



FACT SHEET

Key Facts About Hurricane Recovery

How to Store Food Safely

Your refrigerator will keep foods cool for about 4 hours without power if it is unopened. Add block or dry ice to your refrigerator if the electricity will be off longer than four hours.

Thawed food can usually be eaten if it is still "refrigerator cold," or re-frozen if it still contains ice crystals. Discard any food that has been at temperatures greater than 40 degrees Fahrenheit for 2 hours or more, and any food that has an unusual odor, color, or texture.

While the power is out, keep the refrigerator and freezer doors closed as much as possible to keep food cold for as long as possible.

If the power is out for longer than 4 hours, follow the guidelines below:

- Use dry ice, if available. 25 pounds of dry ice will keep a ten-cubic-foot freezer below freezing for 3-4 days. Use care when handling dry ice, and wear dry, heavy gloves to avoid injury.
- For the freezer section: A freezer that is half full will hold food safely for up to 24 hours. A full freezer will hold food safely for 48 hours. Do not open the freezer door if you can avoid it.
- For the refrigerated section: Pack milk, other dairy products, meat, fish, eggs, gravy, and spoilable leftovers into a cooler surrounded by ice. Discard this food if it is held at a temperature greater than 40 degrees Fahrenheit for more than 2 hours.
- Use a digital quick-response thermometer to check the temperature of your food right before you cook or eat it. Throw away any food that has a temperature of more than 40 degrees Fahrenheit.

For guidelines on refreezing food when the power comes back on, visit the Food Safety and Inspection Service's page on "[Keeping Food Safe During an Emergency](http://www.fsis.usda.gov/OA/pubs/pofeature.htm) (<http://www.fsis.usda.gov/OA/pubs/pofeature.htm>)."

For additional information on food safety concerns following hurricanes or floods, visit the FDA website (<http://www.cfsan.fda.gov/~dms/fsdisas.html>).

How to Make Sure Your Water Is Safe

Hurricanes, especially if accompanied by a tidal surge or flooding, can contaminate the public water supply. Drinking contaminated water may cause illness. You cannot assume that the water in the hurricane-affected area is safe to drink.

Listen for public announcements about the safety of the municipal water supply. Safe water for drinking, cooking, and personal hygiene includes bottled, boiled, or treated water. Your state or local health department can make specific recommendations for boiling or treating water in your area. Here are some general rules concerning water for drinking, cooking, and personal hygiene. Remember:

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- Do not use contaminated water to wash dishes, brush your teeth, wash and prepare food, wash your hands, make ice, or make baby formula. If possible, use baby formula that does not need to have water added. You can use an alcohol-based hand sanitizer to wash your hands.
- If you use bottled water, be sure it came from a safe source. If you do not know that the water came from a safe source, you should boil or treat it before you use it. Use only bottled, boiled, or treated water until your supply is tested and found safe.
- Boiling water, when practical, is the preferred way to kill harmful bacteria and parasites. Bringing water to a rolling boil for 1 minute will kill most organisms.
- When boiling water is not practical, you can treat water with chlorine tablets, iodine tablets, or unscented household chlorine bleach (5.25% sodium hypochlorite):
 - If you use chlorine tablets or iodine tablets, follow the directions that come with the tablets.
 - If you use household chlorine bleach, add 1/8 teaspoon (~0.75 mL) of bleach per gallon of water if the water is clear. For cloudy water, add 1/4 teaspoon (~1.50 mL) of bleach per gallon. Mix the solution thoroughly and let it stand for about 30 minutes before using it.

Note: Treating water with chlorine tablets, iodine tablets, or liquid bleach will not kill parasitic organisms.

Use a bleach solution to rinse water containers before reusing them. Use water storage tanks and other types of containers with caution. For example, fire truck storage tanks and previously used cans or bottles may be contaminated with microbes or chemicals. Do not rely on untested devices for decontaminating water.

If there is flooding along with a hurricane, the waters may contain fecal material from overflowing sewage systems and agricultural and industrial waste. Although skin contact with floodwater does not, by itself, pose a serious health risk, there is risk of disease from eating or drinking anything contaminated with floodwater.

Do not allow children to play in floodwater areas. Wash children's hands frequently (always before meals), and do not allow children to play with floodwater-contaminated toys that have not been disinfected. You can disinfect toys using a solution of one cup of bleach in five gallons of water.

For more information about water purification after a hurricane or other weather emergency, please visit CDC's Web page on [Hurricanes and Your Health and Safety](#).

How to Perform First Aid for Injuries

First aid is extremely important when exposure to waters potentially contaminated with human, animal, or toxic wastes.

- Immediately clean out all open wounds and cuts with soap and clean water.
- Apply an antibiotic ointment to discourage infection.
- If a wound develops redness, swelling, or drainage, seek immediate medical attention.
- If you are injured, contact a physician to determine the necessary type of treatment (for example, need for tetanus shot).

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How to Clean Mold from Your House

Excess moisture in the home is cause for concern because it enables microorganisms such as mold to grow. Since mold can cause allergic reactions or worsen certain illnesses such as asthma, steps should be taken to prevent and remove mold growth.

