. Use the disposable scoop provided in the kit or the scoop attached to the inside of the tube with red liquid to transfer stool into the empty cup. Only scoop stool from the collection device. **DO NOT** scoop the stool out of the toilet bowl. Fill the container  $\frac{1}{2}$  to  $\frac{3}{4}$  full. **DO NOT OVERFILL.** Close the lid tightly.
10. Place the cup containing the stool in the large pocket of a plastic sample bag next to the absorbent pad. Remove the backing to expose the adhesive tape and press the blue adhesive ribbon to seal the bag closed.
11. Use the disposable scoop provided in the kit or the scoop inside the lid of the tube with red liquid to transfer stool into the tube with the red liquid. Fill the container until the liquid level comes up to the “fill line” on the container. Close the lid tightly and shake well. Place the tube containing the red liquid containing stool in the large pocket of a second plastic sample bag next to the absorbent pad. Remove the backing to expose the strip and press the blue adhesive ribbon to seal the bag closed.
12. Put the 2 plastic bags containing stool together in the third plastic sample bag. Insert the completed green submission form into the front pocket of the outer bag and fold the flap to secure.
13. Remove the paper dish holding the remaining stool by lifting up at its four attachment points. Flush the dish and the remaining stool.
14. Remove the cardboard part of the collection device. Place the cardboard part of the collection device and the disposable spoon into the trash. **Wash your hands thoroughly.**

**Packaging, Storage, and Pick-up:**

1. The bag with the 2 stool samples must be refrigerated until the samples are ready for pickup by the health department. **DO NOT FREEZE THE SAMPLES.**
2. Contact your local health department when samples are ready to be picked up or if you have questions regarding sample collection or storage.



**1**

- Fill out the appropriate sections of the DCLS Clinical Microbiology/Virology Request form.
- **Label both containers** with your name, date of birth, and the sample collection date.

**2**

Lay the collection device on a flat surface with the labeled surface up and then **fold the side flaps up**.

**3**

**Peel the backing off of the adhesive tape** on both sides of the collection device (in blue circles).

**4**

- **Insert collection device into the toilet bowl** toward the back of the bowl. Attach exposed tape to the top of the toilet seat. The collection device should be hanging below the toilet seat.
- Push down on the paper in the center of the collection device to create a bowl.
- Have a bowel movement into the dish. **DO NOT** urinate into the bowl.

**5**

- Using the disposable scoop provided in the kit, **transfer stool** from the dish of the collection device into the empty cup. Fill the container  $\frac{1}{2}$  to  $\frac{3}{4}$  full. Do not overfill. **Close lid tightly**.
- Using the same scoop, transfer stool from the bowl of the collection device into the tube with the red liquid. Fill to the "fill line" on the tube. Do not overfill. **Close lid tightly** and shake well.

**6**

- Place the sample cup containing only stool into the large pocket of a plastic sample bag. Remove the strip to expose the adhesive and press the blue ribbon to seal. Ensure that no air is trapped in the bag.
- Place the tube containing the red liquid containing stool in a separate sample bag.
- Put the 2 sealed bags with the stool samples together in the third plastic sample bag. Insert the completed **green DCLS form** into the front pocket of the outer bag and fold the flap to secure.
- Refrigerate the bag containing the stool samples. **DO NOT FREEZE**.
- *Contact your local health department for sample pickup.*

# FACILITIES WITH FOOD PREPARATION

**Materials included in this section can be distributed to any facility that serves food. This includes, but is not limited to restaurants.**

# WHERE ARE GERMS HIDING IN YOUR RESTAURANT?



**70%** OF ALL LEMON WEDGES

contain disease-causing microbes<sup>2</sup>



are rarely sanitized properly and most are wiped down with the same rag that wiped down a previous table. This just **spreads the germs** from one table to the next.<sup>4</sup>

Buffets are a **breeding ground for germs**. Not only are many people cycling through it each day, but if the food temperature isn't kept to at least 165 degrees, bacteria and viruses such as **E.coli**, **Salmonella** and **norovirus** will grow.<sup>1</sup>



## THE BUFFET

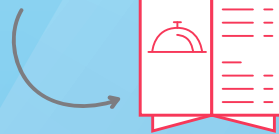
## Silverware

is **easily contaminated** when it comes into contact with a dirty table or when the employee distributing it touches the silverware without washing or sanitizing their hands.<sup>4</sup>



## MENUS

ARE RARELY WASHED, IF AT ALL.



