

Key Messages

2017 HURRICANE HARVEY KEY MESSAGES

Event: 2017 Hurricane Harvey

Today's Date: September 1, 2017

This key messages document is for internal and external use. It contains the messaging that has been cleared for use in developing other materials related to this emergency response.

Newly updated information in this document is indicated in bold blue.

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The Centers for Disease Control and Prevention (CDC) and Agency for Toxic Substances and Disease Registry (ATSDR) are working with federal, state and local agencies in response to Hurricane Harvey.

This document summarizes cleared key messages about Hurricane Harvey and the response by CDC and its partners. It will be updated as new information becomes available and will be distributed regularly. Please share this document with others as appropriate.

Newly updated information is indicated in bold blue with previously cleared messaging and response content shown in black.

BACKGROUND

Hurricane Harvey hit the east coast of Texas on Friday, August 25, as a category 4 storm, resulting in widespread damage and unprecedented flooding.

- Hurricanes are dangerous and destructive and can cause high winds, flooding, heavy rain, and storm surges (high tidal waves). Floods, big or small, can have devastating effects on homes and families. Flood waters and standing waters can also pose various risks, including infectious diseases, chemical hazards, and injuries.
- CDC shared protective actions for the public in anticipation of the storm on Thursday, August 25 and continues to provide health and safety information.

CDC'S ACTIVITIES

During an emergency event, such as Hurricane Harvey, the states lead the response efforts and members of the federal government step in and provide assistance when a formal request has been made by the affected state.

CDC's Emergency Operations Center (EOC) is activated to bring together CDC and ATSDR staff to work efficiently to support the local, state, and federal response to public health needs in the aftermath of Hurricane Harvey.

CDC and ATSDR have deployed staff to provide medical assistance and help coordinate additional response activities. CDC continues to push potentially life-saving flooding information to the general public through multiple channels. We will continue to support the federal response to Hurricane Harvey.

- Staff in Washington are working in HHS Emergency Management Group as liaisons and subject matter experts on the Strategic National Stockpile (SNS)
- Staff with the HHS Incident Response Coordination Team (IRCT) are providing subject matter expertise on water quality and employment of SNS assets
- Federal Medical Station Strike Teams will lead the establishment of Federal Medical Stations to treat and care for evacuees
- Commissioned Corps Officers deployed with Rapid Deployment Forces (RDFs) include clinical and non-clinical professionals to operate the FMSs



- Several additional SMEs including those listed below are preparing to deploy to advise/assist state and local officials in the response efforts as part of the large Federal team.

AVOID DRIVING THROUGH FLOODED AREAS

Avoid driving through flooded areas and standing water. As little as six inches of water can cause you to lose control of your vehicle, and two feet of water can cause your car to be swept away. Turn around, don't drown.

During Hurricane Matthew in October 2016, the majority of deaths were due to drowning and most of those drowning deaths were related to driving through water.

STAY SAFE IN A FLOOD

- Emergency management officials have requested that people escaping flood waters as a last resort do not stay in the attic of their house. If the highest floor of your home becomes dangerous, get on the roof. Call 911 for help and stay on the line until the call is answered.
- Follow local flood watches, warnings and instructions.
- Flood water poses drowning risks for everyone, regardless of their ability to swim. Swiftly moving shallow water can be deadly, and even shallow standing water can be dangerous for small children.
- Vehicles do not provide adequate protection from flood waters. They can be swept away or may stall in moving water.
- If flooding occurs, get to higher ground. Get out of areas subject to flooding. This includes dips, low spots, canyons, washes etc.
- If you are in an area that is in danger of flooding or you are under a flood watch or warning:
 - Gather the [emergency supplies](#) you previously stocked in your home and stay tuned to your local radio or television station for updates.
 - Turn off all utilities at the main power switch and close the main gas valve if evacuation appears necessary.
 - Have your immunization records handy or be aware of your last tetanus shot, in case you receive a puncture wound or a wound becomes infected during or after the flood.
 - Immunization records should be stored in a water proof container.
 - Fill bathtubs, sinks and containers with clean water. Sanitize the sinks and tubs first by using bleach. Rinse and fill with clean water.



PERSONAL HYGIENE AND HANDWASHING

Keeping hands clean during an emergency helps prevent the spread of germs. If your tap water is not safe to use, wash your hands with soap and water that has been boiled or disinfected. Follow these steps to make sure you [wash your hands](#) properly:

- Wet your hands with clean, running water (warm or cold) and apply soap.
- Rub your hands together to make a lather and scrub them well; be sure to scrub the backs of your hands, between your fingers, and under your nails.
- Continue rubbing your hands for at least 20 seconds. Need a timer? Hum the “Happy Birthday” song from beginning to end twice.
- Rinse your hands well under running water.
- Dry your hands using a clean towel or air dry them.

A [temporary hand washing station](#) can be created by using a large water jug that contains clean water (for example, boiled or disinfected).

Washing hands with soap and water is the best way to reduce the number of germs on them. If soap and water are not available, use an alcohol-based hand sanitizer that contains at least 60% alcohol. Alcohol-based hand sanitizers can quickly reduce the number of germs on hands in some situations, but sanitizers do not eliminate all types of germs.

Hand sanitizers are not effective when hands are visibly dirty.

DIARRHEAL DISEASES

Eating or drinking anything contaminated by flood water can cause diarrheal disease (such as *E. coli* or *Salmonella* infection). To protect yourself and your family:

- Practice good hygiene (handwashing with soap and water) after contact with flood waters.
- Do not allow children to play in flood water areas.
- Wash children’s hands with soap and water frequently (always before meals).
- Do not allow children to play with toys that have been contaminated by flood water and have not been disinfected.
- For information on disinfecting certain nonporous toys, visit CDC Healthy Water’s Cleaning and Sanitizing with Bleach section. <https://www.cdc.gov/healthywater/emergency/cleaning-sanitizing/household-cleaning-sanitizing.html>

WOUND INFECTIONS

Open wounds and rashes exposed to flood waters can become infected. To protect yourself and your family:



- Avoid contact with flood waters if you have an open wound.
- Cover open wounds with a waterproof bandage to reduce chance of infection.
- Keep open wounds as clean as possible by washing well with soap and clean water.
- If a wound develops redness, swelling, or oozing, seek immediate medical care.
- Vibrios are naturally occurring bacteria that live in certain coastal waters. They can cause a skin infection when an open wound is exposed to salt water or a mix of salt and fresh water, which can occur during floods.

