WEAPONS OF MASS DISINFECTION

The Weapons of Mass Disinfection information was created by a subcommittee of the Ottawa County Food Advisory Workgroup to aid in the clean-up and disinfection of possible Norovirus events.

The subcommittee members are Peggy Hoover – North Ottawa Community Hospital, Cheryl Elliott – General Manager of Holiday Inn Express of Holland, Jaclyn Bates, REHS – Ottawa County Health Department, and Katherine Voight, REHS – Ottawa County Health Department.
**Why Ask Why?**

1) Why do we isolate the area?
   a. So contamination is not spread from the area being disturbed (people walking through, etc).
   b. So everyone is protected from exposure to contaminants.

2) Why do we wear PPE?
   a. To protect yourself from any possible diseases or illnesses.

3) Why do we have to use a disinfectant on the EPA registry?
   a. These disinfectants have been tested and shown to be effective against the diseases listed on the registry.

4) Why can’t I just pour disinfectant on the area and the debris?
   a. The debris must be cleaned up before the disinfectant can kill the possible diseases or illnesses.
   b. Pouring the disinfectant on the area could also cause splashing and spreading of the contamination.

5) Why must I wash my hands?
   a. Your hands may have been exposed to pathogens during the cleaning processes or when removing your gloves. Hands can transmit these pathogens. Proper hand washing is important in reducing the number of pathogens on the hands.

6) Why do I have to do it?
   a. Public health is everyone’s responsibility.

7) Why do I mark the bag/separate the linens, etc.?
   a. So these items do not get mixed in with uncontaminated linens, etc.
   b. So those handling these items are aware of the contamination and can use PPE.
General Fact Sheet for Norovirus (viral gastroenteritis)

What are noroviruses?
Noroviruses are a group of viruses that cause gastroenteritis (GAS-tro-en-ter-i-tis), in people. Norovirus is known incorrectly as the “stomach flu”. Norovirus is NOT related to the flu (influenza), which is a respiratory illness caused by a different virus. The term norovirus was recently approved as the official name for this group of viruses; previously it had been referred to as “Norwalk virus” or “Norwalk-like virus.”

What are the symptoms of a norovirus infection?
Norovirus illness usually begins 24 - 48 hours after exposure, but can appear as early as 10 hours after exposure. Symptoms usually include nausea, vomiting, diarrhea, and stomach cramping. Sometimes people have a low-grade fever, chills, headache, muscle aches, and a general sense of tiredness. The illness is usually brief, with symptoms lasting only 1 or 2 days.

How serious is norovirus disease?
Norovirus disease is usually not serious, but people may feel very sick. Most people get better within 1 or 2 days, and have no long-term health effects from the illness. Sometimes people are unable to drink enough liquids to replace what they lose from vomiting and diarrhea, and they can become dehydrated and need to see a doctor. This problem usually occurs only among the very young, the elderly, and persons with weakened immune systems.

How is norovirus spread?
Noroviruses are very contagious and spread easily from person to person. The virus is found in the stool and vomit of infected people. People can become infected in several ways, including 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.

Outbreaks also have occurred from eating undercooked oysters harvested from contaminated waters - cooking kills the virus. Drinking water contaminated by sewage can also be a source of illness.

Persons working in day-care centers or nursing homes should pay special attention to children or residents who have symptoms of norovirus. The virus can spread quickly in these types of facilities.
How long are people contagious?
People infected with norovirus are contagious from the moment they begin feeling ill to at least 3 days after recovery. Some people may be contagious for as long as 2 weeks after recovery. Therefore, good hand washing is important. Persons infected with norovirus should not prepare food while they have symptoms and for 3 days after they recover. Infected people do not become long-term carriers of norovirus.

Who gets norovirus infection?
Anyone can become infected with these viruses. Because there are many different strains of norovirus, infection and illness can re-occur throughout a person’s lifetime.

What treatment is available for people with norovirus infection?
Currently, there is no specific medication or vaccine for norovirus. Norovirus infection cannot be treated with antibiotics. By drinking fluids, such as juice or water, people can reduce their chance of becoming dehydrated. Sports drinks do not replace the nutrients and minerals lost during this illness.

Do infected people need to be excluded from school, work or daycare?
Since the virus is passed in vomit and stool, children should not go to daycare or school while they have diarrhea or vomiting. Once illness ends, children can return to daycare, but hand washing must be strictly monitored. Persons who work in nursing homes, take care of patients, or handle food should stay out of work until at least 48-72 hours after symptoms end.

Can norovirus infections be prevented?
You can decrease your chances of becoming infected with norovirus by:
• Frequent hand washing with warm water and soap (alcohol based hand sanitizers do NOT work against norovirus)
• Promptly disinfecting contaminated surfaces with household chlorine bleach-based cleaners
• Washing soiled clothing and linens
• Avoiding food or water from sources that may be contaminated
• Cooking oysters completely to kill the virus
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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 fecally contaminated food or water, direct person-to-person spread, or environmental and fomite (inanimate object or substance that is capable of transmitting infectious organisms) contamination.

Materials Needed:
Disposable gloves, masks, eye protection or face shields, and gown or protective clothing
Please don all materials before beginning cleaning procedure.
For questions about the above mentioned personal protective equipment, please see
http://www.cdc.gov/ncidod/dhq/p/gl_isolation.html (Part II.E)

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

This document contains information for:
• Disinfection
• Specific Clean-up Procedures
• Food Service Establishments
• Healthcare/Hospital/Nursing Home Facilities
• Schools/Daycares
Disinfection
(For non-visibility 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, keyboards, mattress covers, aprons, uniforms, linens, bedding and ice machines.

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

Chlorine bleach concentrations and mixing instructions:

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

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

- **5000ppm** (parts per million) - 1:10 dilution
  - Use for porous surfaces, wooden floors
  - 1 and ½ cup bleach in 1-gallon water

Stability of Chlorine Bleach

- Open bottles of concentrated chlorine bleach will lose effectiveness after 30 days. Change bottles of bleach every 30 days for accurate concentrations. For disinfecting, use an unopened bottle of chlorine bleach. Prepare a dilution of fresh bleach every day of use and discard unused portions.
### Bleach dilutions clarified with household measurement terms

