



North Carolina Department of Health and Human Services
Division of Public Health

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To: North Carolina Local Health Departments
From: Megan Davies, MD, State Epidemiologist
Larry Michael, REHS, MPH, State Environmental Health Director
Scott Zimmerman, DrPh, MPH, HCLD (ABB), North Carolina State Laboratory of Public Health Director
Re: **Norovirus infection surveillance and control**

According to the Centers for Disease Control and Prevention (CDC), each year in the United States norovirus causes an average of 19–21 million cases of acute gastroenteritis (inflammation of the stomach or intestines or both); leads to 1.7–1.9 million outpatient visits and 400,000 emergency department visits, primarily in young children; and contributes to about 56,000–71,000 hospitalizations and 570-800 deaths, mostly among young children and the elderly.

This memo is intended to provide information regarding norovirus surveillance, diagnosis, control and outreach measures in North Carolina.

Surveillance

While individual cases of norovirus are not reportable in North Carolina, local health directors are required to give control measures and inform the Division of Public Health whenever any outbreak occurs which represents a significant threat to the public's health. During 2012–2014, a total of 314 outbreaks of gastrointestinal illness were reported to the Communicable Disease Branch. Of those, 274 (87%) were due to norovirus. Most norovirus outbreaks occur from November through March, though they can occur at any time of year. Resources for managing and reporting outbreaks are available at <http://epi.publichealth.nc.gov/cd/lhds/manuals/cd/outbreak.html>.

Diagnosis

Norovirus testing is available for individual patients at commercial laboratories. In outbreak situations, local health departments can request approval from the Communicable Disease Branch to submit at least five and no more than ten stool specimens for norovirus testing the NC State Laboratory of Public Health. Testing will not be performed for submissions of less than five specimens. Additional information is available at <http://slph.ncpublichealth.com/microbiology/norovirus.asp>. Specimens should be collected from persons who are within 48 hours of their onset of symptoms.

Control Measures

Health Care Facilities: Health care facilities, including nursing homes and hospitals, are the most commonly reported settings for norovirus outbreaks in the United States and other industrialized countries. The virus can be introduced into healthcare facilities by infected patients—who may or may not be showing symptoms—or by staff, visitors, or contaminated foods. Specific guidance regarding control of these outbreaks is available here: http://epi.publichealth.nc.gov/cd/lhds/manuals/cd/other_diseases.html

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Retail Food Establishments: Norovirus is a pathogen that is highly infectious and can easily contaminate food. Therefore, the North Carolina Food Code (<http://ehs.ncpublichealth.com/faf/docs/foodprot/NC-FoodCodeManual-2009-FINAL.pdf>) requires specific actions if norovirus is suspected or diagnosed in a food employee. It is important that all employees working with food are fully aware of their responsibility to report to their supervisor symptoms of or recent exposure to norovirus so that appropriate control measures can be immediately implemented.

Public Health Outreach

We request that communicable disease nurses and environmental health specialists communicate with healthcare facilities and retail food establishments in their jurisdiction to ensure that appropriate norovirus prevention and control information is disseminated to all.

Resources for Health Care Facilities:

- A basic information norovirus poster for health care workers, produced by the CDC, is available here <http://www.cdc.gov/hai/pdfs/norovirus/229110-A-SampleNorovirusPoster508.pdf> and may be posted at every facility
- A detailed information norovirus fact sheet for facility managers, produced by the CDC, is available here <http://www.cdc.gov/hai/pdfs/norovirus/229110-ANoroCaseFactSheet508.pdf>

Resources for Retail Food Establishments:

- A health and hygiene handbook for retail food employees is available from the Food and Drug Administration: <http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/IndustryandRegulatoryAssistanceandTrainingResources/ucm113827.htm>
- A norovirus factsheet for food handlers, produced by the CDC, is available here <http://www.cdc.gov/norovirus/downloads/foodhandlers.pdf> and may be posted at every retail food establishment
- A norovirus infographic for kitchen managers, produced by the CDC, is available here <http://www.cdc.gov/vitalsigns/norovirus/infographic.html#infographic> and may be posted at every retail food establishment

Additional Information

More information about norovirus is available at <http://epi.publichealth.nc.gov/cd/diseases/norovirus.html>. Information about NoroCORE, the United States Department of Agriculture, National Institute of Food and Agriculture (USDA-NIFA) food safety initiative established in 2011, is available at <http://norocore.ncsu.edu/>.

Please contact the NC DPH Communicable Disease Branch at 919-733-3419 with any questions.

Norovirus: 3 Steps to Cleaning N.C. Public Health Recommendations

Introduction

This document provides general guidance for cleaning and disinfecting surfaces that have been contaminated with norovirus.

1. Clean Up Surfaces

- 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

- a. **Prepare and apply a chlorine bleach solution according to table below**
 - Make bleach solutions fresh daily; keep out of reach of children; never mix bleach solution with other cleaners.
 - Mixing directions are based on EPA-registered bleach product directions to be effective against norovirus.
- b. **Leave surface wet for at least 5 minutes**
- c. **Rinse all surfaces intended for food or mouth contact with plain water before use**
- d. **Steam cleaning may be preferable for carpets and upholstery**

Recommended Bleach Preparation Quantities		
5.25% Sodium hypochlorite		
		Bleach per gallon of water
Bleach (Free Chlorine) Concentration	1000 ppm	1/3 cup
	5000ppm	1 2/3 cup

Recommended Bleach Preparation Quantities		
8.25% Sodium hypochlorite		
		Bleach per gallon of water
Bleach (Free Chlorine) Concentration	1000 ppm	3 TBSP
	5000ppm	1 cup

3. **Wash your hands thoroughly with soap and water. Hand sanitizers are not effective against norovirus.**

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**

Additional Information

Centers for Disease Control and Prevention's "Preventing Norovirus Infection" webpage
<http://www.cdc.gov/norovirus/preventing-infection.html>