The risk for injury during and after a hurricane and other natural disasters is high. Prompt first aid can help heal small wounds and prevent infection. Tetanus, other bacterial infections, and fungal infections are potential health threats for persons who have open wounds.

Seek medical attention as soon as possible if:

- There is a foreign object (soil, wood, metal, or other objects) embedded in the wound;
- The wound is at special risk of infection (such as a dog bite or a puncture by a dirty object);
- An old wound shows signs of becoming infected (increased pain and soreness, swelling, redness, draining, or you develop a fever).

How to Care for Minor Wounds

- Wash your hands thoroughly with soap and clean water if possible.
- Avoid touching the wound with your fingers while treating it (if possible, use disposable, latex gloves).
- Remove obstructive jewelry and clothing from the injured body part.
- Apply direct pressure to any bleeding wound to control bleeding.
- Clean the wound after bleeding has stopped.
 - Examine wounds for dirt and foreign objects.
 - Gently flood the wound with bottled water or clean running water (if available, saline solution is preferred).
 - Gently clean around the wound with soap and clean water.
 - Pat dry and apply an adhesive bandage or dry clean cloth.
- Leave unclean wounds, bites, and punctures open. Wounds that are not cleaned correctly can trap bacteria and result in infection.
- Provide pain relievers when possible.

Other Considerations

- Expect a variety of infection types from wounds exposed to standing water, sea life, and ocean water.
- Wounds in contact with soil and sand can become infected.
- Puncture wounds can carry bits of clothing and dirt into wounds and result in infection.



- Crush injuries are more likely to become infected than wounds from cuts.
- Take steps to prevent tetanus

If you have wounds, you should be evaluated for a tetanus immunization. If you receive a puncture wound or a wound contaminated with feces, soil, or saliva, have a health care professional determine whether a tetanus booster is necessary based on individual records.

ANIMAL HAZARDS

Avoid wild or stray animals

- Call local authorities to handle animals.
- Secure all food sources and remove any animal carcasses to avoid attracting rats.
- Get rid of dead animals, according to guidelines from your local animal control authority, as soon as you can. See Animal Disposal for answers to frequently asked questions.
- For more information, 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 an emergency.

Prevent Contact With Rodents

- Remove food sources, water, and items that can provide shelter for rodents.
- Wash dishes, pans, and cooking utensils immediately after use.
- Dispose of garbage and debris as soon as possible.

Prevent or Respond to a Snake Bite

- Be aware of snakes that may be swimming in the water to get to higher ground and those that may be hiding under debris or other objects.
- If you see a snake, back away from it slowly and do not touch it.
- If you or someone you know are bitten, try to see and remember the color and shape of the snake, which can help with treatment of the snake bite.
- Keep the bitten person still and calm. This can slow down the spread of venom if the snake is poisonous. Seek medical attention as soon as possible. Dial 911 or call local Emergency Medical Services. Poison Control Centers can also be a source of help and can be reached at 1800-222-1222. Apply first aid if you cannot get the person to the hospital right away. • Lay or sit the person down with the bite below the level of the heart.
 - Tell him/her to stay calm and still.
 - Cover the bite with a clean, dry dressing.
- After a hurricane has passed through an area and flooding occurs, mosquitoes will lay eggs near standing water. Mosquito populations usually increase greatly after flooding.
 - Most of these mosquitoes will not spread viruses, but some could.



MOSQUITOES

Hurricane Harvey and Mosquito-borne Viruses

Prior to Hurricane Harvey, no local spread of [Zika](#), [dengue](#), or other viruses spread by *Aedes aegypti* or *Ae. albopictus* mosquitoes had been reported in Houston or the areas affected by flooding. Although the flooding caused by Hurricane Harvey is severe and an increase in mosquito populations is expected in the coming weeks, CDC does not expect to see cases of Zika appear in the area because of flooding.

[West Nile virus](https://www.cdc.gov/westnile/index.html)(<https://www.cdc.gov/westnile/index.html>) is primarily spread by *Culex* mosquitoes. Cases of West Nile virus have been reported in Texas this summer. CDC does anticipate additional cases of West Nile virus to be reported throughout the summer, but not as a result of flooding from Hurricane Harvey.

The best way to protect yourself from mosquito bites and viruses spread through mosquito bites is to prevent mosquito bites.

- Wear long-sleeved shirts and long pants
- Use Environmental Protection Agency (EPA)-registered insect repellents with one of the following active ingredients: DEET, picaridin, IR3535, oil of lemon eucalyptus, para-menthane-diol, or 2-undecanone.
- Remember to wash your hands after applying mosquito repellent, especially before eating or preparing food.
- [Learn](https://www.cdc.gov/zika/prevention/prevent-mosquito-bites.html) (<https://www.cdc.gov/zika/prevention/prevent-mosquito-bites.html>) how to protect yourself and your family from mosquito bites.

Adult mosquitoes outside do not generally survive high winds during a hurricane.

- Flooding washes away young mosquitoes and immediately causes a temporary decrease in the mosquito population.
 - Within days of flooding, mosquito eggs will hatch and adult mosquitoes that survived the storm will lay new eggs. Within a couple of weeks, mosquito populations will greatly increase. Most of these mosquitoes will not spread viruses, but some could.