<table>
<thead>
<tr>
<th>Bleach Solution</th>
<th>Dilution Exact</th>
<th>Chlorine (ppm)</th>
<th>Dilution approximate</th>
<th>Household (ppm) Approximate</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.25% - 6.15%</td>
<td>Concentrate</td>
<td>52,500 - 61,500</td>
<td>Concentrate</td>
<td>52,500 - 61,500</td>
<td>* Patient Care</td>
</tr>
<tr>
<td>5.25% - 6.15%</td>
<td>1:10</td>
<td>5,250 - 6,150</td>
<td>1.5 cups / 1 gallon</td>
<td>~6000</td>
<td>* Patient Care</td>
</tr>
<tr>
<td>5.25% - 6.15%</td>
<td>1:100</td>
<td>525-615</td>
<td>0.25 cup / 1 gallon</td>
<td>~600</td>
<td>* Patient Care</td>
</tr>
<tr>
<td>5.25%</td>
<td>1:200</td>
<td>263</td>
<td>1 tablespoon / 1 gallon</td>
<td>&lt;200</td>
<td>Dietary</td>
</tr>
<tr>
<td>5.25% - 6.15%</td>
<td>1:1000</td>
<td>53-62</td>
<td>1 teaspoon / 1 gallon</td>
<td>~50</td>
<td>Dietary</td>
</tr>
</tbody>
</table>

The glossary in the CDC guidelines provides bleach dilutions using household measurement terms and equivalent parts per million (ppm) that can be used to translate recommendations for use in the patient care setting for environmental decontamination after cleaning, e.g., for *Clostridium difficile*. Premier's Safety Institute has expanded the information to include the use of chlorine bleach as a sanitizing agent in dietary settings consistent with EPA U.S Gov't regulations (21 CFR Part 178). Please see references on page 10.

### Other effective disinfectants

- A phenolic environmental disinfectant (Lysol® or Pinesol®) may be effective, but may require a concentration of 2-4X the manufacturer’s recommendation. The use of this product at the higher concentration may pose a significant health risk to children, workers, pets or yourself. Use extreme caution when using these products. Please read the manufacturer’s warning.

- Environmental Protection Agency (EPA) -registered disinfectants

  **Note:** Some of these products now include quaternary ammonia-based disinfectants but in combination with alcohols. These claims of effectiveness are based on in-vitro studies usually using feline calicivirus; field effectiveness in the context of outbreaks has not been evaluated.
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. However, “pour” or “pump” bottles that do not produce aerosols are highly recommended.

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 vomitus or stool, a two-step process should be used. Put on personal protective equipment before cleanup as specified in the CDC document: [http://www.cdc.gov/ncidod/dhqp/gl_isolation.html](http://www.cdc.gov/ncidod/dhqp/gl_isolation.html)

1. Pre-cleaning of visible/organic debris with absorbent material (double layer and placed in a plastic bag to minimize exposure to aerosols) should precede the disinfection process.
2. Liberally disinfect area and objects surrounding the contamination with an appropriate environmental disinfectant (multiple applications may be required).

*Ensure appropriate dilution and contact times for the appropriate environmental disinfectant.

**Hard surfaces**
- Disinfect with bleach, rinse with water if food preparation area.

**Carpet / Upholstered Furniture**
- Visible debris should be cleaned with absorbent material (double layer) and placed in a plastic bag to minimize exposure to 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.

**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 (2005 Food Code 2-201.12). Any employee with vomiting or diarrhea must be sent home immediately, unless their symptoms are the result of a non-infectious condition (e.g., pregnancy or Crohn's Disease).

- It is required that employees that have been ill with suspected Norovirus MUST not return to work for a period of 24 hours after symptoms have ended or provides medical documentation that the symptom is from a non-infectious condition, as mentioned above. However, It is highly recommended that employees that have been ill with suspected Norovirus should not return to work for a period of 48 to 72 hours after symptoms have ended.

  Food handlers who have been diagnosed as having Norovirus may return on a restricted basis (i.e. restricted from working with exposed food; clean equipment, utensils, and linens; and unwrapped single-service and single use articles) in the food establishment no sooner than 24 hours after symptoms resolve. They remain restricted until they do meet the following conditions:

  - Approval is obtained from the Regulatory Authority (2005 Food Code 2-201-13 (D), AND
  - They have been medically cleared (2005 Food Code 2-201-13 (D)(1), OR
  - More than 48 hours have passed since the employee’s symptoms have resolved. (2005 Food Code 2-201-13 (D)(2).

  An employee who serves a highly susceptible population and who has been diagnosed with Norovirus is excluded from work until meeting the following requirements:

  - Approval is obtained from the Regulatory Authority (2005 Food Code 2-201-13 (D), AND
  - They have been medically cleared (2005 Food Code 2-201-13 (D)(1), OR

Updated 01/05/09
More than 48 hours have passed since the employee’s symptoms have resolved. (2005 Food Code 2-201-13 (D)(2)).

Diligent hand washing practices should be followed.

Hand washing
- After using the restroom, sneezing, coughing, before and after food preparation, all employees should wash hands with warm running water and soap, using friction for 20 seconds. Hands should be dried with a single-service paper towel or air dryer.
- It is recommended that persons involved in busing tables, handling of used utensils; cups or any dishes exercise regular thorough hand washing, particularly before eating or handling food or clean utensils.

Disinfection Precautions
- NOT ALL DISINFECTANTS SHOWN ON EPA LIST (page 3) ARE APPROVED FOR USE IN FOOD FACILITIES
  - Product label must contain language stating approval for use in (FDA or USDA) food facilities AND provide appropriate directions for use/application rates in these settings. Consult the manufacturer for further information on approval for use on food contact surfaces and/or in food service facilities.
Healthcare/Hospital/Nursing Home Facilities

Occupational Health Policies
- Refer to Occupational Health for employee health policies for work restrictions and return to work policies http://www.cdc.gov/ncidod/dhqp/gl_hcpersonnel.html

EPA-Registered Hospital-Use disinfectant
- Ensure appropriate use EPA-registered Hospital-Use disinfectant – (see Disinfection section).

Medical Equipment Cleaning Precautions
- Medical equipment used for care of norovirus infected patients, should be either dedicated to that room for the duration of isolation or be thoroughly disinfected upon removal from the room. Please consult terminal cleaning recommendations for your facility. Selection of appropriate cleaning agent should be consistent with the equipment manufacturer’s recommendation for compatibility.

Cleaning Procedures
- Routine environmental cleaning measures, at proper time intervals, and proper disinfection order, with the recommended concentration and contact time should be used.

Laundry Concerns
- Do not shake soiled linens and laundry. Aerosols created may pose a risk for transmission. Soiled linens should be placed directly into a bag at the point of removal.
- Ensure proper separation of clean and soiled laundry.
- For additional laundry information go to http://www.cdc.gov/ncidod/hip/enviro/guide.htm pgs98-103.