EPA's [Fact Sheet: Flood Cleanup: Avoiding Indoor Air Quality Problems](http://www.epa.gov/iaq/pubs/flood.html) (<http://www.epa.gov/iaq/pubs/flood.html>) - discusses steps to take when cleaning and repairing a home after flooding. This fact sheet provides tips to avoid creating indoor air quality problems during cleanup. For more information on mold and health visit the CDC/National Center for Environmental Health (NCEH) page on [Molds in the Environment](http://www.cdc.gov/nceh/airpollution/mold/moldfacts.htm) (<http://www.cdc.gov/nceh/airpollution/mold/moldfacts.htm>).

How to Prevent Injury after a Hurricane

When the wind and waters recede, people in the areas affected by a hurricane will continue to face a number of hazards associated with cleanup activities. The [National Institute for Occupational Safety and Health \(NIOSH\)](http://www.cdc.gov/niosh/homepage.html) (<http://www.cdc.gov/niosh/homepage.html>) offers the following guidelines for preventing injury:

Wear Protective Gear

For most work in flooded areas, wear hard hats, goggles, heavy work gloves, and watertight boots with steel toe and insole (not just steel shank).

Wear earplugs or protective headphones to reduce risk from equipment noise. Equipment such as chain saws, backhoes, and dryers may cause ringing in the ears and subsequent hearing damage.

Beware of Electrical Hazards

- If water has been present anywhere near electrical circuits and electrical equipment, turn off the power at the main breaker or fuse on the service panel. Do not turn the power back on until electrical equipment has been inspected by a qualified electrician.
- Never enter flooded areas or touch electrical equipment if the ground is wet, unless you are certain that the power is off. NEVER handle a downed power line.
- When using gasoline and diesel generators to supply power to a building, switch the main breaker or fuse on the service panel to the "off" position prior to starting the generator.
- If clearing or other work must be performed near a downed power line, contact the utility company to discuss de-energizing and grounding or shielding of power lines. Extreme caution is necessary when moving ladders and other equipment near overhead power lines to avoid inadvertent contact.

If you are working on or near power lines, refer to the additional recommendations provided from the "Hazards of Flood Cleanup Work" (www.cdc.gov/niosh/flood.html) from NIOSH.

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Avoid Carbon Monoxide

Carbon monoxide is an odorless, colorless gas that is poisonous to breathe. During flood cleanup, operate all gasoline-powered devices such as pumps, generators, and pressure washers outdoors and never bring them indoors. This will help to ensure your safety from carbon monoxide poisoning.

For additional information on carbon monoxide, see "Carbon Monoxide Poisoning and Power Outage Safety" (www.bt.cdc.gov/disasters/carbonmonoxide.asp) and "Carbon Monoxide Poisoning" (www.cdc.gov/nceh/airpollution/carbonmonoxide) (from CDC's National Center for Environmental Health [NCEH]).

Prevent Musculoskeletal Injury

Special attention is needed to avoid back injuries associated with manual lifting and handling of debris and building materials.

To help prevent injury:

- Use teams of two or more to move bulky objects.
- Avoid lifting any material that weighs more than 50 pounds (per person)
- Use proper automated-assist lifting devices

Beware of Structural Instability

Never assume that water-damaged structures or ground are stable. Buildings that have been submerged or have withstood rushing flood waters may have suffered structural damage and could be dangerous.

- Don't work in or around any flood-damaged building until it has been examined and certified as safe for work by a registered professional engineer or architect.
- Assume all stairs, floors, and roofs are unsafe until they are inspected.
- Leave immediately if shifting or unusual noises signal a possible collapse.

Avoid Hazardous Materials

Flood waters can dislodge tanks, drums, pipes, and equipment, which may contain hazardous materials such as pesticides or propane.

- Do not attempt to move unidentified dislodged containers without first contacting the local fire department or hazardous materials team.
- If working in potentially contaminated areas, avoid skin contact or inhalation of vapors by wearing appropriate protective clothing and respirators.
- Frequently and thoroughly wash skin areas that may have been exposed to pesticides and other hazardous chemicals.
- Contact NIOSH for more information on the proper safety equipment.

Be Prepared for Fires

Fire can pose a major threat to an already badly damaged flood area for several reasons:

- Inoperative fire protection systems.
- Hampered fire department response.
- Inoperable firefighting water supplies.

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- Flood-damaged fire protection systems.

At least two fire extinguishers, each with a UL rating of at least 10A, should be provided at every cleanup job.

Prevent Drowning

When entering moving water, you are at risk for drowning, regardless of your ability to swim. Because those in vehicles are at greatest risk of drowning, it is important to comply with all hazard warnings on roadways and to avoid driving vehicles or heavy equipment into water of an unknown depth. NIOSH recommends that you avoid working alone and wear a Coast Guard-approved life jacket when working in or near flood waters.

Reduce Risk of Thermal Stress

While cleaning up after the hurricane, you are at risk for developing health problems from working in hot or cold environments.

To reduce heat-related risks:

- Drink a glass of fluid every 15 to 20 minutes.
- Wear light-colored, loose-fitting clothing
- Work during the cooler hours of the day.