Hurricanes and Viruses

- Studies show that hurricanes and floods do not typically cause an increase in viruses spread by mosquitoes.
- However, because people spend more time outside cleaning up after a hurricane or flood, they are more likely to get bitten by mosquitoes.
 - Small increases in the numbers of West Nile Virus (WNV) cases were noted in some areas of Louisiana after Hurricane Katrina.



Controlling Mosquitoes and Preventing Mosquito Bites

- After a hurricane or flood, the health department or mosquito control district will often take steps to reduce the mosquito population.
- Residents can take steps to help control mosquitoes in and around their homes to prevent mosquito bites.

Keep mosquitoes outside

- Use screens on windows and doors. Do not leave doors propped open.
- Use air conditioning when available.

Prevent mosquito bites

- Use an EPA-registered insect repellent with one of the following active ingredients: DEET, picaridin, IR3535, oil of lemon eucalyptus or para-menthane-diol, or 2-undecanone.
 - When used as directed, EPA-registered insect repellents are proven safe and effective even for pregnant and breastfeeding women.
 - Always follow the product label instructions.
 - Do not spray repellent on the skin under clothing.
 - If you are also using sunscreen, apply sunscreen before applying insect repellent.
 - Do not use insect repellents on babies younger than 2 months old.
 - Do not use products containing oil of lemon eucalyptus or para-menthane-diol on children younger than 3 years old.
 - The effectiveness of non-EPA registered insect repellents, including some natural repellents, is not known.
- Wear long-sleeved shirts and long pants.
- Protect your child from mosquito bites by
 - Dressing them in clothing that covers arms and legs
 - Covering cribs, strollers, and baby carriers with mosquito netting.
 - Applying insect repellent to children over 2 months old.
 - Do not apply insect repellent onto a child's hands, eyes, mouth, and cut or irritated skin.
 - Adults: spray insect repellent onto your hands and then apply to a child's face.

When there is no longer flooding, residents can take steps to eliminate standing water in and around their home and property.

- **Once a week**, empty and scrub, turn over, cover, or throw out items that hold water, such as tires, buckets, planters, toys, pools, birdbaths, flowerpots, or trash containers.
- Tightly cover water storage containers (buckets, cisterns, rain barrels) so that mosquitoes cannot get inside to lay eggs.



CHEMICAL AND OIL EXPOSURES

- Use extreme caution when returning to your area after a flood. Be aware of potential chemical hazards you may encounter during flood recovery. Flood waters may have buried or moved hazardous chemical containers of solvents or other industrial chemicals from their normal storage places.
- If any propane tanks (whether 20-lb. tanks from a gas grill or household propane tanks) are discovered, do not attempt to move them yourself. These represent a very real danger of fire or explosion, and if any are found, police or fire departments or your State Fire Marshal's office should be contacted immediately.
- Car batteries, even those in flood water, may still contain an electrical charge and should be removed with extreme caution by using insulated gloves. Avoid coming in contact with any acid that may have spilled from a damaged car battery.
- Avoid Oil Spills
 - Crude oil is a mixture of chemicals that could be released into the environment during an emergency such as a hurricane and flood. In flood situations, some parts of the oil will float on water and can be seen as a film on the surface, and other parts will sink to the bottom. Other parts of the oil can become fumes in the air. People can come into contact with these chemicals by getting them on their skin or by breathing them in the air. If you notice oil in the water, stay away from it and contact local authorities or EPA at 1-800-424-8802. Emergency responders and workers should use appropriate clothing and personal protective equipment when working in these hazardous conditions.

RETURNING HOME

Return to your flooded home only after local authorities have told you it is safe to do so.

CLEANING AND SANITIZING YOUR HOME

When returning to your home after a hurricane or flood, be aware that flood water may contain sewage. Protect yourself and your family by following these steps:

INSIDE THE HOME

- Keep children and pets out of the affected area until cleanup has been completed.
- Wear rubber boots, rubber gloves, and goggles during cleanup of affected area.
- Remove and discard items that cannot be washed and disinfected (such as, mattresses, carpeting, carpet padding, rugs, upholstered furniture, cosmetics, stuffed animals, baby toys, pillows, foam-rubber items, books, wall coverings, and most paper products).



- Remove and discard drywall and insulation that has been contaminated with sewage or flood waters.
- Thoroughly clean all hard surfaces (such as flooring, concrete, molding, wood and metal furniture, countertops, appliances, sinks, and other plumbing fixtures) with hot water and laundry or dish detergent.
- Help the drying process by using fans, air conditioning units, and dehumidifiers.
- After completing the cleanup, wash your hands with soap and clean water.
- Wash all clothes worn during the cleanup in hot water and detergent. These clothes should be washed separately from uncontaminated clothes and linens.
- Wash clothes contaminated with flood or sewage water in hot water and detergent. It is recommended that a laundromat be used for washing large quantities of clothes and linens until your onsite waste-water system has been professionally inspected and serviced.
- Seek immediate medical attention if you become injured or ill.

See also [Reentering Your Flooded Home\(https://www.cdc.gov/disasters/mold/reenter.html\)](https://www.cdc.gov/disasters/mold/reenter.html) , [Mold After a Disaster\(https://www.cdc.gov/disasters/mold/\)](https://www.cdc.gov/disasters/mold/) , and [Cleaning and Sanitizing With Bleach after an Emergency\(https://www.cdc.gov/disasters/bleach.html\)](https://www.cdc.gov/disasters/bleach.html).

MOLD

After natural disasters such as hurricanes, tornadoes, and floods, excess moisture and standing water contribute to the growth of mold in homes and other buildings. When returning to a home that has been flooded, be aware that mold may be present and may be a health risk for your family.

If there is mold growth in your home, you should clean up the mold and fix any water problem, such as leaks in roofs, walls, or plumbing. Controlling moisture in your home is the most critical factor for preventing mold growth.

People at Greatest Risk from Mold

- People with asthma, allergies, or other breathing conditions may be more sensitive to mold.
- People with immune suppression (such as people with HIV infection, cancer patients taking chemotherapy, and people who have received an organ transplant) are more susceptible to mold infections.

