Public Health
MADISON & DANE COUNTY
Healthy people and places

Guidelines for Environmental Cleaning And Disinfection of Norovirus

Noroviruses *are a group of viruses that cause acute gastroenteritis in humans. The symptoms of norovirus infection include nausea, vomiting, diarrhea, cramping, and low-grade fever. Noroviruses are transmitted through the fecal-oral route, either by consumption of fecal contaminated food or water, direct person-to-person spread, or environmental and fomite contamination.*

Materials Needed:
Disposable gloves, masks, eye protection or face shields, and gown or protective clothing

Please put on all materials before beginning cleaning procedure.

General Warning:
Chlorine bleach may impact fabrics and other surfaces. Please spot test area before applying to visible surface.

This document contains information regarding:
- Disinfection
- Health Concerns with using Chlorine Bleach
- Specific Clean-up Procedures
- Food Service Establishments – Ill Employees

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Disinfection (for non-visibly soiled areas - please refer to specific procedures for large spills)

Examples of items to disinfect:
Doorknobs, faucets, sinks, toilets, commodes, bath rails, phones, counters, chairs (including backs), tables, hand rails, elevator buttons, light switches, mattress covers, aprons, uniforms, linens, bedding and ice machines.

What works best: Chlorine bleach (sodium hypochlorite -NaOCl)

Chlorine bleach solution concentration and mixing instructions:

200ppm (parts per million)
• **Use for stainless steel, food/mouth contact items, toys**
• 5 Tablespoons of bleach in 1-gallon water (1:250 dilution)

1000ppm (parts per million)
• **Use for non-porous surfaces, tile floors, counter-tops, sinks, toilets**
• 1/3-cup bleach in 1-gallon water (1:50 dilution)

5000ppm (parts per million)
• **Use for porous surfaces, wooden floors**
• 1 cup bleach plus 2/3-cup bleach in 1-gallon water (1:10 dilution)

Contact time
• Leave bleach solution on surface for 10-20 minutes, then rinse with clean water.

Stability of Chlorine Bleach
Open bottles of concentrated chlorine will lose effectiveness after 30 days. Change opened bottles of bleach every 30 days for accurate concentrations. For disinfecting, use an unopened bottle of chlorine bleach. Prepare a dilution of fresh bleach solution every day of use and discard unused portions.

Other effective disinfectants
• Glutaraldehyde (0.5%) or Iodine (0.8%) mixed at the manufacturer's recommendations.
• A phenolic environmental disinfectant (Lysol® or Pinesol®) may be effective, but may require **2-4x** more concentration than the manufacturer's recommendation. The use of this product at the higher concentration may pose a significant health risk to workers, pets or yourself. Use extreme caution when using these products. Please read the manufacturer's warning.

Ineffective **disinfectants**
Quaternary compounds, Ethanol, or anionic compounds.

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Health Concerns with using Chlorine Bleach

Mixing hazards
USE ONLY IN WELL-VENTILATED AREAS. Adverse effects of inappropriate mixtures of household cleaners usually are caused by prolonged exposure to an irritant gas in a poorly ventilated area. The most common inappropriate mixtures of cleaning agents are bleach with acids (like vinegar) or ammonia (Windex ®). Potential irritants released from such mixtures are chlorine gas, chloramines, and ammonia gas.

Health hazards
Chlorine bleach is corrosive and irritating to all mucosal tissue, skin, eyes and upper and lower respiratory tract. Avoid spray bottle application with any disinfectant.

Personal protective equipment
• Disposable gloves, masks, eye protection or face shields, and gown or protective clothing
• Environmental cleaning using a more concentrated disinfectant will require a heavier duty glove than a simple non-sterile latex/vinyl glove.

Specific Clean-up Procedures

For cleaning large spills of vomit or diarrhea, a two-step process should be used:

1. Visible/organic debris should be cleaned up with absorbent material (double layer) and discarded in a plastic bag to minimize aerosols

2. Liberally disinfect area and objects surrounding the contamination with an appropriate environmental disinfectant (multiple applications may be required).

Ensure appropriate dilution and contact time for the appropriate environmental disinfectant.

Food preparation surfaces
- Disinfect with ¼ cup bleach in 1 gallon of water, rinse with water if area. Then sanitize with 200 ppm chlorine bleach.

Carpet / Upholstered Furniture
Visible debris should be cleaned with absorbent material (double layer) and discarded in a plastic bag to minimize aerosols - disinfecting with bleach may discolor carpet – steam clean (heat inactivation) 158°F for 5 minutes or 212°F for 1 minute for complete inactivation.

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Linens / clothing / textiles
If soiled, vomit or stool should be carefully removed to minimize aerosols. Keep contaminated and uncontaminated clothes separated. Minimize disruption of soiled linens and laundry. Aerosols created may pose a risk for transmission. Wash items in a pre-wash cycle, then use a regular wash cycle using detergent and dried separately from uncontaminated clothing at high temperature greater than 170°F. Ensure segregation of clean and soiled linens/clothing/textiles.

Surfaces Corrodible/damageable by bleach
EPA registered phenolic solutions (concentrated Lysol® or concentrated Pinesol®) mixed at **2-4x** the manufacturer's recommended concentration.

Food Service Establishments

Ill Employees

• Food handlers who are ill with gastrointestinal symptoms MUST NOT prepare or serve food for others under any circumstances. Symptomatic staff members should be sent home immediately.

• Employees that have been ill with suspected norovirus should not return to work for a period of 48 hours after symptoms have ended.

Adapted from *Norovirus: Local Health Department Guidelines for Environmental Cleaning and Disinfection of Norovirus* – Michigan Department of Community Health and Michigan Department of Agriculture