

## **Norovirus on the River: Protect your Guests, Coworkers, and Yourself**

**BACKGROUND:** Norovirus is a very contagious virus that infects over 20 million people in the US every year. You can get norovirus from an infected person, contaminated food or water, or by touching contaminated surfaces. Norovirus causes sudden-onset vomiting and diarrhea that lasts about 24–48 hours. On rafts and in camps, norovirus can spread quickly. The best way to prevent norovirus is to practice proper hand washing and general cleanliness.

Each season, there are multiple river trips that are affected by norovirus. Large outbreaks of norovirus can be prevented if you do the following:

**BEFORE AN OUTBREAK:** Trip participants may bring norovirus from home or from their travels. Many people who carry norovirus do not have symptoms. You may not be able to prevent the first case of norovirus on your trip, but you can prevent its spread by practicing good health habits from day one. It is highly encouraged to conduct pre-screening prior to the trip and encouraging the sick to reschedule.

**Handwashing.** Explain and enforce good handwashing habits in your group. Use test strips to ensure that you have the right amount of chlorine in your hand-wash water. Offer hand sanitizer post-wash but understand alcohol-based hand sanitizer alone is not effective at killing norovirus.

**Food service.** Offer hand sanitizer on the boat before serving snacks. If you are sharing something from a common bag or box (e.g., trail mix), have guests pour the contents into their hands, rather than reaching into the bag/box. At meals, encourage everyone to wash their hands before eating.

**Drinking water.** Make sure guests don't touch the nozzle of water dispensers. Wipe the nozzle with bleach solution twice a day. If you are filtering water from the river, remember that norovirus is tiny and can pass through filters. Treat drinking water (2–5 drops of bleach per gallon of water) and set aside for at least 30 minutes before using.

**Setting up camp.** When you enter a camp, observe whether it appears to have been occupied by ill people recently. Cat-holes, vomit, etc., may indicate a sick trip before you. Be careful about where you set up your tents, toilets, chairs, and kitchen. Avoid setting up sleeping camps in questionable areas. Assume that norovirus contamination may be present at all beaches and take appropriate precautions.

### **Toilets.**

- Bring an extra toilet. If there is an outbreak, sick people from well people can be separated.
- When cleaning, wear eye protection (e.g., sunglasses) and two pairs of disposable gloves. Before putting on gloves, squirt a small dollop of hand soap on the back of one of your hands for hand washing afterwards. Don't use toilet brushes. They carry contamination.
- Keep bleach solution in the toilet kit to disinfect the toilet seat, toilet box, and handles. Don't use the same bottle for your dish-wash/potable water – have a separate bleach bottle for toilets.
- After you properly store the toilet seat in a separate plastic bag in the toilet kit and place the toilet lid back on the toilet, remove and discard the outer pair of disposable gloves.
- Wipe down the hand soap, toilet "key", toilet paper container, etc. with the bleach solution, using a disposable paper towel.
- Lastly, take off your gloves, and use the dollop of soap on the back of your hand to wash hands thoroughly at the hand wash station followed by a hand sanitizer.

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### **IN THE EVENT OF ILLNESS**

**Supplies.** If someone is sick, make a bleach solution of 1,000 to 5,000 ppm (5 to 25 tablespoons of household bleach [5% to 8%]) per gallon of water each day. Do not use this for food surfaces or handwashing. It is for cleaning contaminated non-food surfaces only.

**“Spill” clean-up.** Do not place vomit or feces in the river. Don’t leave vomit or feces on a beach, and don’t bury it. Put it in a toilet or trash container. If you use a trash container, use extra trash bags to close and seal the vomit away. Use a bleach solution to spray down toilets and contaminated surfaces. Avoid sick and well people using the same toilet (consider bringing an extra toilet on the trip in case there are illnesses).

**Isolate ill individuals and gear.** Have ill folks sit on the same boat or same area of a rig. Wash the boat and other potentially contaminated equipment frequently with the bleach solution. If clothing is soiled with vomit or feces, store it in a dry, labeled bag. Paco pads, tents, etc. must stay with the people who were sick for the rest of the trip. Have sick people stay in the same area of camp, if possible.

**Toilets.** Consider taking extra disposable toilet bags (“wag bags”) to provide for ill passengers to use in camp or in case of sudden emergency. If you have day-tripper ammo cans, consider creating an additional one (or two) for sick passengers.

- Set up a “sick” toilet and hand-washing area for those who are ill or recovering
- If feces or vomit are on the toilet seat or on the outside of the toilet box, clean with a bleach wipe, discard it in the toilet, and then rinse the surface with the bleach solution. Wipe with a disposable paper towel and dispose in toilet.
- Never wash off fecal material in the river or side tributaries. Get it into a toilet.

**Food preparation.** If you have an ill person, enhance food prep safety. Wash your hands more frequently followed by a hand sanitizer. Wear non-latex disposable gloves when handling ready-to-eat foods. Do not allow any guests (even ones who aren’t sick) to help in the kitchen. Have guides who does not have symptoms serve all food so only one person touches serving utensils. Make simple meals (e.g., sandwiches) for the sick people and serve them so they don’t have to touch anything. Wipe down the outsides of condiment containers with a weak bleach solution (200 ppm of bleach per gallon of water). REMEMBER – alcohol-based hand sanitizer alone is insufficient to kill norovirus.

**Reporting:** Report trips with one or two ill passengers at the end of your trip. Report a trip with three or more ill passengers to Dispatch via sat phone ASAP. Be sure to complete the Confidential Illness Report Forms for all ill guests and guides.

**After the trip:** Hold the toilets used by sick individuals for testing at the end of the trip. Sanitize all equipment using the bleach solution or steam/hot water (same water used to prevent quagga mussels, >140 degrees). Launder sleeping bags and other soft goods in hot water and hot dry. Don’t forget to clean all items that have hard surfaces, such as the ammo can that holds your library.