Possible Health Effects of Mold Exposure

- People who are sensitive to mold may experience stuffy nose, irritated eyes, wheezing, or skin irritation. People allergic to mold may have difficulty in breathing and shortness of breath.



- People with weakened immune systems and with chronic lung diseases, such as obstructive lung disease, may develop mold infections in their lungs.
- If you or your family members have health problems after exposure to mold, contact your doctor or other health care provider.

Recognizing Mold

You may recognize mold by:

- **Sight.** Are the walls and ceiling discolored, or do they show signs of mold growth or water damage?
- **Smell.** Do you smell a bad odor, such as a musty, earthy smell or a foul stench?

Safely Preventing Mold Growth

- Clean up and dry out the building as quickly as you can.
- Open doors and windows.
- Use fans to dry out the building.
- See the fact sheet for drying out your house, [Reentering Your Flooded Home](#).
- When in doubt, take it out! Remove all porous items that have been wet for more than 48 hours and that cannot be thoroughly cleaned and dried. These items can remain a source of mold growth and should be removed from the home. Porous, non-cleanable items include carpeting and carpet padding, upholstery, wallpaper, drywall, floor and ceiling tiles, insulation material, some clothing, leather, paper, wood, and food.
- Removal and cleaning are important because even dead mold may cause allergic reactions in some people.
- To prevent mold growth, clean wet items and surfaces with detergent and water.
- Homeowners may want to temporarily store items outside of the home until insurance claims can be filed. [See recommendations by the Federal Emergency Management Agency \(FEMA\)](#).
- If you wish to disinfect, refer to the U.S. Environmental Protection Agency (EPA) document, [A Brief Guide to Mold and Moisture in Your Home](#).

Cleaning Up Mold

To remove mold growth from hard surfaces use commercial products, soap and water, or a bleach solution of no more than 1 cup of household laundry bleach in 1 gallon of water. Use a stiff brush on rough surface materials such as concrete.

If you choose to use bleach to remove mold:

- Never mix bleach with ammonia or other household cleaners. Mixing bleach with ammonia or other cleaning products will produce dangerous, toxic fumes
- Open windows and doors to provide fresh air.



- Wear non-porous gloves and protective eye wear.
- If the area to be cleaned is more than 10 square feet, consult the U.S. Environmental Protection Agency (EPA) guide titled Mold Remediation in Schools and Commercial Buildings. Also available is A Brief Guide to Mold, Moisture, and Your Home.
- Always follow the manufacturer's instructions when using bleach or any other cleaning product.
- For more information on personal safety while cleaning up after a natural disaster, see Response Worker Health and Safety(<https://www.cdc.gov/disasters/workers.html>).

If you plan to be inside the building for a while or you plan to clean up mold, you should buy an N95 respirator at your local home supply store and wear it while in the building. Make certain that you follow instructions on the package for fitting the mask tightly to your face. If you go back into the building for a short time and are not cleaning up mold, you do not need to wear an N95 respirator.

OUTSIDE THE HOME

- Keep children and pets out of the affected area until cleanup has been completed.
- Wear rubber boots, rubber gloves, and goggles during cleanup of affected area.
- Have your onsite waste-water system professionally inspected and serviced if you suspect damage.
- Wash all clothes worn during the cleanup in hot water and detergent. These clothes should be washed separately from uncontaminated clothes and linens.
- After completing the cleanup, wash your hands with soap and clean water.
- Seek immediate medical attention if you become injured or ill. See [wound care](#) information.

SAFE SHELTERING

Follow safe [hygiene and diapering](#) recommendations when in a shelter.

In emergency situations, making sure that diaper changing practices remain hygienic is essential to reducing the spread of germs. Even a microscopic amount of fecal matter can contain millions of germs. CDC has developed guidelines and checklists to help parents, childcare providers, emergency responders, and others learn how to practice safe and germ-free diaper changing in emergency situations.

AVOID CARBON MONOXIDE POISONING

Carbon monoxide (CO) is an odorless, colorless gas that can cause sudden illness and death if inhaled.



When power outages occur during emergencies such as hurricanes or winter storms, the use of alternative sources of fuel or electricity for heating, cooling, or cooking can cause CO to build up in a home, garage, or camper and to poison the people and animals inside.

Every year, more than 400 people die in the U. S. from accidental CO poisoning.

Exposure to CO can cause loss of consciousness and death. The most common symptoms of CO poisoning are headache, dizziness, weakness, nausea, vomiting, chest pain, and confusion. People who are sleeping or who have been drinking alcohol can die from CO poisoning before ever having symptoms.

Important CO Poisoning Prevention Tips

- Never use a generator, pressure washer, or any gasoline-powered engine inside your home, basement, or garage or less than 20 feet from any window, door, or vent.
- Never use a gas range or oven to heat a home.
- Never leave the motor running in a vehicle parked in an enclosed or partially enclosed space, such as a garage.
- Never run a generator, pressure washer, or any gasoline-powered engine inside a basement, garage, or other enclosed structure, even if the doors or windows are open, unless the equipment is professionally installed and vented. Keep vents and flues free of debris, especially if winds are high. Flying debris can block ventilation lines.
- Never use a charcoal grill, hibachi, lantern, or portable camping stove inside a home, tent, or camper.
- If conditions are too hot or too cold, seek shelter with friends or at a community shelter.
- If CO poisoning is suspected, move to outside air, call 911 or your local Poison Control Center at 1-800-222-1222 or consult a health care professional right away.

Businesses can help ensure your customers' safety by placing important information about protecting oneself from CO poisoning in the direct vicinity of generators they are selling.

POWER OUTAGES AND ELECTRICAL DANGERS

- NEVER touch a fallen power line.
- Do not drive through standing water if downed power lines are in the water.
- If you believe someone has been electrocuted, call or have someone else call 911 or emergency medical help.
- After a hurricane, flood or other natural disaster you need to be careful to avoid electrical hazards both in your home and elsewhere.
- Never touch a fallen power line. Call the power company to report fallen power lines.
- Avoid contact with overhead power lines during cleanup and other activities.
- Do not drive through standing water if downed power lines are in the water.