Ice Machines
- Contaminated ice machines must be disinfected.
Hand washing
- All employees should wash hands with warm running water and soap, using friction for 20 seconds, paying special attention to under fingernails. Dry hands with a single-service paper towel or air dryer.
- Hands should be washed after using the restroom, sneezing, coughing, changing diapers, before any food preparation or service.

Toy cleaning
- Toys should be cleaned and disinfected daily.
- Any toy that enter a child’s mouth (rubber or plastic blocks, balls, etc.) must be disinfected with 200ppm bleach, rinsed thoroughly and air dried or run through dishwasher with high temperature (170°F).
- Remove visible debris on softer toys that have been soiled by vomit – (see Disinfection section). Launder toy as directed or discard if necessary.

Keeping Diaper Changing Surfaces Clean
- Surfaces should have a plastic covered pad without cracks.
- Use disposable material to cover the pad on changing tables such as shelf paper, wax paper, scrap computer paper, cut up paper bags. Discard after each diaper change.
- Clean the surface after every diaper change by washing with detergent, water and friction, bleach dilution (see Disinfection section for appropriate concentration), and rinsing with clean water.
- Caregivers must wash their hands immediately.
- After changing a diaper, the diapered child’s hands should be washed also.
References


List G: EPA’s Registered Antimicrobial Products Effective Against Norovirus (Norwalk-like virus)

January 9, 2009
Alphabetical Order

List G: EPA’s Registered Antimicrobial Products Effective Against Norovirus (Norwalk-like virus) (Updated January 9, 2009)

Product: ACCEL TB
EPA Reg#: 74559-1
Registrant: VIROX TECHNOLOGIES INC.
Approval Date: 04/18/2006
Active Ingredients: Hydrogen peroxide 0.5%

Product: AXEN (R) 30
EPA Reg#: 72977-3
Registrant: ETI H2O Inc.
Approval Date: 02/13/2008
Active Ingredients: Citric acid 4.846%; Silver 0.003%

Product: AMERI-KLEEN WHIRLPOOL PEDICURE SPA ONE STEP DISINFECTANT
EPA Reg#: 75848-1
Registrant: AMERI-KLEEN CORP.
Approval Date: 01/10/2007
Active Ingredients: Octyl decyl dimethyl ammonium chloride 3.255%
                    Dioctyl dimethyl ammonium chloride 1.302%; Didecyl dimethyl ammonium chloride 1.953%
                    Alkyl* dimethyl benzyl ammonium chloride *(50% C14, 40% C18, 10% C16) 4.340%

Product: ASEPTROL S10-TAB
EPA Reg#: 70060-19
Registrant: ENGELHARDT CORP
Approval Date: 10/22/2007
Active Ingredients: Sodium chlorite 20.8%; Sodium dichloroisocyanurate dihydrate 7.0%

Product: ALPET D2
EPA Reg#: 73232-1
Registrant: BEST SANITIZERS, INC
Approval Date: 11/23/2005
Active Ingredients: 1-Octanaminium, N,N-dimethyl-N-octyl-, chloride 0.003%
                    1-Decanaminium, N-decyl-N,N-dimethyl-, chloride 0.0045%
                    1-Decanaminium, N,N-dimethyl-N-octyl-, chloride 0.0075%; Isopropyl alcohol 58.6%

Product: ARC
EPA Reg#: 777-105
Registrant: RICKET BENCKISER Inc.
Approval Date: 07/01/2008
Active Ingredients: Ethanol 60.825%
                    Alkyl* dimethyl benzyl ammonium saccharinate *(50% C14, 40% C18, 10% C16) 0.1%
Product: BARDAC 205M-14.08
EPA Reg#: 6836-278
Registrant: Lonza Inc
Approval Date: 09/19/2007
Active Ingredients: Octyl decyl dimethyl ammonium chloride  4.224%
Alkyl* dimethyl benzyl ammonium chloride *(50%C14, 40%C12, 10%C16)  5.632%
Dioctyl dimethyl ammonium chloride  1.69%; Didecyl dimethyl ammonium chloride 2.534% 

Product: BARDAC 205M-10
EPA Reg#: 6836-266
Registrant: Lonza Inc
Approval Date: 12/13/2006
Active Ingredients: 1-Octanaminium, N,N-dimethyl-N-octyl-, chloride  1.2%
Alkyl* dimethyl benzyl ammonium chloride *(50%C14, 40%C12, 10%C16)  4%
1-Decanaminium, N-decyl-N,N-dimethyl-, chloride  1.8%
1-Decanaminium, N,N-dimethyl-N-octyl-, chloride  3%

Product: BRACE
EPA Reg#: 777-99
Registrant: RECKITT BENCKISER INC.
Approval Date: 03/10/2008
Active Ingredients: Ethyl alcohol 58.0%
Alkyl* dimethyl benzyl ammonium saccharinate *(50%C14, 40%C12, 10% C16) 0.1%

Product: CLEAN-CIDE READY TO USE GERMICIDAL DETERGENT
EPA Reg#: 34810-35
Registrant: WEXFORD LABS, Inc.
Approval Date: 10/02/2007
Active Ingredients: Citric Acid  0.6%

Product: CPPC STORM
EPA Reg#: 67619-13
Registrant: CLOROX PROFESSIONAL PRODUCTS CO
Approval Date: 2/23/2006
Active Ingredients: Sodium hypochlorite  2.4%

Product: CPPC TSUNAMI
EPA Reg#: 67619-12
Registrant: CLOROX PROFESSIONAL PRODUCTS CO
Approval Date: 09/03/2008
Active Ingredients: Sodium hypochlorite 0.55%
Product: CPPC ULTRA BLEACH 2  
EPA Reg#: 67619-8  
Registrant: Clorox Professional Products Co.  
Approval Date: 12/22/2008  
Active Ingredients: Sodium hypochlorite 6.15% 

Product: D-125  
EPA Reg#: 61178-1  
Registrant: MICROGEN, INC  
Approval Date: 04/24/2004  
Active Ingredients: Alkyl* dimethyl ethylbenzyl ammonium chloride *(68%C12, 32%C14) 2.25%  
Alkyl* dimethyl benzyl ammonium chloride *(60%C14, 30%C16, 5%C18, 5%C12) 2.25%

Product: DETERGENT DISINFECTANT PUMP SPRAY  
EPA Reg#: 1839-83  
Registrant: Stepan Company  
Approval Date: 06/14/2007  
Active Ingredients: Alkyl* dimethyl ethylbenzyl ammonium chloride *(68%C12, 32%C14) 0.105%  
Alkyl* dimethyl benzyl ammonium chloride *(60%C14, 30%C16, 5%C18, 5%C12) 0.105%