A study done in the Journal of Medical Virology stated that cold & flu viruses can survive for **18 hours** on hard surfaces<sup>2</sup> and another study shows that norovirus can survive on hard surfaces for **5-6 weeks**.<sup>5</sup>



**Highchairs** and booster seats not only carry the usual **germ suspects**, but with a little one there is always the chance of a dirty diaper and we all know what that means...**E.coli**.<sup>4</sup>

## Condiment holders

Just like those rarely cleaned menus, shared table top condiments aren't scrubbed and sanitized often, and can be one of the **dirtiest things found in restaurants**.<sup>3</sup>



1. <http://spryliving.com/articles/the-germiest-places-in-restaurants-video/>  
2. <http://www.aarp.org/health/conditions-treatments/info-03-2011/8-germiest-places.html>  
3. <http://blogs.naturalnews.com/10-germiest-things-public-places/>  
4. <http://www.today.com/food/6-germiest-places-restaurant-t106697>  
5. [https://www.researchgate.net/publication/224917391\\_Persistence\\_and\\_Transferability\\_of\\_Noroviruses\\_on\\_and\\_between\\_Common\\_Surfaces\\_and\\_Foods](https://www.researchgate.net/publication/224917391_Persistence_and_Transferability_of_Noroviruses_on_and_between_Common_Surfaces_and_Foods)



# FEELING SICK?

Your manager needs to know.



**VOMITING**

INFECTED SORES

**DIARRHEA**

YELLOWING OF EYES

**SORE THROAT**

WITH A

**F E V E R**

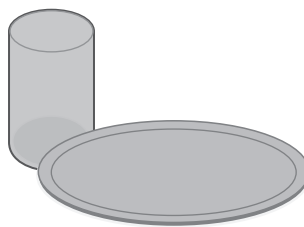
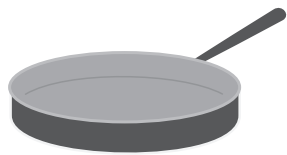
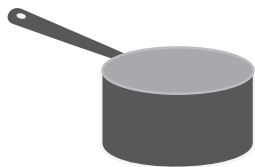
If you are suffering from any of these symptoms, you must report them to your manager before working your shift.

Managers are required to report the following foodborne illnesses to the Health Department:

- Salmonella - Norovirus - Hepatitis A - Shigella - E. Coli -



# Clean & Sanitize POTS, PANS, GLASSES, DISHES, AND UTENSILS



## 1 MAKE A SANITIZING SOLUTION



1  
TABLESPOON  
BLEACH  
(6% STRENGTH)



1  
GALLON  
WATER



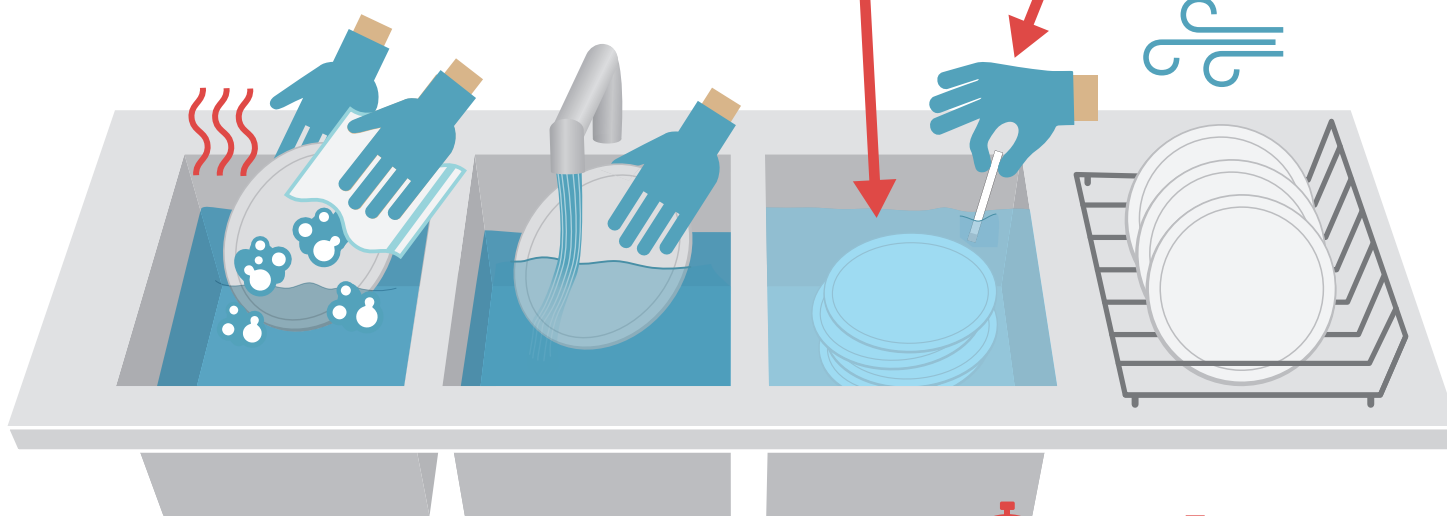
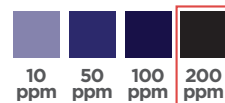
FILL