If a power line falls across your car while you are driving, stay inside the vehicle and continue to drive away from the line.

- If the engine stalls, do not turn off the ignition.
- Warn people not to touch the car or the line.
- Call or ask someone to call the local utility company and emergency services.
- Do not allow anyone other than emergency personnel to approach your vehicle.

If electrical circuits and electrical equipment have gotten wet or are in or near water, turn off the power at the main breaker or fuse on the service panel.

- Do not enter standing water to access the main power switch.
- Call an electrician to turn it off.

Never turn power on or off yourself or use an electric tool or appliance while standing in water.

- Do not turn the power back on until electrical equipment has been inspected by a qualified electrician.
- All electrical equipment and appliances must be completely dry before returning them to service.
- Have a certified electrician check these items if there is any question.

If you see frayed wiring or sparks when you restore power, or if there is an odor of something burning but no visible fire, you should immediately shut off the electrical system at the main circuit breaker.

Consult your utility company about using electrical equipment, including power generators.

- Do not connect generators to your home's electrical circuits without the approved, automatic-interrupt devices.
- If a generator is on line when electrical service is restored, it can become a major fire hazard and it may endanger line workers helping to restore power in your area.

If you believe someone has been electrocuted take the following steps:

- Look first. Don't touch. The person may still be in contact with the electrical source. Touching the person may pass the current through you.
- Call or have someone else call 911 or emergency medical help.
- Turn off the source of electricity if possible. If not, move the source away from you and the affected person using a non-conducting object made of cardboard, plastic or wood.
- Once the person is free of the source of electricity, check the person's breathing and pulse. If either has stopped or seems dangerously slow or shallow, begin cardiopulmonary resuscitation (CPR) immediately.



- If the person is faint or pale or shows other signs of shock, lay him or her down with the head slightly lower than the trunk of the body and the legs elevated.
- Don't touch burns, break blisters, or remove burned clothing. Electrical shock may cause burns inside the body, so be sure the person is taken to a doctor.

IMPACT OF POWER OUTAGE ON VACCINE STORAGE

In areas where vaccine supplies are affected by temporary power outages, the guidance developed for providers during the 2003 Northeast Power Outage may be helpful:

- Do not open freezers and refrigerators until power is restored.
- Most refrigerated vaccines are relatively stable at room temperature for limited periods of time. The vaccines of most concern are MMR and Varivax, which are sensitive to elevated temperatures.
- Monitor temperatures; don't discard; don't administer affected vaccines until you have discussed with public health authorities.

If the power outage is on-going:

- Keep all refrigerators and freezers closed. This will help to conserve the cold mass of the vaccines.
- Continue to monitor temperatures if possible. Do not open units to check temperatures during the power outage. Instead, record the temperature as soon as possible after the power is restored, and the duration of the outage. This will provide data on the maximum temperature and maximum duration of exposures to elevated temperatures.
- If alternative storage with reliable power sources are available (i.e., hospital with generator power), transfer to that facility can be considered. If transporting vaccine, measure the temperature of the refrigerator(s) and freezer(s) when the vaccines are removed. If possible transport the vaccine following proper cold chain procedures for storage and handling or try to record the temperature the vaccine is exposed to during transport.

When power has been restored:

1. Record the temperature in the unit as soon as possible after power has been restored. Continue to monitor the temperatures until they reach the normal 2–8 degrees Celsius range in the refrigerator, or -15 degrees C or less in the freezer. Be sure to record the duration of increased temperature exposure and the maximum temperature observed.
2. If you receive vaccine from your state or local health department, they may be contacting you with guidance on collecting information on vaccine exposed to extreme temperatures.
3. If you are concerned about the exposure or efficacy of any of your vaccine stock, do not administer the vaccine until you have consulted your state or local health department.



4. Keep exposed vaccine separated from any new product you receive and continue to store at the proper temperature if possible.
5. Do not discard any potentially exposed vaccine. We will be working with the vaccine manufacturers to determine which vaccines may be viable.

For additional information about vaccine storage during a power outage, see the [guidance provided by the CDC National Immunization Program](#) or contact your state or local health department.

DRINK CLEAN, SAFE WATER AND EAT SAFE FOOD

Food may not be safe to eat during and after an emergency. Safe water for drinking, cooking, and personal hygiene includes bottled, boiled, or treated water. Your state, local, or tribal health department can make specific recommendations for boiling or treating water in your area.

Food: Throw away food that may have come in contact with flood or storm water, perishable foods, and those with an unusual odor, color, or texture. When in doubt, throw it out.

Water: Do not use water you suspect or have been told is contaminated to wash dishes, brush your teeth, wash and prepare food, wash your hands, make ice, or make baby formula.

FOOD

Foodborne illness, or food poisoning, is a risk from food contaminated from flood water and from perishable food not held at a safe temperature due to power outages. If foods of animal origin, especially raw meat and poultry, have not been held at a safe temperature, germs already present can grow to high numbers. Other foods not held at the right temperature can also spoil.

- Do the following with food and containers that may have had contact with flood or storm water.
 - Throw away food.
 - Throw away food containers with screw-caps, snap-lids, crimped caps (soda pop bottles), twist caps, flip tops, snap-open, and home-canned foods because they cannot be disinfected.
- Throw away the following foods:
 - Food that has an unusual odor, color, or texture. When in doubt, throw it out.
 - Perishable foods (including meat, poultry, fish, eggs and leftovers) in your refrigerator when the power has been off for 4 hours or more.
 - Canned foods or food containers that are bulging, opened, or damaged. Throw away the food if the container spurts liquid or foam when you open it or the food inside is discolored, moldy, or smells bad.