Product: DISPATCH HOSPITAL CLEANER DISINFECTANT WITH BLEACH  
EPA Reg#: 56392-7  
Registrant: CALTECH INDUSTRIES INC  
Approval Date: 11/21/2007  
Active Ingredient: Sodium hypochlorite 0.55%

Product: DISINFECTANT D.C. 100  
EPA Reg#: 70627-2  
Registrant: S.C. JOHNSON COMMERCIAL MARKETS INC.  
Approval Date: 08/20/2005  
Active Ingredients: Alkyl*dimethyl ethylbenzyl ammonium chloride *(68%C12,32%C14) 0.105%  
Alkyl*dimethyl benzyl ammonium chloride *(60%C14,30%C16,5%C18,5%C12) 0.105%

Product: EXSPOR BASE CONCENTRATE  
EPA Reg#: 1677-216  
Registrant: ECOLAB Inc.  
Approval Date: 11/04/2008  
Active Ingredients: Sodium chlorite 1.52%

Product: LONZA DISINFECTING WIPES  
EPA Reg#: 6836-313  
Registrant: Lonza Inc  
Approval Date: 08/15/2007  
Active Ingredients: 1-Decanaminium, N,N-dimethyl-N-octyl-, chloride .069% ;  
1-Decanaminium, N-decyl-N,N-dimethyl-, chloride .042% ; 1-Octanaminium,  
N,N-dimethyl-N-octyl-, chloride .028% ;  Alkyl*dimethyl benzyl ammonium  
chloride *(50%C14, 40%C12, 10%C16) .093%
Product: LONZA FORMULATION DC-103  
EPA Reg#: 6836-152  
Registrant: LONZA INC  
Approval Date: 03/28/2008  
Active Ingredients: Dioctyl dimethyl ammonium chloride 0.01%  
Alkyl* dimethyl benzyl ammonium chloride *(50%C14, 40%C12, 10%C16) 0.034%  
Didecyl dimethyl ammonium chloride 0.015% ; Octyl decyl dimethyl ammonium chloride 0.025%

Product: LONZA FORMULATION R-82  
EPA Reg#: 6836-78  
Registrant: LONZA INC  
Approval Date: 06/11/1981  
Active Ingredients: Dioctyl dimethyl ammonium chloride 2.604%  
Alkyl* dimethyl benzyl ammonium chloride *(50%C14, 40%C12, 10%C16) 8.68%  
Didecyl dimethyl ammonium chloride 3.906% ; Octyl decyl dimethyl ammonium chloride 6.51%

Product: LONZA FORMULATION R-82F  
EPA Reg#: 6836-139  
Registrant: Lonza Inc  
Approval Date: 12/22/2006  
Active Ingredients: Dioctyl dimethyl ammonium chloride 2.604%  
Alkyl* dimethyl benzyl ammonium chloride *(50%C14, 40%C12, 10%C16) 8.68%  
Didecyl dimethyl ammonium chloride 3.906%; Octyl decyl dimethyl ammonium chloride 6.51%

Product: LONZA FORMULATION S-18  
EPA Reg#: 6836-77  
Registrant: Lonza Inc  
Approval Date: 11/07/2006  
Active Ingredients: Dioctyl dimethyl ammonium chloride 1.302%  
Alkyl* dimethyl benzyl ammonium chloride *(50%C14, 40%C12, 10%C16) 4.340%  
Didecyl dimethyl ammonium chloride 1.953% ; Octyl decyl dimethyl ammonium chloride 3.255 %

Product: LONZA FORMULATION S-21  
EPA Reg#: 6836-75  
Registrant: LONZA INC  
Approval Date: 11/07/2006  
Active Ingredients: Dioctyl dimethyl ammonium chloride 0.66%  
Alkyl* dimethyl benzyl ammonium chloride *(50%C14, 40%C12, 10%C16) 2.2%  
Didecyl dimethyl ammonium chloride 0.99%; Octyl decyl dimethyl ammonium chloride 1.65%

Product: LONZA FORMULATION S-18F  
EPA Reg#: 6836-136  
Registrant: LONZA INC  
Approval Date: 08/14/2007  
Active Ingredients: Dioctyl dimethyl ammonium chloride 1.302%  
Alkyl* dimethyl benzyl ammonium chloride *(50%C14, 40%C12, 10%C16) 4.34%  
Didecyl dimethyl ammonium chloride 1.953%; Octyl decyl dimethyl ammonium chloride 3.255%
Product: LONZA FORMULATION S-21F  
EPA Reg#: 6836-140  
Registrant: LONZA INC  
Approval Date: 08/14/2007  
Active Ingredients: Dioctyl dimethyl ammonium chloride 0.66%  
Alkyl* dimethyl benzyl ammonium chloride*(50%C14, 40%C12, 10%C16) 2.2%  
Didecyl dimethyl ammonium chloride 0.99%; Octyl decyl dimethyl ammonium chloride 1.65%

Product: MAQUAT 64  
EPA Reg#: 10324-59  
Registrant: MASON CHEMICAL CO  
Approval Date: 08/29/2008  
Active Ingredients:  
Alkyl* dimethyl benzyl ammonium chloride*(60%C14, 30%C16, 5%C18, 5%C12) 2.25%  
Alkyl* dimethyl ethylbenzyl ammonium chloride *(68%C12, 32%C14) 2.25%

Product: MAQUAT 64 PD  
EPA Reg#: 10324-93  
Registrant: MASON CHEMICAL CO  
Approval Date: 11/22/2005  
Active Ingredients:  
Alkyl*dimethyl ethylbenzyl ammonium chloride*(68%C12, 32%C14) 2.25%  
Alkyl* dimethyl benzyl ammonium chloride*(60%C14, 30%C16, 5%C18, 5%C12) 2.25%

Product: MAQUAT 128  
EPA Reg#: 10324-58  
Registrant: MASON CHEMICAL CO  
Approval Date: 11/23/2005  
Active Ingredients:  
Alkyl* dimethyl ethylbenzyl ammonium chloride *(68%C12, 32%C14) 4.5%  
Alkyl* dimethyl benzyl ammonium chloride*(60%C14, 30%C16, 5%C18, 5%C12) 4.5%

Product: MAQUAT 128 PD  
EPA Reg#: 10324-105  
Registrant: MASON CHEMICAL CO  
Approval Date: 11/22/2005  
Active Ingredients:  
Alkyl* dimethyl benzyl ammonium chloride*(60%C14, 30%C16, 5%C18, 5%C12) 4.5%  
Alkyl* dimethyl ethylbenzyl ammonium chloride *(68%C12, 32%C14) 4.500%