## 2 FILL SINK AND TEST SOLUTION



CHLORINE TEST STRIP

TEST



## 3 WASH → RINSE → SANITIZE

## 4 AIR DRY

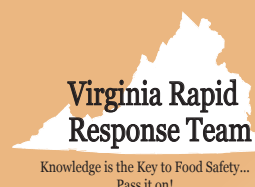
Scientific experts from the U.S. Centers for Disease Control and Prevention and the U.S. Food and Drug Administration helped to develop this poster.

Posters are available for download at [www.waterandhealth.org/resources/posters](http://www.waterandhealth.org/resources/posters)



# Ways to prevent norovirus outbreaks from food contamination

**Kitchen managers** should be trained and certified in food safety and ensure that **all food service workers follow food safety practices** outlined in the **FDA model Food Code and CDC guidelines.**



For more information visit  
[www.vdacs.virginia.gov](http://www.vdacs.virginia.gov)  
[www.vdh.virginia.gov](http://www.vdh.virginia.gov)



## Stay home when sick

Food service workers should stay home when sick with vomiting or diarrhea and for at least 24 hours after symptoms stop.



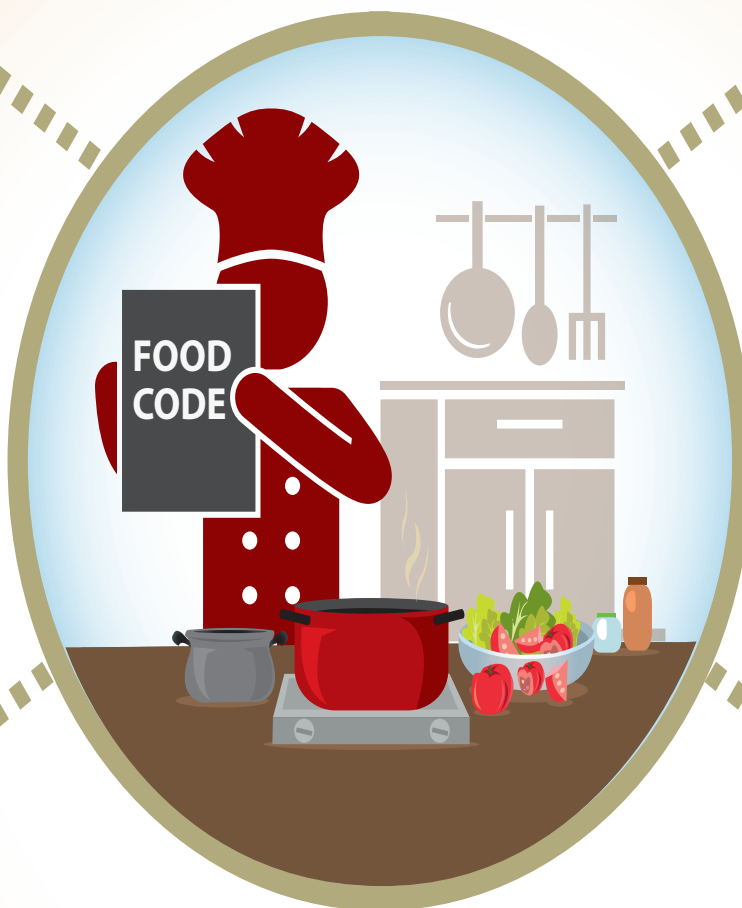
## Avoid touching food with bare hands

Use utensils and single-use disposable gloves to avoid touching ready-to-eat foods with bare hands.