- Thawed food that contains ice crystals can be refrozen or cooked. Freezers, if left unopened and full during a power outage, will keep food safe for 48 hours (24 hours if half full).

Store Food Safely

- While the power is out, keep the refrigerator and freezer doors closed as much as possible.

Feeding infants and young children

- Breastfed infants should continue breastfeeding. For formula-fed infants, use ready-to-feed formula if possible. If using ready-to-feed formula is not possible, it is best to use bottled water to prepare powdered or concentrated formula. If bottled water is not available, use boiled water. Use treated water to prepare formula only if you do not have bottled or boiled water.
- If water is contaminated with a chemical, boiling it will not remove the chemical or make it safe to consume.
- If you prepare formula with boiled water, let the formula cool sufficiently before giving it to an infant.
- Clean feeding bottles with bottled, boiled, or treated water before each use.
- Wash your hands before preparing formula and before feeding an infant. You can use alcohol-based hand sanitizer for sanitizing your hands if water is not available for handwashing.

Clean and sanitize food-contact surfaces

Discard wooden cutting boards if they have come into contact with flood waters because they cannot be properly sanitized. Clean and sanitize food-contact surfaces in a four-step process:

1. Wash with soap and warm, clean water.
2. Rinse with clean water.
3. Sanitize by immersing for 1 minute in a solution of 1 teaspoon of chlorine bleach (5.25%, unscented) per gallon of clean water.
4. Allow to air dry.

Note: Do not use your fireplace for cooking until the chimney has been inspected for cracks and damage. Sparks may escape into your attic through an undetected crack and start a fire.

WATER

Safe Drinking Water

- After an emergency, especially after flooding, drinking water may not be available or safe to drink for personal use.
- Do not use water you suspect or have been told is contaminated to wash dishes, brush your teeth, wash and prepare food, make ice, or make baby formula.
- Caffeinated drinks and alcohol dehydrate the body, which increases the need for drinking water.



- Floods and other disasters can damage drinking water wells and lead to aquifer and well contamination. Flood waters can contaminate well water with livestock waste, human sewage, chemicals, and other contaminants which can lead to illness when used for drinking, bathing, and other hygiene activities.

Make Water Safe

Water often can be made safe to drink by boiling, adding disinfectants, or filtering.

IMPORTANT: Water contaminated with fuel or toxic chemicals will not be made safe by boiling or disinfection. Use a different source of water if you know or suspect that water might be contaminated with fuel or toxic chemicals.

Boil Water:

If you don't have safe bottled water, you should **boil water** to make it safe. Boiling is the surest method to make water safer to drink by killing disease-causing organisms, including viruses, bacteria, and parasites.

You can improve the flat taste of boiled water by pouring it from one clean, disinfected container to another and then allowing it to stand for a few hours, OR by adding a pinch of salt for each quart or liter of boiled water.

If the water is cloudy:

- Filter it through a clean cloth, paper towel, or coffee filter OR allow it to settle.
- Draw off the clear water.
- Bring the clear water to a rolling boil for one minute (at elevations above 6,500 feet, boil for three minutes).
- Let the boiled water cool.
- Store the boiled water in clean sanitized containers with tight covers.

If the water is clear:

- Bring the clear water to a rolling boil for one minute (at elevations above 6,500 feet, boil for three minutes).
- Let the boiled water cool.
- Store the boiled water in clean sanitized containers with tight covers.

Disinfectants:

If you don't have clean, safe, bottled water and if boiling is not possible, you often can make water safer to drink by using a disinfectant, such as unscented household chlorine bleach, iodine, or chlorine dioxide tablets. These can kill most harmful organisms, such as viruses and bacteria. However, only chlorine dioxide tablets are effective in controlling more resistant organisms, such as the parasite



Cryptosporidium. If the water is contaminated with a chemical, adding a disinfectant will not make it drinkable.

To disinfect water:

- Clean and disinfect water containers properly before each use. Use containers that are approved for water storage. Do not use containers previously used to store chemicals or other hazardous materials.
- Filter water through a clean cloth, paper towel, or coffee filter OR allow it to settle, then draw off the clear water.
- When using household chlorine bleach:
 - Add 6 drops (or about 0.5 milliliters) of unscented liquid household chlorine (8.25%) bleach for each gallon of clear water (or 2 drops of bleach for each liter or each quart of clear water). Add 12 drops (about 1 milliliter) of bleach for each gallon of cloudy water (or 4 drops of bleach for each liter or each quart of cloudy water).
 - Stir the mixture well.
 - Let it stand for at least 30 minutes before using.
 - Store the disinfected water in clean, disinfected containers with tight covers.
 - When using iodine: Follow the manufacturer's instructions
 - Store the disinfected water in clean, disinfected containers with tight covers.
 - When using chlorine dioxide tablets: Follow the manufacturer's instructions.
 - Store the disinfected water in clean, disinfected containers with tight covers.

Filters:

Many portable water filters can remove disease-causing parasites such as *Cryptosporidium* and *Giardia* from drinking water.

- If you are choosing a portable water filter, try to pick one that has a filter pore size small enough to remove both bacteria and parasites. Most portable water filters do not remove bacteria or viruses.
- Carefully read and follow the manufacturer's instructions for the water filter. After filtering, add a disinfectant such as iodine, chlorine, or chlorine dioxide to the filtered water to kill any viruses and remaining bacteria.

Water Treatment Resources:

To learn more about water filters and treatments that can remove microorganisms such as viruses, bacteria, and parasites (such as *Cryptosporidium*), see the following resources:

- [Making Water Safe in an Emergency](#)
- [A Guide to Water Filters](#)
- [A Guide to Drinking Water Treatment and Sanitation for Backcountry and Travel Use](#) covers information on the effectiveness of various water treatment methods.



- [A Guide to Commercially-Bottled Water and Other Beverages](#)
- [Emergency Disinfection of Drinking Water](#)

Finding Emergency Water Sources

Alternative sources of clean water can be found inside and outside the home. DO NOT DRINK water that has an unusual odor or color, or that you know or suspect might be contaminated with fuel or toxic chemicals; use a different source of water.