See also "Tips for Preventing Heat-Related Illness" (www.bt.cdc.gov/disasters/extremeheat/heattips.asp), "Heat Stress in the Elderly" (www.bt.cdc.gov/disasters/extremeheat/elderlyheat.asp), and other information available on the "CDC Extreme Heat page" (www.bt.cdc.gov/disasters/extremeheat).

To reduce cold-related risks when standing or working in water which is cooler than 75 degrees F (24 degrees C):

- Wear rubber boots.
- Ensure that clothing and boots have adequate insulation.
- Take frequent breaks out of the water.
- Change into dry clothing when possible.

For more information on coping with these risks, visit "Hazards of Flood Cleanup Work" (www.cdc.gov/niosh/flood.html) from NIOSH.

Prevent Fatigue-Related Injuries

Continued long hours of work, combined with exhaustion, can create a highly stressful situation during cleanup. People working on hurricane and flood cleanup can reduce their risks of injury and illness in several ways:

- Set priorities for cleanup tasks and pace the work. Avoid physical exhaustion.
- Resume a normal sleep schedule as quickly as possible.
- Be alert to emotional exhaustion or strain. Consult family members, friends or professionals for emotional support.

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For more information on worker safety, refer to the [hurricane recovery page](http://www.osha.gov/OshDoc/hurricaneRecovery.html) (<http://www.osha.gov/OshDoc/hurricaneRecovery.html>) on the Occupational Safety and Health Administration's Web site.

How to Cope with Stress after a Hurricane

The days and weeks after a hurricane are going to be rough. In addition to your physical health, you need to take some time to consider your mental health as well. Remember that some sleeplessness, anxiety, anger, hyperactivity, mild depression, or lethargy are normal, and may go away with time. If you feel any of these symptoms acutely, seek counseling.

Your state and local health departments will help you find the local resources, including hospitals or health care providers that you may need.

Individual responses to a threatening or potentially-traumatic event may vary. Emotional reactions may include feelings of fear, grief and depression. Physical and behavioral responses might include nausea, dizziness, and changes in appetite and sleep pattern, as well as withdrawal from daily activities.

Responses to trauma can last for weeks to months before people start to feel normal again.

Seek medical care if you become injured, feel sick, or experience stress and anxiety.

There are many things you can do to cope with traumatic events, including:

- Keep as many elements of your normal routine incorporated into the disaster plans as possible, including activities to allay children's fears.
- Be aware that you may have fewer resources to attend to your day-to-day conflicts, so it is best to resolve what you can ahead of time.
- Turn to family, friends, and important social or religious contacts to set-up support networks to help deal with the potential stressors.
- Let your child know that it is okay to feel upset when something bad or scary happens.
- Encourage your child to express feelings and thoughts, without making judgments.

Dealing with Wild and Domestic Animals in a Disaster

Contact your local animal shelter or services, a veterinarian, or the Humane Society for advice on dealing with pets or stray or wild animals after a disaster. Also see "Resources for Planning How to Protect Your Pets in an Emergency" (<http://www.bt.cdc.gov/disasters/petprotect.asp>).

Be cautious of wild or stray animals. They may be disoriented and dangerous following a hurricane or flood. Call the Animal Control agency in your county.

Wild and domestic animals may escape or be killed in disasters. Escaped animals may wander onto land where they could:

- contaminate water supplies
- cause a build-up of manure
- overgraze sensitive ecosystems
- cause damage to crops

Decaying carcasses create biologic waste and attract flies and rodents, which can spread disease. They may also contaminate groundwater and cause bad odors. Animal carcasses should be disposed of as soon as possible to avoid creating a health hazard to animals or humans. Contact your local animal control department or local health department for specific disposal guidance.

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Handwashing in an Emergency Situation

After an emergency, it can be difficult to find running water. However, it is still important to wash your hands to avoid illness. It is best to wash your hands with soap and water but when water isn't available, you can use alcohol-based products made for washing hands. For tips for washing your hands with soap and water and with alcohol-based products see our [Handwashing fact sheet](http://www.bt.cdc.gov/disasters/hurricanes/handwashing.asp) (<http://www.bt.cdc.gov/disasters/hurricanes/handwashing.asp>).

Preventing West Nile Virus (WNV)

After a hurricane, mosquitoes may breed in standing water during the summer and autumn months. The easiest and best way to avoid WNV is to prevent mosquito bites.

- When you are outdoors, use insect repellents containing DEET (N, N-diethyl-meta-toluamide). Follow the directions on the package
- Many mosquitoes are most active at dusk and dawn. Be sure to use insect repellent and wear long sleeves and pants at these times or consider staying indoors during these hours. Light-colored clothing can help you see mosquitoes that land on you.
- Make sure you have good screens on your windows and doors to keep mosquitoes out.
- Get rid of mosquito breeding sites by emptying standing water from flower pots, buckets and barrels. Change the water in pet dishes and replace the water in bird baths weekly. Drill holes in tire swings so water drains out. Keep children's wading pools empty and on their sides when they aren't being used.

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

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