



FACT SHEET

Infection Control Recommendations for Prevention of Transmission of Diarrheal Diseases in Evacuation Centers

People crowded together in places such as in evacuation centers are vulnerable to outbreaks of vomiting and diarrhea. These illnesses can be caused by many different germs including bacteria, parasites and, more commonly, viruses. One of the most common viruses that cause this illness are noroviruses (Norwalk-like viruses). Diagnosis of illness through collection and testing of specimens should always be undertaken to confirm the cause of an outbreak.

Facts about Spread of Diarrheal Diseases

People can become infected with germs that cause diarrhea by:

- Eating food or drinking liquids contaminated with diarrhea-causing germs,
- Touching surfaces or objects contaminated with the diarrhea-causing germs and then touching their own mouth, nose, or eyes.
- Sharing personal items such as towels and toothbrushes.
- Having contact with an infected person, for example, by:
 - Being present while someone is vomiting
 - Sharing food or eating from the same utensils
 - Caring for a sick person
 - Shaking hands with a person who did not wash hands after using the bathroom or changing a diaper
- Not washing hands after changing diapers or before eating or preparing food.

Infection Control Measures to Prevent the Spread of Diarrheal Diseases

General measures for all staff and evacuation center residents

- Wash hands regularly with soap and water.
 - Alcohol hand gels are an adequate substitute when soap and clean water are not readily available.
- Maintain a clean living environment.
- Maintain good personal hygiene including the following:
 - Follow good hygienic practices during food preparation.
 - Do not share eating utensils or drinking containers.
 - Do not share personal toilet articles such as toothbrushes or towels with anyone else.
- Facilities should be adequate to allow residents to bathe at least twice weekly.
- Laundry facilities should be available to allow appropriate laundering of clothes and bed linens.

Measures for sick persons

If persons in the evacuation center are sick with diarrheal diseases, evacuation center staff should:

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- Provide residents with information about gastroenteritis. Ask sick persons about the type and frequency of symptoms (including whether they have fever or bloody diarrhea) to determine if medical care is necessary.
- Separate sick persons from other residents until 24 hours after diarrhea and vomiting stop. Sick children should be accompanied by only one responsible adult. The same adult should stay with the child until 24 hours after symptoms stop. If possible, put them in a separate room or, alternatively, place sick people in a separate section of the evacuation center away from evacuation center residents who are not sick. Designated areas should have full time staff supervision to ensure that the area is properly cleaned and appropriately supplied.
- Designate toilets for use only by persons who are sick.
- Serve food to ill persons away from persons who are not sick, if possible.
- Provide residents with plastic bags (e.g., small bathroom trash can liners) to contain vomit and to dispose of diapers.
- Provide residents with supplies to clean up spills, especially vomit and stool.

Maintaining a clean living environment and disinfection of surfaces

1) Wiping up areas soiled with vomit or stool

It is important to remove vomit and stool quickly because they may contain a large number of disease-causing germs and be highly contagious. The vomit or stool must be cleaned up before disinfecting, or the disinfectant will not work.

- Wear disposable gloves during cleaning. If you expect that liquid may splash, wear a disposable mask and cover gown or apron, if available.
- Do not use a vacuum cleaner to clean up vomit or stool. Wipe up the material with paper towels and dispose of used towels in a plastic garbage bag. Rinse areas with water.
- For carpeted areas, use absorbent materials such as kitty litter to absorb liquid, and dispose as above.
- Disinfect areas as instructed below.

2) Disinfecting surfaces (both routine and after cleaning a soiled area)

Hard surfaces

Some germs can persist on hard surfaces and be a source of infection. Hard surfaces that are frequently touched, such as door knobs and hand rails, should be disinfected at least 3-4 times a day, if possible.

- Wear gloves.*
- Use diluted household bleach (1000 ppm sodium hypochlorite or 5 tablespoons of 6% household bleach to 1 gallon of water).**
- Wet surfaces with the diluted bleach allow the area to remain wet for 10 minutes, if possible.
- Allow to air dry.
- Remove gloves and discard in plastic bag.
- Wash hands with soap and water or use alcohol hand gel immediately after removing gloves.

Public restrooms

- Clean restrooms frequently; restrooms used by sick people should be cleaned hourly, if possible.

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- Clean all fixtures of visible soil as necessary.
- Wipe surfaces with a disinfectant such as diluted household bleach (1000 ppm sodium hypochlorite or 5 tablespoons of 6% household bleach to 1 gallon of water) *
- Pay particular attention to doorknobs, toilet seats, taps, etc.
- Allow surfaces to remain wet for 10 minutes, if possible.
- Allow to air dry.
- Remove gloves and discard in plastic bag.
- Wash hands with soap and water or use alcohol hand gel immediately after removing gloves.

* When diluting the disinfectants, wear eye protection to prevent splashes into the eyes.

** Chlorine solution is the disinfectant of choice. Household bleach without thickeners, scents, or additives should be used. Chlorine solutions can be made weekly, if in a bottle that no light passes through; otherwise, they should be made daily. Bottles should be labeled with the date and concentration of the solutions.