Product: MAQUAT MQ-2525M-CPV  
EPA Reg#: 10324-140  
Registrant: MASON CHEMICAL CO  
Approval Date: 07/07/2005  
Active Ingredients:  
Alkyl*dimethyl ethylbenzyl ammonium chloride*(68%C12,32%C14) 1.6%  
Alkyl* dimethyl benzyl ammonium chloride *(60%C14, 30%C16, 5%C18, 5%C12) 1.6%
Product: MDF-200 MODEC DECON FORMULATION Part A  
EPA Reg#: 80346-1  
Registrant: Modec Inc.  
Approval Date: 10/28/2008  
Active Ingredients:  
Alkyl (50%C14,10%C16,40%C12)Dimethyl benzyl ammonium chlorides 3.2%  

Product: MDF-200 MODEC DECON FORMULATION Part B  
EPA Reg#: 80346-2  
Registrant: Modec Inc.  
Approval Date: 10/28/2008  
Active Ingredients:  
Hydrogen peroxide 7.95%  

Product: NP 4.5 DETERGENT/DISINFECTANT  
EPA Reg#: 1839-79  
Registrant: Stepan Company.  
Approval Date: 06/14/2007  
Active Ingredients:  
Alkyl* dimethyl benzyl ammonium chloride *(60%C14, 30%C16, 5%C18, 5%C12) 0.25%  
Alkyl* dimethyl ethylbenzyl ammonium chloride *(68%C12, 32%C14) 0.25%  

*Product: NP 4.5 (D & F) DETERGENT/DISINFECTANT  
EPA Reg#: 1839-95  
Registrant: Stepan Company  
Approval Date: 06/14/2007  
Active Ingredients:  
Alkyl*dimethyl ethylbenzyl ammonium chloride *(68%C12, 32%C14) 2.25%  
Alkyl* dimethyl benzyl ammonium chloride *(60%C14, 30%C16, 5%C18, 5%C12) 2.25%  

Product: NP 9.0 DETERGENT/DISINFECTANT  
EPA Reg#: 1839-81  
Registrant: Stepan Company  
Approval Date: 06/22/2005  
Active Ingredients:  
Alkyl* dimethyl benzyl ammonium chloride *(60%C14, 30%C16, 5%C18, 5%C12) 4.5%  
Alkyl* dimethyl ethylbenzyl ammonium chloride *(68%C12, 32%C14) 4.5%  

Product: NP 9.0 (D&F) DETERGENT/DISINFECTANT  
EPA Reg#: 1839-96  
Registrant: Stepan Company  
Approval Date: 01/11/2006  
Active Ingredients:  
Alkyl* dimethyl benzyl ammonium chloride *(60%C14, 30%C16, 5%C18, 5%C12) 4.5%  
Alkyl* dimethyl ethylbenzyl ammonium chloride *(68%C12, 32%C14) 4.5%  

Product: OXIVIR TB  
EPA Reg#: 70627-56  
Registrant: JOHNSON DIVERSEY Inc.  
Approval Date: 05/02/2007  
Active Ingredients: Hydrogen peroxide 0.5%
Product:   OXIVIR WIPES  
EPA Reg#:  70627-60  
Registrant:  JOHNSON DIVERSEY Inc.  
Approval Date:  02/14/2008  
Active Ingredients:  Hydrogen peroxide 0.5%

Product:   OXY-SEPT LDI  
EPA Reg#:  1677-203  
Registrant:  ECOLAB Inc.  
Approval Date:  02/21/2006  
Active Ingredients:  Hydrogen peroxide 27.5% ; Peroacetyc acid 5.8%

Product:   OXY-TEAM DISINFECTANT CLEANER  
EPA Reg#:  70627-58  
Registrant:  JOHNSONDIVERSEY, Inc.  
Approval Date:  09/04/2008  
Active Ingredients:  Hydrogen Peroxide 4.25%

Product:   PUBLIC PLACES  
EPA Reg#:  61178-2  
Registrant:  MICROGEN, INC  
Approval Date:  05/30/89  
Active Ingredients:
Alkyl*dimethyl benzyl ammonium chloride*(60%C14, 30%C16, 5%C18, 5%C12) 0.07%  
Alkyl*dimethyl ethylbenzyl ammonium chloride *(68%C12, 32%C14) 0.07%

Name:   SELECTROCIDE 2L500  
EPA Reg#:  74986-4  
Registrant:  Selective Micro Technologies LLC  
Approval Date:  08/13/2007  
Active Ingredient:  Sodium chlorite 30.5%

Name:   SELECTROCIDE 5G  
EPA Reg#:  74986-5  
Registrant:  Selective Micro Technologies LLC  
Approval Date:  08/13/2007  
Active Ingredient:  Sodium chlorite 30.5%

Name:   SHIELD  
EPA Reg#:  67619-17  
Registrant:  CLOROX PROFESSIONAL PRODUCTS CO.  
Approval Date:  09/03/2008  
Active Ingredient:  Sodium hypochlorite 1.84%
Product: SPRAY NINE
EPA Reg#: 6659-3
Registrant: Knight Marketing Corp.
Approval Date: 07/10/2008
Active Ingredients:
Alkyl*dimethyl benzyl ammonium chloride *(60%C14, 30%C16, 5%C18,5%C12) 0.15%
Alkyl*dimethyl ethylbenzyl ammonium chloride*(68%C12, 32%C14) 0.15%

Product: STEPAN TOWELETTE
EPA Reg#: 1839-174
Registrant: Stepan Company
Approval Date: 04/25/2006
Active Ingredients: Alkyl* dimethyl ethylbenzyl ammonium chloride *(68%C12, 32%C14) 0.105%
Alkyl* dimethyl benzyl ammonium chloride *(60%C14, 30%C16, 5%C18, 5%C12) 0.105%

Product: VETERINARY TYPE DISINFECTANT
EPA Reg#: 1839-100
Registrant: Stepan Company
Approval Date: 01/12/2006
Active Ingredients:
Alkyl* dimethyl benzyl ammonium chloride *(60%C14, 30%C16, 5%C18, 5%C12) 4.5%
n-Alkyl* dimethyl ethylbenzyl ammonium chloride *(68%C12, 32%C14) 4.5%

Product: VIRKON
EPA Reg#: 71654-7
Registrant: E.I. DUPONT DE NEMOURS AND COMPANY
Approval Date: 07/27/2006
Active Ingredients: Sodium chloride 1.50%; Potassium peroxymonosulfate 21.45%

Product: VITAL OXIDE
EPA Reg#: 82972-1
Registrant: VITAL TECHNOLOGIES.
Approval Date: 08/28/2007
Active Ingredients: Chlorine dioxide 0.20%;
Alkyl*dimethyl benzyl ammonium chloride*(60%C14, 30%C16, 5%C12, 5%C18) 0.125%
Alkyl*dimethyl ethylbenzyl ammonium chloride*(68%C12, 32%C14) 0.125%

