



**Infectious Disease Epidemiology Section**  
**Office of Public Health, Louisiana Dept of Health & Hospitals**  
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**[www.infectiousdisease.louisiana.dhh.gov](http://www.infectiousdisease.louisiana.dhh.gov)**

## Flood Waters

**Fears that filthy water from floods could trigger a health crisis are largely unfounded in industrialized nations.**

Flood water may contain dangerous bacteria from mixing with raw human sewage (particularly in urban areas), but this is unlikely to trigger disease outbreaks. There is no risk from serious infections such as typhoid and cholera in flood water in this state because these diseases are not present in the general population in Louisiana. Although harmful micro-organisms in flood water are very diluted and present a low risk, there are precautions to be aware of.

People are advised to avoid direct contact with the flood water as a precautionary measure. Children should not be allowed to play in floodwaters. The main risk of disease comes from drinking floodwater.

**If you have swallowed some floodwater:** You probably will not be sick at all. There is no need to seek immediate treatment. However, if you were to have diarrhea or any other gastro-intestinal illness, seek medical care.

**If you have been in contact with flood water:** Wading or having hands in the flood water carry a minimal risk of infection. After exposure to flood waters, wash with soap and water after getting out of the area. If contact was extensive, a shower is recommended. Simple soap is sufficient; there is no need for an antibacterial soap.

Any open wound exposed to flood water needs to be disinfected and treated appropriately.

### **Immunizations after exposure to flood water**

No special immunizations are necessary. Experience and studies from previous serious national floods demonstrate that increased risk or incidence of tetanus, typhoid fever or hepatitis A has not occurred. Recommendations for these immunizations are the same as during non-flood conditions.

Tetanus - A booster for tetanus should be given to anyone sustaining an injury (particularly lacerations and puncture wounds) that has not received a vaccination within the last 10 years, 5 years for particularly major or unclean wounds.

### **After the flood:**

After a major flood, it is often difficult to maintain good hygiene during cleanup operations. To avoid waterborne disease, it is important to wash your hands with soap and clean, running water, especially before work breaks, meal breaks and at the end of the work shift. Workers should assume that any water in flooded or surrounding areas is not safe unless the local or state authorities have specifically declared it to be safe. If no safe water supply is available for washing, use bottled water, water that has been boiled for at least 10 minutes or chemically disinfected water. (To disinfect water, use 5 drops of liquid household bleach to each gallon of water and let sit for at least 30 minutes for disinfection to be completed.). Water storage containers should be rinsed periodically with a household bleach solution.

- Do not use contaminated water to wash and prepare food, brush your teeth, wash dishes, or make ice.
- Keep an adequate supply of safe water available for washing and potable water for drinking.
- Be alert for chemically contaminated floodwater at industrial sites.
- Use extreme caution with potential chemical and electric hazards, which have great potential for fires and explosions. Floods have the strength to move and/or bury hazardous waste and chemical containers far from their normal storage places, creating a risk for those who come into contact with them. Any chemical hazards, such as a propane tank, should be handled by the fire department or police.
- If the safety of a food or beverage is questionable, throw it out.
- Seek immediate medical care for all animal bites.

Contaminated drinking water. Unhealthy bacteria may be present in residents' water if the public water supply has lost power (a boil water notice will be issued through the media), or if a private well has been flooded. Water in the home may be unsafe for drinking, cooking, making ice, brushing teeth and washing.

Residents under a boil water notice should bring water to a rolling boil for one minute. The "flat" taste of boiled water can be improved by pouring it back and forth from one clean container to another, allowing it to stand for a few hours or adding a pinch of salt for each quart of water boiled. Boiling water can increase nitrate levels seen after flooding; young infants and pregnant women should not drink boiled water. Bottled water should be used by pregnant women and be used for preparing infant formula.

If you cannot boil water, add six to eight drops of newly purchased 5% unscented liquid household bleach per gallon of water (1 teaspoon to 10 gallons). Stir well and let the water stand for 30 minutes before using it. Remember that bleach will not kill parasitic organisms. You can also use water-purifying tablets from your local pharmacy or sporting goods store.