There are now products (e.g., Virkon S, NP9.0 Detergent Disinfectant, etc.) registered with the EPA that have label claims for either norovirus or its surrogate feline calicivirus; these products should be used per labeled instructions. Some commercially available disinfectants (e.g., VirkonS, Miikro-Bak III, EcoTru, and Virox) have been used successfully in the past following outbreaks on cruise ships. See <http://www.cdc.gov/nceh/vsp/default.htm> for more information on the Vessel Sanitation Program. (The use of trade names and commercial sources is for information purposes only and does not constitute endorsement by CDC, the U.S. Public Health Service or the Department of Health and Human Services).

Other measures to keep restrooms clean and prevent the spread of disease

- Keep restrooms supplied with paper towels and hand soap.
- Post signs to remind people to wash hands after restroom use.
- If feasible, provide hands free exit from the toilet room, for example:
 - By propping the doors open
 - Or, by providing paper towels (with appropriately placed waste bin) for use to open door.

Handling of soiled clothing and linen

- Garments heavily soiled with stool should be handled carefully by wearing gloves, and placing garments in a plastic bag for disposal. If stool can easily be removed using toilet paper, the garment may be laundered as described below. Lightly soiled clothing (stained by no solids attached) may be washed as described below.
- Wash clothing in a washing machine, preferably with hot water (temperature $\geq 165^{\circ}\text{F}$).
- Use household detergents for washing clothing.
- Household bleach can be used in the rinse water.
- Dry clothes in a hot dryer (temperature $\geq 171^{\circ}\text{F}$).
- There is no need to disinfect the tubs of washers or tumblers of dryers if cycles are run until they are completed.
- Hands should be washed with soap and water or cleaned with alcohol hand gel after handling soiled linens.

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Handling of household and medical waste

- Contact local authorities to determine local requirements for disposal of household and medical waste (items soiled with vomit and stool, or other body fluids).
- Use trash receptacles lined with plastic bags accepted by local trash pick up that can be securely tied.
- Do not overfill bags.
- Place trash in an area separated from the living spaces, preferably in trash bins.
- Separate medical waste from household waste for pick-up; follow local guidelines for pick-up of medical waste.
- Have waste pick-ups scheduled frequently, daily if possible.
- Hands should be washed with soap and water or cleaned with alcohol hand gel after handling household or medical waste.

Measures for food service operations

Ensure that proper food safety and sanitation procedures are followed (see link to guidelines for storing, cooking and preparing food safely at the end of this document). Measures for prevention of cross-contamination during serving, hand hygiene, and cleaning of dining room surfaces are:

Serving food

- Provide hand washing facilities or alcohol hand gel at the beginning of food service lines.
- If possible, ensure that food is served to residents. Do not allow self-service buffets.
- Ensure that the plate is not handled by the resident until the end of the line; do not pass plates back and forth between the resident and the server.
- Ensure that plates are not reused for second servings.
- Have staff handle trays and utensils; do not allow self-service of trays, utensils, plates, and cups.
- Serve food in individual portions rather than shared "family-style".
- Wear disposable gloves when serving food.

Hand hygiene

- Provide alcohol hand gels for residents at the start of the serving line, if feasible.
- Provide hand washing facilities for food handlers.
- Food handlers should wash hands with soap and water before beginning work, and before returning to work from any toilet visit or break.
- Food handlers should change their gloves anytime they touch soiled or non-food service surfaces or items, e.g., the floor, their nose or mouth, dirty dishes, etc, and also after using the bathroom.

Cleaning of dining room surfaces such as tables and chairs

- Clean surfaces frequently throughout the day, including at the beginning and end of meal service times.
- Clean visible soil from surfaces first,
- Wipe down cleaned surfaces with diluted household bleach solution (1000 ppm i.e., 5 tablespoons of 6% household bleach to 1 gallon of water) and allow to air dry.
- Persons cleaning should wear disposable gloves.
- Wash hands with soap and water or use alcohol hand gel immediately after removing gloves.

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Monitoring Foodhandlers for illness

- Carefully monitor for worker health by providing a sign-in log for workers, staff, and volunteers attesting to health status and fitness to work in the food operation.
- Any worker with diarrheal illness should go home and not return until at least 24 hours after diarrhea and vomiting stop.

For additional food preparation guidelines see: [Cooking for Groups: A Volunteer's Guide to Food Safety](http://www.fsis.usda.gov/OA/pubs/cfg/cfg.htm#contents%20) (<http://www.fsis.usda.gov/OA/pubs/cfg/cfg.htm#contents%20>)

For additional information on provision of safe food and water go to: <http://www.bt.cdc.gov/disasters/foodwater.asp>

For full details on norovirus go to: <http://www.cdc.gov/ncidod/dvrd/revb/gastro/norovirus.htm>

For specific details on other gastrointestinal pathogens go to: http://www.cdc.gov/ncidod/dbmd/diseaseinfo/foodborneinfections_g.htm

For additional information on infection control in evacuation centers go to: <http://www.bt.cdc.gov/disasters/commshelters.asp>

For more information on the Vessel Sanitation Program, go to <http://www.cdc.gov/nceh/vsp/default.htm>.

For more information, visit www.bt.cdc.gov/disasters,
or call CDC at 800-CDC-INFO (English and Spanish) or 888-232-6348 (TTY).

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