==================================================================
# Numerical Order

**List G: EPA’s Registered Antimicrobial Products Effective Against Norovirus** *(Norwalk-like virus)* (Updated January 9, 2009)

<table>
<thead>
<tr>
<th>EPA Reg#</th>
<th>Primary Product Name</th>
</tr>
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<tbody>
<tr>
<td>777-99</td>
<td>BRACE</td>
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<tr>
<td>777-105</td>
<td>ARC</td>
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<td>1677-203</td>
<td>OXY-SEPT LDI</td>
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<td>EXPOR BASE CONCENTRATE</td>
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<td>1839-79</td>
<td>NP 4.5 DETERGENT/DISINFECTANT</td>
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<td>1839-81</td>
<td>NP 9.0 DETERGENT/DISINFECTANT</td>
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<td>1839-83</td>
<td>DETERGENT DISINFECTANT PUMP SPRAY</td>
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<td>1839-95</td>
<td>NP 4.5(D&amp;F) DETERGENT/DISINFECTANT</td>
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<td>NP 9.0 (D&amp;F) DETERGENT/DISINFECTANT</td>
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<td>SPRAY NINE</td>
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<td>6836-75</td>
<td>LONZA FORMULATION S-21</td>
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<td>LONZA FORMULATION R-82</td>
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<td>LONZA FORMULATION DC-103</td>
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<td>6836-278</td>
<td>BARDAC-205M-14.08</td>
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<td>LONZA DISINFECTANT WIPES</td>
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<td>CLEAN-CIDE READY TO USE GERMICIDAL DETERGENT</td>
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<td>56392-7</td>
<td>DISPATCH HOSPITAL CLEANER DISINFECTANT WITH BLEACH</td>
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<td>CPPC ULTRA BLEACH 2</td>
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<td>ASEPTROL S10-TAB</td>
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<td>AXEN (R) 30</td>
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<td>74559-1</td>
<td>ACCEL TB</td>
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<td>SELECTROCIDE 2L500</td>
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<td>74986-5</td>
<td>SELECTROCIDE 5G</td>
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<td>73232-1</td>
<td>ALPET D2</td>
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<td>75848-1</td>
<td>AMERI-KLEEN WHIRLPOOL PEDICURE SPA ONE STEP DISINFECTANT</td>
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<td>80346-1</td>
<td>MDF-200 MODEC DECON FORMULATION Part A</td>
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<td>MDF-200 MODEC DECON FORMULATION Part B</td>
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<tr>
<td>82972-1</td>
<td>VITAL OXIDE</td>
</tr>
</tbody>
</table>
Helpful Hints:

◦ If any single service items, single use items, or food are exposed when the incident occurs these items must be disposed of. This includes napkins, sugar packets, plastic ware, salt/pepper on a table, etc.

◦ Don’t forget to disinfect common areas:
  - Light Switches
  - Door knobs
  - Elevator Buttons
  - Rails/banisters
  - Computer Keyboards
  - Computer Mouse
  - Phone
  - Menus
  - High Chairs
  - Center Pieces
  - Door Handles
ISOLATE

CLEAN

REMOVE
REMEMBER:

- Isolate Area
- Protect Yourself
- Eliminate Debris
- Disinfect Surfaces
- Dispose Properly
NO BUNNY EARS

JUST GOOSE NECKS!

Ottawa County Health Department
Leading the Way to Food Safety
www.miOttawa.org
Protect Yourself

Protect Others

Ottawa County Health Department
Leading the Way to Food Safety
www.miOttawa.org
Disinfecting Carpet

- Put on PPE
  a. Examples: gloves, mask, apron.
- Disinfect using one of these options.
  a. Use a carpet extractor with an approved disinfectant listed on EPA registry.
     i. Do not mix chemicals! Mixing chemicals can be deadly.
  b. Use a steam cleaner:
     i. 158°F for five minutes
     ii. 212°F for one minute
     iii. Contact a service company for cleaning.
     iv. Use an approved disinfectant directly.
        1. This may damage the carpet.
- **Keep area isolated until one of these actions are taken.
- Disinfect equipment when done.
  a. Use absorbent material
  b. Allow disinfectant to remain on area for the entire contact time listed on EPA registration list (twenty minutes for bleach).
- Bag the absorbent material in a plastic bag to minimize aerosols.
  a. Either mark the bag or use a color coded bag.
     i. Check with your laundry company to see if they already have a procedure in place they want you to use.
- Remove your gloves and other PPE carefully.
- Put your PPE in a plastic bag for disposal.
  a. It may be the same bag used for clean-up if you are disposing of the contents.
- Seal the bag.
- Dispose of properly or separate out for laundry service.
- Wash hands.
  a. Dispense paper towels.
  b. Rinse hands with warm water.
  c. Apply soap to your hands.
  d. Lather for 20 seconds.
     i. Vigorously rub hands together cleaning hands, finger tips, between the fingers, under the finger nails and exposed arms.
  e. Rinse with warm running water.
  f. Dry you hands completely with paper towels.
  g. Use the paper towels to turn the water faucets off.
Disinfecting Hard Surfaces

- Put on PPE
  a. Examples: gloves, mask, apron.
- Prepare disinfectant listed on the EPA registration list.
  a) Be sure to follow the correct dilutions.
  b) Do not mix chemicals! Mixing chemicals can be deadly.
  c) Not all disinfectants shown on EPA list are approved for use in food facilities.
    i. Product label must have language stating approval for use in food facilities AND provide appropriate directions for use.
- Clean-up area.
  a) The surrounding area should be included.
    i. Tables, menus, light switches, touch screens, etc.
  b) Use absorbent material
    i. Recommended method
  c) Use mop
    i. The mop must be sent to a laundry service after use, or
    ii. Dispose of the mop.
  d) Allow disinfectant to remain on area for the entire contact time listed on EPA registration list (twenty minutes for bleach).
- Bag the mop or the absorbent material in a plastic bag to minimize aerosols.
  a) Either mark the bag or use a color coded bag.
    i. Check with your laundry company to see if they already have a procedure in place they want you to use.
- Remove your gloves and other PPE carefully.
- Put your PPE in a plastic bag for disposal.
  a) It may be the same bag used for clean-up if you are disposing of the contents.
- Seal the bag.
- Dispose of properly or separate out for laundry service.
- Wash hands.
  a) Dispense paper towels.
  b) Rinse hands with warm water.
  c) Apply soap to your hands.
  d) Lather for 20 seconds.
    i. Vigorously rub hands together cleaning hands, finger tips, between the fingers, under the finger nails and exposed arms.
  e) Rinse with warm running water.
  f) Dry your hands completely with paper towels.
  g) Use the paper towels to turn the water faucets off.
Vomit & Stool Clean-up