## Cook shellfish thoroughly

Avoid serving undercooked (below 140F) oysters and other shellfish.



## Clean and sanitize surfaces and utensils

Regularly clean and sanitize kitchen surfaces and frequently touched objects, using a chlorine-based product or other sanitizer approved by the Environmental Protection Agency for use against norovirus.



## Wash your hands

Wash all parts of hands and exposed portions of arms by rubbing them together vigorously with soap and warm water for at least 20 seconds in a designated hand washing sink.

## Rinse fruits and vegetables

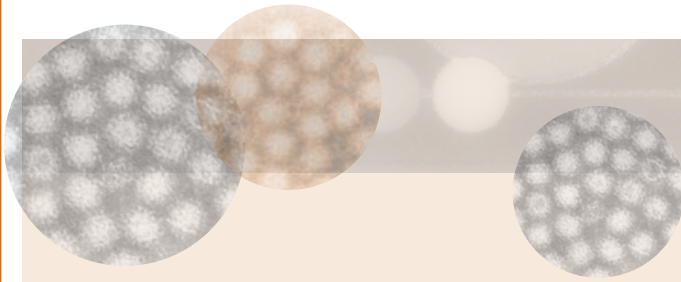
Carefully rinse fruits and vegetables before preparing and serving them.



# HEALTHCARE FACILITIES

**Materials included in this section can be distributed to long-term care facilities, hospitals, and other healthcare settings.**

# Norovirus in Healthcare Facilities Fact Sheet



## General Information

### *Virology*

Noroviruses (genus *Norovirus*, family *Caliciviridae*) are a group of related, single-stranded RNA, non-enveloped viruses that cause acute gastroenteritis in humans. Norovirus is the official genus name for the group of viruses provisionally described as “Norwalk-like viruses”. Currently, human noroviruses belong to one of three norovirus genogroups (GI, GII, or GIV), which are further divided into >25 genetic clusters. Over 75% of confirmed human norovirus infections are associated with genotype GII.

### *Clinical manifestations*

The average incubation period for norovirus-associated gastroenteritis is 12 to 48 hours, with a median period of approximately 33 hours. Illness is characterized by nausea, acute-onset vomiting, and watery, non-bloody diarrhea with abdominal cramps. In addition, myalgia, malaise, and headache are commonly reported. Low-grade fever is present in about half of cases. Dehydration is the most common complication and may require intravenous replacement fluids. Symptoms usually last 24 to 60 hours. Up to 30% of infections may be asymptomatic.

### *Epidemiology of transmission*

Noroviruses are highly contagious, with as few as 18 virus particles thought to be sufficient to cause infection. This pathogen is estimated to be the causative agent in over 21 million gastroenteritis cases every year in the United States, representing approximately 60% of all acute gastroenteritis cases from known pathogens. Noroviruses are transmitted primarily through the fecal-oral route, either by direct person-to-person spread or fecally contaminated food or water. Noroviruses can also spread via a droplet route from vomitus. These viruses are relatively stable in the environment and can survive freezing and heating to 60°C (140°F). In healthcare facilities, transmission can also occur through

hand transfer of the virus to the oral mucosa via contact with materials, fomites, and environmental surfaces that have been contaminated with either feces or vomitus.

Norovirus infections are seen in all age groups, although severe outcomes and longer durations of illness are most likely to be reported among the elderly. Among hospitalized persons who are immunocompromised or have significant medical comorbidities, norovirus infection can directly result in prolonged hospital stays, additional medical complications, and, rarely, death. There is currently no vaccine available for norovirus and, generally, no specific medical treatment is offered for norovirus infection apart from oral or intravenous repletion of volume.

The ease of its transmission, a very low infectious dose, a short incubation period, environmental persistence, and lack of durable immunity following infection enables norovirus to spread rapidly through confined populations. Healthcare facilities and other institutional settings (e.g., daycare centers, schools, etc.) are particularly at-risk for outbreaks because of increased person-to-person contact. Healthcare facilities managing outbreaks of norovirus gastroenteritis may experience significant costs relating to isolation precautions and personal protective equipment, ward closures, supplemental environmental cleaning, staff cohorting or replacement, and sick time.