The following are possible sources of water:

- Water from your home's water heater tank (part of your drinking water system, not your home heating system)
- Melted ice cubes made with water that was not contaminated
- Water from your home's toilet tank (not from the bowl), if it is clear and has not been chemically treated with toilet cleaners such as those that change the color of the water
- Liquid from canned fruit and vegetables
- Water from swimming pools and spas can be used for personal hygiene, cleaning, and related uses, but not for drinking.

Listen to reports from local officials for advice on water precautions in your home. It may be necessary to shut off the main water valve to your home to prevent contaminants from entering your piping system.

Outside the Home:

Water from sources outside the home must be treated as described in **Make Water Safe**. These include:

- Rainwater
- Streams, rivers, and other moving bodies of water
- Ponds and lakes
- Natural springs

Unsafe Water Sources

Never use water from the following sources:

- Radiators
- Hot water boilers (part of your home heating system)
- Water beds (fungicides added to the water and/or chemicals in the vinyl may make water unsafe for use)

Private Drinking Water Wells



Floods and other disasters can damage or contaminate wells. If the well is not tightly capped or properly grouted, sediment and flood water could enter the well and cause contamination. Dug wells, bored wells, and other wells less than 50 feet deep are more likely to be contaminated, even if damage is not apparent.

- After a disaster, it is safest to drink bottled water until you are certain that your water is free of contaminants and safe to drink.
- If extensive flooding has occurred or you suspect that the well may be contaminated, **DO NOT** drink the water. Use a safe water supply like bottled or treated water.
- Contact your local, state, or tribal health department for specific advice on wells and testing.

IMPORTANT: Fuel and other chemical releases and spills are common during floods.

- Water contaminated with fuel or toxic chemicals will **not** be made safe by boiling or disinfection. Until you know the water is safe, use bottled water or some other safe supply of water.
- If you suspect your water has fuel or chemical contamination, contact your local health department for specific advice.

For more information: [Emergency Treatment for Wells](#)

COPING WITH DISASTER

SAMHSA's Disaster Distress Hotline: 1-800-985-5990 (TTY for deaf/hearing impaired: 1-800-846-8517) or text TalkWithUs to 66746

It is natural to feel stress, anxiety, grief, and worry during and after a disaster. Everyone will react differently and your own feelings will change throughout. Notice and accept how you feel. Taking care of your emotional health during an emergency will help you think clearly and react to the urgent needs to protect yourself and your family during an emergency. Self-care during an emergency will help your long-term healing.

Look out for these common signs of distress:

- Feelings of shock, numbness, and disbelief
- Changes in energy and activity levels
- Difficulty concentrating
- Changes in appetite
- Sleeping problems
- Nightmares and upsetting thoughts and images
- Feeling anxious or fearful



- Physical reactions, such as headaches, body pains, stomach problems, and skin rashes
- Chronic health problems can get worse
- Changes in use of alcohol, tobacco, or other drugs
- Anger or short-temper

If you experience these feelings or behaviors for several days in a row and are unable to carry out normal responsibilities because of them, seek professional help.

Take the following steps to cope with a disaster:

- Stay informed-When you feel that you are missing information, you may become more stressed or anxious. Watch the news for updates from officials. Be aware that there may be rumors during a crisis. Turn to reliable sources of information
- Take care of your body- Eat healthy well-balanced meals, exercise regularly, get plenty of sleep, and avoid drugs and alcohol. Learn more about wellness strategies for mental health.
- Take breaks- Make time to unwind and remind yourself that strong feelings will fade. Take breaks from listening to news stories. It can be upsetting to hear about the crisis and see images repeatedly. Try to do some other activities you enjoy to return to your normal life and check for updates between breaks.
- Connect with others- Share your concerns and how you are feeling with a friend or family member. Maintain healthy relationships and build a strong support system.
- **Seek help when needed-** If distress is impacting activities of your daily life for several days or weeks, talk to a clergy member, counselor, or doctor or contact the **SAMHSA helpline**.
 - Call 1-800-985-5990 ; TTY for deaf/hearing impaired: 1-800-846-8517
 - Text TalkWithUs to 66746.

Helping Children Cope

Children and youth may also have a difficult time during or after an emergency. Some young people react right away, while others may show signs of difficulty much later. Take time to talk to your children about the disaster, limit their exposure to media coverage of the event, including social media, and as soon as possible, return to and maintain a healthy routine.

A full guide for parents, caregivers, and teachers can be found at:

- <http://store.samhsa.gov/shin/content//SMA12-4732/SMA12-4732.pdf>

Children may not say how they are feeling during a crisis. Explain the situation, answer questions, and make sure they feel loved.

Children are less likely to say that they are feeling stressed but will show signs through their behaviors. Infants and young children may cry more than usual, want to be held more, and become fearful about being separated from their parent/caregiver. Adolescents and teenagers may deny that they are upset or may do more risky things.

The following are some ways to help children cope:

- Set a good example. Take care of yourself, including exercising and eating healthy.



- Encourage children to ask questions. Get down at eye level and speak in a calm, gentle voice using words they can understand.
- Make sure they feel connected, cared about, and loved.
- Listen for any rumors children might hear at school or on social media and help explain the correct information to them.
- Tell children it is normal to be upset. Let them know that it's not their fault.

VULNERABLE GROUPS

PREGNANT WOMEN

After a hurricane many people are affected, here are some tips on how to protect yourself and your baby.

If you do get sick, talk to a doctor or nurse right away.

- Tell them you are pregnant or think you might be pregnant.
- Some infections might harm your growing baby. The sooner you get the care you need, the better.
- While you are sick, drink plenty of clean water and follow the doctor's orders.
- Drinking lots of clean water and resting is very important for all pregnant women, especially when they are sick.

Before you start taking any medicines, even ones that you can buy at the store, talk with a doctor or nurse first.