- Isolate Area
  a) If there is uncovered food in the area it must be disposed of.
  b) If a staff member caused the incident send the staff member home immediately!
- Put on Personal Protective Equipment (PPE)
  a) Examples: gloves, masks, disposable apron.
- Clean-up visible debris using:
  a) Disposable absorbent material in a double layer
  b) Rag/cloth
    i. Do not wring out or shake the rag or cloth.
    ii. Segregate as contaminated with body fluids and let your service company know.
    iii. Segregate as contaminated with body fluids and isolate for on-site laundry.
- Bag material in a plastic bag to minimize aerosols.
  a) Either mark the bag or use a color coded bag
    i. Check with your laundry company to see if they already have a procedure in place they want you to use.
- Remove your gloves and other PPE carefully.
- Put your PPE in a plastic bag for disposal.
  a) It may be the same bag used for clean-up if you are disposing of the contents.
- Seal the bag.
- Dispose of properly or separate out for laundry service.
- Wash hands.
  a) Dispense paper towels.
  b) Rinse hands with warm water.
  c) Apply soap to your hands.
  d) Lather for 20 seconds.
    i. Vigorously rub hands together cleaning hands, finger tips, between the fingers, under the finger nails and exposed arms.
  e) Rinse with warm running water.
  f) Dry your hands completely with paper towels.
  g) Use the paper towels to turn the water faucets off.
Linens/Clothing Cleaning

Examples: couches, curtains

- Put on PPE
  - Examples: gloves, mask, apron.
- Minimize disruption of soiled linens & laundry.
  - Don’t shake.
  - Carefully remove vomit or stool to minimize aerosols.
- Keep contaminated linens & clothing separated.
- Wash items in a pre-wash cycle.
- Wash in a regular wash cycle using detergent.
- Dry separately for uncontaminated linens & clothing.
  - Temperature must be greater than 170°F.
- Remove your gloves and other PPE carefully.
- Put your PPE in a plastic bag for disposal. It may be the same bag used for clean-up if you are disposing of the contents.
- Seal the bag.
- Dispose of properly or separate out for laundry service.
- Wash hands.
  - Dispense paper towels.
  - Rinse hands with warm water.
  - Apply soap to your hands.
  - Lather for 20 seconds.
    - Vigorously rub hands together cleaning hands, finger tips, between the fingers, under the finger nails and exposed arms.
  - Rinse with warm running water.
  - Dry you hands completely with paper towels.
  - Use the paper towels to turn the water faucets off.
- Remove clothing & linens from dryer.
- Put on PPE
  - Examples: gloves, mask, apron.
- Disinfect equipment when done.
  - Use absorbent material
  - Allow disinfectant to remain on area for the entire contact time listed on EPA registration list (twenty minutes for bleach).
- Remove your gloves and other PPE carefully.
- Put your PPE in a plastic bag for disposal.
  - It may be the same bag used for clean-up if you are disposing of the contents.
- Seal the bag.
- Dispose of properly or separate out for laundry service.
- Wash hands.
  - Dispense paper towels.
  - Rinse hands with warm water.
  - Apply soap to your hands.
  - Lather for 20 seconds.
    - Vigorously rub hands together cleaning hands, finger tips, between the fingers, under the finger nails and exposed arms.
  - Rinse with warm running water.
  - Dry you hands completely with paper towels.
  - Use the paper towels to turn the water faucets off.
In dealing with public vomiting incidents—assume Norovirus.
What is Norovirus?

Norovirus is a microorganism (virus) that can easily cause human illness.

Former names: Norwalk and Norwalk-Like Viruses (NLV’s)

Most recognized with cruise ship outbreaks.
Outbreak Locations, 2006

Norovirus Outbreak Locations, 2006

- Restaurant: 82
- Healthcare: 12
- Schools/Camps: 21
- Other: 29

Calendar Year 2004 2005 2006
# of Outbreaks 48 34 144
Ill individuals 1535 1469 5151

Symptoms
(onset 10-50 hours)

- Diarrhea/abdominal cramps
- Vomiting/nausea
- Chills
- Low Grade Fever
- Body aches
- Headache
Characteristics

- Vomiting can aerosolize the virus, which can spread up to 25 feet from the visible vomit material.
- Lots of virus in visible vomit: 30 million viral particles per 2 tablespoons of vomit.
- Low infective dose: 10-100 viral particles can cause infection.

Norovirus is Hardy

- Survives in the environment for 3 weeks at room temperature.
- Resistant to common cleaners: Sanitizers and alcohol are not effective. Chlorine bleach has been shown to be an effective disinfectant against norovirus.
Transmission

Norovirus is spread:
• Person to person
• Person to environment
• Environment to person
• Environment to person to environment

Spread Person to Person

• Experiment: A person with contaminated hands shakes hands with someone, who in turn then shakes hands with someone else and so forth down the line ...
• Successive transmission of norovirus from one person to the next could be followed up to the 6th contact person.
• Control Measure: Good Handwashing
**Spread from Person to Environment**

- **Experiment:** Contaminated hands touching one surface after another.
- **Result:** Contaminated hands can transfer norovirus up to 7 clean surfaces touched sequentially.
- **Control Measure:** Good Handwashing

**Spread from Environment to Hands**

- **Experiment:** Contaminate a door handle.
- **Result:** At least 14 persons hands can be contaminated, one after the other by touching the same contaminated door handle.
- **Control Measure:** Environmental Cleaning with proper Disinfectants.
Spread: Environment to Person to Environment

- **Experiment**: Wipe down a “norovirus contaminated” surface with a detergent soaked cloth that does not kill norovirus and then wipe down a second surface.
- **Result**: The wiping cloth and person’s hand are now contaminated with norovirus recovered from the first surface and can thus now contaminate other surfaces.
- **Control Measure**: Environmental Cleaning with proper Disinfectants.

Biohazard Response Plan

- A written plan as to how to deal with infectious materials (vomit, feces, blood) that come in direct contact with either surfaces and/or persons subject to human contact.
Biohazard Response Plan

• **Develop a BRP** that addresses:
  a) the incident site and building space
  b) the occupants
  c) the responders (custodians)
  d) the infectious material (vomit, feces, blood).

Biohazard Response Plan

• **Review your BRP** with responders (custodial staff) on a scheduled routine basis (e.g. Fall, Spring) so they can react instead of questioning what to do.
Biohazard Response Plan

• Follow your BRP when responding to an incident; don’t take shortcuts or circumvent the outlined plan that could lead to someone including yourself getting ill.