### *Diagnosis of norovirus infection*

Diagnosis of norovirus infection relies on the detection of viral RNA in the stools of affected persons, by use of reverse transcription-polymerase chain reaction (RT-PCR) assays. This technology is available at CDC and most state public health laboratories and should be considered in the event of outbreaks of gastroenteritis in healthcare facilities. Enzyme immune-assays may also be used for identification of norovirus outbreak but are not recommended for diagnosis of individuals. Identification of the virus can be best made from stool specimens taken within 48 to 72 hours after onset of symptoms, although positive results can be obtained by using RT-PCR on samples taken as long as 7 days after symptom onset. Because of the limited availability of timely and routine laboratory diagnostic methods, a clinical diagnosis of norovirus infection is often used, especially when other agents of gastroenteritis have been ruled out.



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## Measures to Limit Transmission\*

### *Patient Cohorting and Isolation Precautions*

Avoid exposure to vomitus or diarrhea. Place patients on Contact Precautions in a single occupancy room if they present with symptoms consistent with norovirus gastroenteritis.

### *Hand Hygiene*

During outbreaks, use soap and water for hand hygiene after providing care or having contact with patients suspected or confirmed with norovirus gastroenteritis.

### *Patient Transfer and Ward Closure*

Consider limiting transfers to those for which the receiving facility is able to maintain Contact Precautions; otherwise, it may be prudent to postpone transfers until patients no longer require Contact Precautions. During outbreaks, medically suitable individuals recovering from norovirus gastroenteritis can be discharged to their place of residence.

### *Diagnostics*

In the absence of clinical laboratory diagnostics or in the case of delay in obtaining laboratory results, use Kaplan's clinical and epidemiologic criteria to identify a norovirus gastroenteritis outbreak.

#### **Kaplan's Criteria**

1. Vomiting in more than half of symptomatic cases and,
2. Mean (or median) incubation period of 24 to 48 hours and,
3. Mean (or median) duration of illness of 12 to 60 hours and,
4. No bacterial pathogen isolated in stool culture

### *Environmental Cleaning*

Increase the frequency of cleaning and disinfection of patient care areas and frequently touched surfaces during outbreaks of norovirus gastroenteritis (e.g., increase ward/unit level cleaning to twice daily to maintain cleanliness, with frequently touched surfaces cleaned and disinfected three times daily using the US Environmental Protection Agency's list of approved products for healthcare settings (<http://www.epa.gov/oppad001/chemregindex.htm>).

### *Staff Leave and Policy*

Develop and adhere to sick leave policies for healthcare personnel who have symptoms consistent with norovirus infection.

Exclude ill personnel from work for a minimum of 48 hours after the resolution of symptoms. Once personnel return to work, the importance of performing frequent hand hygiene should be reinforced, especially before and after each patient contact.

Establish protocols for staff cohorting in the event of an outbreak of norovirus gastroenteritis. Ensure staff care for one patient cohort on their ward and do not move between patient cohorts (e.g., patient cohorts may include symptomatic, asymptomatic exposed, or asymptomatic unexposed patient groups).

### *Communication and Notification*

As with all outbreaks, notify appropriate local and state health departments, as required by state and local public health regulations, if an outbreak of norovirus gastroenteritis is suspected.

\*Prevention and control recommendations taken from priority recommendations in the CDC HICPAC Guideline for the Prevention and Control of Norovirus Gastroenteritis Outbreaks in Healthcare Settings (<http://www.cdc.gov/hicpac/pdf/norovirus/Norovirus-Guideline-2011.pdf>)

**Date last modified:** September 6, 2011

**Content source:** Division of Healthcare Quality Promotion (DHQP), National Center for Preparedness, Detection, and Control of Infectious Diseases (NCEZID)

**Contact Us:** Centers for Disease Control and Prevention  
1600 Clifton Road, Atlanta, GA 30333, USA

1-800-CDC-INFO (1-800-232-4636)

TTY:888-232-6348,

24 hours/everyday at [cdcinfo@cdc.gov](mailto:cdcinfo@cdc.gov) (TTY)



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# Stop Norovirus!