Residents with a well that has been flooded should follow the same tips above until water tests show no bacteria in the water. Water should not be consumed until bacteriological testing indicates the well is not contaminated. Two samples taken on consecutive days are recommended.

Disinfect your well by adding household bleach mixed with water to the well. The recommended amount of bleach varies depending on the amount of water in the well; however, a half-gallon of unscented bleach should be adequate for most home wells. To be certain that your water lines have been disinfected, turn on the faucets until a chlorine smell is detected. Turn off the faucets and allow the bleach to sit in the well for at least four hours (overnight is preferable). The water should then be turned on until the chlorine smell dissipates.

Water must be tested after this is done to ensure that the chlorine has destroyed bacteria. High levels of contamination may not be controlled by a single chlorine treatment.

If on public water supply, you do not need to have your water tested. The water authority will conduct proper testing once the floodwaters receded and power is restored.

Other considerations to ensure safety:

- Utensils can be made safe by dipping them in a solution of one teaspoon of bleach per gallon of water after washing with soap.
- Automatic dishwashers can be used if you use the heat cycle and dishwashing detergent.
- Use of disposable plates, cups and utensils can reduce the need for washing
- Icemakers should be turned off
- Normal laundry activities are safe
- Bathing is generally safe except for persons with compromised immune systems

Sewage Backup In The Home. Flooding may cause wastewater to back up into homes that receive service from either public sewer systems or private septic systems. Once the water recedes, a high water table may still prevent private septic systems from functioning for some time. Wear personal protective equipment; rubber boots and waterproof gloves should be worn. Remove and discard contaminated household goods such as wall coverings, rugs, cloth and drywall that cannot be disinfected.

Foods that have come in contact with flood waters including canned goods, should be discarded. Refrigerated food is generally safe if the power has not been off more than 2 hours. Most freezers will keep food safe without power for 36 to 48 hours if left closed. If there is a power outage, perishable, refrigerated foods including meats, dairy products and eggs that have been **without refrigeration for more than 2 hours must be discarded**. If power comes back on after food in freezer begins to thaw, use a thermometer to check the temperature in your freezer. Food stored in the freezer at 40° F or colder is safe and may be refrozen. If a thermometer was not in the freezer, check each package of food to determine the safety. **When in Doubt, throw it out.** Do not rely on appearance or odor. Any food item discarded should be disposed of in well-tied double-bagged plastic garbage bags.

Mosquitoes. Flooding can result in excessive breeding of mosquitoes, resulting in the possibility of disease being carried by the insects. Swarms of mosquitoes may be seen in the affected regions several weeks after the storm. Mosquito's eggs can lie dormant for years without water and these eggs will now hatch. Residents should remove excess water from birdbaths, flowerpots, tires, buckets and other containers to minimize the breeding of mosquitoes.

Other Insects. Bees, wasps and hornets may have had their nests disturbed by excessive wind and rain. These insects can become very aggressive. Before beginning clean up, survey the site to see if bees, wasps, or hornets are hovering in the area. If they are, use a commercially available pesticide to get rid of them before entering the area.

Snakes. Snakes will also have their nest disturbed during flooding. Also, with less land for them to seek shelter, they are prone to enter abandoned homes, vehicles, furniture and equipment.

Wild Animals. Wild animals displaced from their natural habitats may seek shelter in places where they may be exposed to people. These animals may be infected with rabies. Avoid contact with wild animals such as raccoons, possums, squirrels, etc.. Medical care should be sought after animal bites. Advice may be obtained from the Office of Public Health 24 hour phone number (800) 256-2748.

Dead Animals. Dead animals may be found around your home after a flood. The presence of these animals may result in excessive odor and increased in the number of flies. Do not handle the carcasses with bare hands. Small dead animals may be placed in dumpsters or buried three feet in the ground. If large livestock are found, notify your local government.