Biohazard Clean-up Kit

• disposable coveralls, shoe covers
• rubber gloves, vinyl disposable gloves
• safety goggles, glasses, or face shield
• absorbent, disposable towels, heavy-duty or biohazard-labeled plastic disposable bags
• buckets, mop heads
• liquid disinfectant
Control Measures
(Putting the Plan to work)

• Good Handwashing practices and proper technique.

• Environmental Cleaning with proper disinfectants at the proper concentration.

Handwashing

Handwashing is one of the “most important means of preventing the spread of infection.”

The National Centers for Disease Control and Prevention (CDC)
Handwashing

Always Wash Your Hands:
• Before/after eating, drinking, smoking, sneezing or coughing into hands.
• After visiting the restroom.
• After cleaning or touching anything unsanitary or possibly contaminated (e.g. restrooms, mop bucket, clinic/lab rooms, etc.).

Handwashing

Proper Handwashing Technique:
1. Wet hands with warm water
2. Wash with soap (scrub hands and exposed wrists for 20 seconds)
3. Rinse off soap with clean-flowing water
4. Wipe hands dry with a paper towel (turn off sink faucet handle with a paper towel)
Proper Handwashing Technique

Rinse hands
Apply soap
Lather and scrub
Clean fingernails
Rinse and dry
Use towel to turn off faucets

Environmental Cleaning

Because of the survival of norovirus particles in the environment, proper disinfection methods must be implemented when responding to a biohazard (feces, vomit, or blood) incident.
Disinfection

Chlorine bleach as a “field-tested” disinfectant has shown to be very effective against norovirus particles, when used at the proper concentration & contact time.

Some non-chlorine chemical products are now EPA registered as antimicrobial products against norovirus, but have yet to show their true effectiveness in outbreak situations.

Disinfection Table
(For use with Chlorine bleach)

<table>
<thead>
<tr>
<th>Surface Type</th>
<th>Concentration</th>
<th>Contact Time</th>
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</thead>
<tbody>
<tr>
<td>food contact surfaces, stainless steel</td>
<td>200 ppm (1 Tbsp. of bleach/gallon of water)</td>
<td>wash, rinse, &amp; disinfect (twice)*</td>
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<tr>
<td></td>
<td></td>
<td>*Recommendation of the Barry-Eaton District Health Department</td>
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<tr>
<td>non-porous surfaces, tile floors, sinks, countertops</td>
<td>1000 ppm (1/3 cup bleach/gallon of water)</td>
<td>10-20 minutes (rinse with clean water)</td>
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<tr>
<td>porous surfaces, wood floors</td>
<td>5000 ppm (1-2/3 cups bleach/gallon of water)</td>
<td>10-20 minutes (rinse with clean water)</td>
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</tbody>
</table>

Source: Michigan Dept. of Community Health (MDCH)
Response to a Public Vomiting Incident

- Personal Protective Equipment: Tyvek coveralls, boot covers, gloves, mask, eye protection
- Cordon off area in 25 foot radius
- Cover vomit with absorbent material/towels
- Remove absorbent/towels and any residual vomit material with a dustpan and spatula
- Apply disinfectant effective against norovirus

Response to a Public Vomiting Incident

- Use wet, versus dry cleaning methods.
- Use single-use cleaning equipment and supplies.
- Clean and disinfect any equipment that is not discarded.
- In food areas, discard all exposed/unwrapped food/foodware within a 25 ft. radius.
Response to a Public Vomiting Incident

- Dispose of all materials including mophead, dustpan, spatula, and PPE in biohazard bag
- Steam clean carpet, upholstery (158° F. for 5 five minutes or 212° F. for 1 minute).
- Clean and disinfect equipment that is not going to be discarded (e.g. mop handles, buckets, etc.).

Cleaning High Touch Areas

- Increase frequency of cleaning high touch areas during norovirus season and when there is known “stomach-flu” illness in area.
Highly Touched Surfaces - Common Areas

- Highly touched common areas that would require frequent cleaning: door handles, stair rails, tables, counters, bathroom faucets, towel holders and knobs, toilet handles, bathroom stall locks, chair arms, elevator buttons, public phones, light switches, etc...

Be Prepared

- Biohazard Response Plan (develop-review-follow)
- Biohazard Clean-up kit (know where it is located)
- Supply of Disinfectant (have on hand fresh “unopened” containers of Chlorine bleach)
What to pack in a Disaster Box?

- Gloves
- Mask
- Disposable aprons
- Measuring cups
- Measuring spoons
- Cleaning and disinfecting instructions
- Dilution and contact time instructions
- Rope
- Wet floor signs
- Bags
- Disinfectant
- Absorbent material/rags/cloths
- Tape/stickers(marker)
- Bucket/spray bottle
- Material Safety Data Sheets (MSDS) for chemicals
Quiz

1) What is the first step to take if there is an incident?
   a) Panic
   b) Wash you hands.
   c) Put on Personal Protective Equipment
   d) Isolate the area

2) After cleaning up debris it is acceptable to shake out the cloth/rag to remove it. True or False

3) What is the proper hand washing procedure?
   a) Dispense towels, rinse, apply soap, lather for 20 seconds, rinse, dry.
   b) Rinse, apply soap, lather for 20 seconds, rinse, dispense towels, dry.
   c) Dispense towels, apply soap, lather for 15 seconds, rinse, dry.
   d) Rinse, apply soap, lather for 15 seconds, rinse, dispense towels, dry.

4) Mixing chemicals increases the disinfecting power. True or False

5) Contaminated linens should be:
   a) Disposed of.
   b) Set in the sun.
   c) Shaken out.
   d) Kept separate.
   e) A & C
   f) A & D
   g) C & D

6) Personal Protective Equipment (PPE) is important because:
   a) PPE protects the area from contamination.
   b) PPE protects you from contamination.
   c) PPE looks cool.
   d) PPE cleans the area properly.

Name: ________________________________
Date: ________________________________
Manager: _____________________________
Quiz Answer Sheet

1) What is the first step you take if there is an incident?

2) After cleaning up debris it is acceptable to shake out the cloth/rag to remove it.
   Answer: False

3) What is the proper hand washing procedure?
   Answer: b. Rinse, apply soap, lather for 20 seconds, rinse, dry.

4) Mixing chemicals increases the disinfecting power.
   Answer: False

5) Contaminated linens should be:
   Answer: f. Disposed of and kept separate.

6) Personal Protective Equipment (PPE) is important because:
   Answer: b. PPE protects you from contamination.