Norovirus causes diarrhea and vomiting. It spreads easily from an infected person to others, especially in long-term care facilities. Elderly residents are more likely to become very sick or die from norovirus.

**Protect yourself and elderly residents from norovirus.**

## WASH YOUR HANDS



Wash your hands often with soap and water for at least 20 seconds each time and avoid touching your mouth.

## CLEAN SURFACES



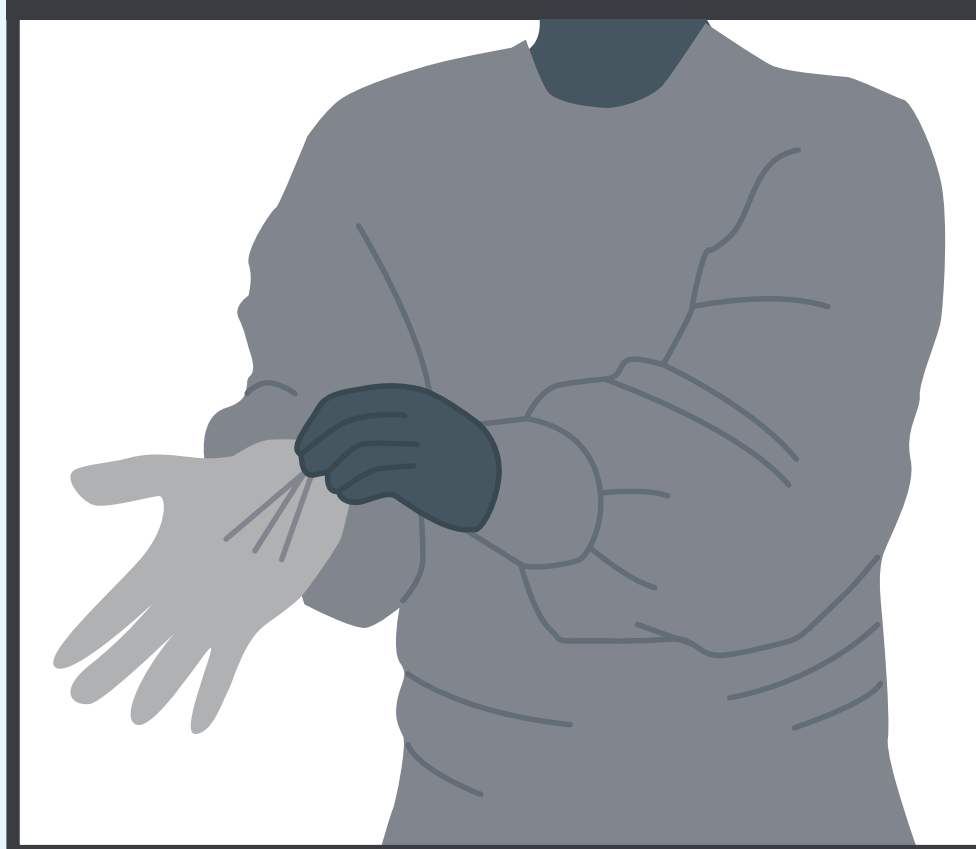
Use a bleach-based cleaner or other approved product\* to disinfect surfaces and objects that are frequently touched.

## WASH LAUNDRY



Remove and wash soiled clothes and linens immediately, then tumble dry.

## USE GOWN AND GLOVES



Use gown and gloves when touching or caring for patients to reduce exposure to vomit or fecal matter.

## STAY HOME WHEN SICK



If you're sick, stay home and don't take care of or visit people in long-term care facilities for at least 2 days after your symptoms stop.

For more information, visit [www.cdc.gov/norovirus](http://www.cdc.gov/norovirus)



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\*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) at [http://www.epa.gov/oppad001/list\\_g\\_norovirus.pdf](http://www.epa.gov/oppad001/list_g_norovirus.pdf)

# ATTENTION!

## Many people are currently ill with norovirus, often called "Stomach Bug" or "Stomach Flu"

---

1

If you are sick with vomiting or diarrhea, stay home for **at least 48 hours** after vomiting and diarrhea have ended.

2

Stay hydrated by sipping water even if you're still vomiting. Call a healthcare provider if you become dehydrated, or if you have any concerns.

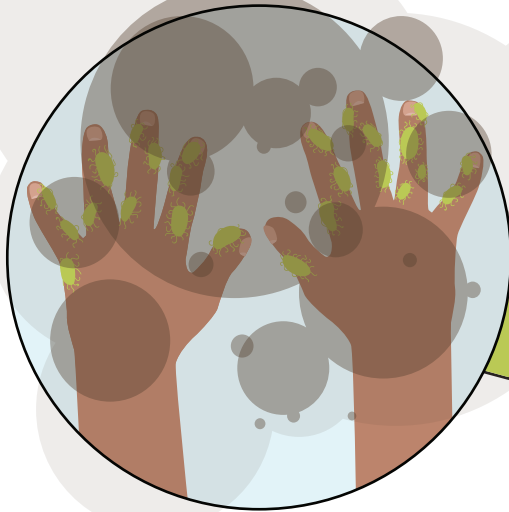
3

Wash your hands often with soap and warm water for at least 20 seconds, especially after using the bathroom and before preparing or eating food.

# SCHOOLS/CHILDCARE CENTERS

**Materials included in this section can be distributed to schools, daycare centers, pre-K centers and any other facility with children in their population.**

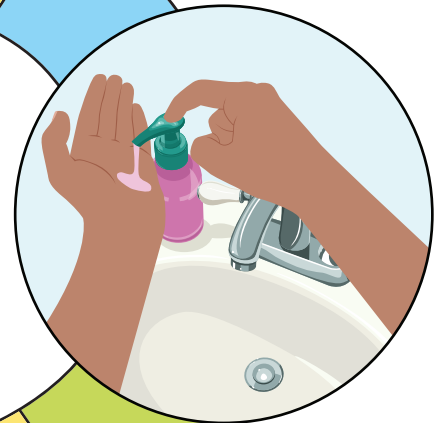
# Wash Your Hands!



Dirty!



Wet



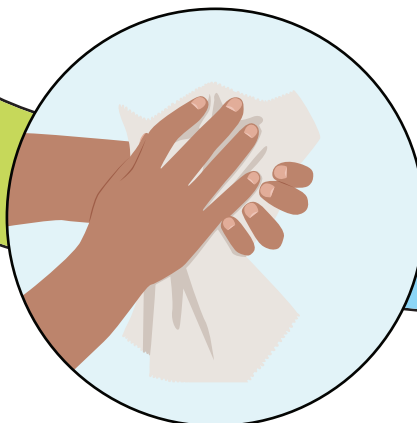
Get Soap



Scrub



Rinse



Dry



Clean!



Centers for Disease  
Control and Prevention  
National Center for Emerging  
and Zoonotic Infectious Diseases

[www.cdc.gov/handwashing](http://www.cdc.gov/handwashing)





**Please stay away  
for 48 hours.  
if you have diarrhoea  
and vomiting!**

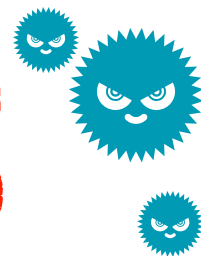


[www.monkeywellbeing.com](http://www.monkeywellbeing.com)



HEALTHY  
CAMPING:

# NOROVIRUS



## PREVENTION AT YOUTH CAMPS



### LEARN HOW TO PREVENT NOROVIRUS AT YOUTH CAMPS

#### BASICS ABOUT NOROVIRUS

Norovirus is very contagious and causes vomiting and diarrhea. People of all ages can get infected and sick with norovirus. You can get norovirus from:

- Having direct contact with an infected person, such as shaking hands
- Sharing food or eating utensils with an infected person
- Consuming contaminated food or water
- Touching contaminated surfaces then putting your unwashed hands in your mouth

Clean and disinfect the entire area immediately and thoroughly after someone vomits or has diarrhea.



Practice proper hand washing and encourage the same among campers



Isolate sick campers and prevent them from sharing bathrooms and using cafeteria



Prevent campers from swimming while sick and for at least 1 week after symptoms have resolved

# ATTENTION!

## Many students and staff are ill with norovirus, often called "Stomach Bug" or "Stomach Flu"

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1

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

2

Stay hydrated by sipping water even if you're still vomiting. Call a healthcare 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 with soap and warm water for at least 20 seconds, especially after using the bathroom and before preparing or eating food.