- Make sure to tell the doctor or nurse that you are pregnant or might be pregnant.
- Some medicines are not good for women to take when they are pregnant, but others are okay.
- If you are already taking a medicine, talk to your doctor before stopping the medicine.

Using generators, kerosene heaters, grills, or camp stoves indoors can lead to carbon monoxide poisoning. Do not use these machines in a closed space.

- Always be sure that a window or door is open nearby. Carbon monoxide is a gas with no color or smell. It is a poison to you and your baby. If you breathe it, it can make you very sick. It can even kill you. Carbon monoxide is a poison for anyone, whether you are pregnant or not.
- If you've breathed carbon monoxide, you might feel like throwing up or feel very tired.
- If you are having problems and think you were exposed to carbon monoxide, you should tell a doctor or nurse.



If possible, do not touch or walk in flood water.

- If you do touch the water, make sure to use soap and clean water to wash the parts of your body that came in contact with the water.
- Do not swallow any of the flood water and be careful to keep it away from your mouth.
- If you feel sick in any way, talk to a doctor or nurse right away.
- Remember to tell them that you are pregnant or think you might be pregnant.

If you are pregnant, you should follow steps to prevent mosquito bites to reduce your risk for illnesses spread by mosquitoes.

- Wear long-sleeved shirts and long pants.
- Stay and sleep in places with air conditioning or that use window and door screens.
- Use EPA-registered insect repellents with one of the following active ingredients:
- DEET, picaridin, IR3535, oil of lemon eucalyptus, para-menthane-diol, or 2-undecanone
- Once a week, empty and scrub, turn over, cover, or throw out items that hold water, such as trash containers, tires, buckets, toys, planters, flowerpots, birdbaths or pools.

Stress can cause problems like having your baby come too soon or having a baby that is under weight. It is important to choose healthy ways to deal with your stress. Some ways are:

- Understand that the stress you are feeling is normal.
- Get plenty of rest – it is important for you and your baby.
- Find healthy ways to relax. Taking just a few minutes a couple times during the day to close your eyes in a quiet place can help. Reading, listening to music, or writing in a journal can also help you to relax.
- Avoid the urge to drink alcohol, smoke or take drugs as ways of coping with stress.
- Talk to friends, family members, or clergy for comfort and share your experiences and feelings with them.
- If you feel like you can't deal with your stress or that your friends or family can't help, talk to a counselor, doctor or nurse.

For more information about what you have read on this form please call Mother to Baby at 1-866-626-6847.

CHILDREN

- For children, no amount of time or stats can explain or provide comfort after a storm. Use tips to keep children safe in the aftermath (<https://www.healthychildren.org/English/safety-prevention/at-home/Pages/Keeping-Children-Safe-in-Sandys-Wake.aspx>).



- After a storm, help kids to understand that they are safe and secure by talking, playing and doing other family activities with them.
- Visit nctsn.org/trauma-types/natural-disasters for more ideas on how to reassure children they are safe after a major storm.
- Prevent children from playing in or around floodwaters. It doesn't take long or much water for children to drown. Learn more online at www.ready.gov/floods.
- Talk to your children about where you are evacuating, explain that you are doing so to keep them safe
- If you are evacuating, make sure you take your and your family's meds
- If you are separated from your child, make sure he or she knows how to get in touch with you
- Emergencies can be stressful for children, talk with your child about the situation
- Make sure your child's emergency contact info is up to date with their school
- Floods pose special danger to children. Watch for dangerous situations/learn how to keep kids safe.
- Never leave young children alone or allow them to play in damaged buildings or in areas that might be unsafe.
- Children may be afraid to sleep alone/may want to sleep w/parent or another person. Be as flexible as you can.
- Children will feel more secure if you can stay as much within a routine as possible - eat/sleep at the same time as always.
- Make sure flood-damaged surfaces are disinfected to protect your children from exposure to toxins.
- Some children may be quiet/withdrawn. Others may become upset easily/cry frequently/become angry. Encourage children to talk.
- Children w/autism may have difficulties w/change in routine - help them anticipate changes/tell them what might happen/use stories.
- Parents cleaning up/rebuilding their lives/homes may cause children to feel neglected. Involve them. This will build life skills.

PEOPLE WITH DISABILITIES

- Helping someone in wheelchair? They may be able to transfer themselves. Be respectful of their independence.
- A car battery can charge electric wheelchair during power outage in #hurricane. More tips for people w/ #disabilities: <http://1.usa.gov/1mV8QJH>
- If someone is helping you shelter b/c you have a #disability, explain how they can best assist you.
- Always ask a person w/disability how you can best assist them to shelter/cope. <http://go.usa.gov/rNA4>



PET SAFETY

CDC recommends the following guidance regarding Pet Safety in Emergencies:

- Make a Plan - Disasters can happen without warning, so be prepared for the event.
- Sheltering in Place - When sheltering at home with your pet, make sure the room chosen is pet-friendly
- If you need to evacuate, contact your local emergency management office and ask if they offer accommodations for owners and their pets.
- If accommodations are needed for your pet(s):
 - Contact local veterinary clinics, boarding facilities, and local animal shelters. Visit the Humane Society website to find a shelter in your area. .
 - Contact family or friends outside the evacuation area.
 - Contact a pet-friendly hotel, particularly along evacuation routes.
- Prepare a pet disaster kit - prepare a disaster kit for your pet(s), so evacuation will go smoothly for your entire family. Ask your veterinarian for help putting it together.
- Protect yourself from injury and illness - disasters are stressful for humans and pets alike. Practice safe handling of your pet, because your pet may behave differently during a stressful situation.
- Diseased pets can transmit to people during a natural disaster - natural disasters can contribute to the transmission of some diseases. Exposure to inclement weather conditions, stagnant water, wildlife or unfamiliar animals, and overcrowding can put your pet at risk for getting sick. Some of these illnesses can be transmitted to people.

What if I am separated from my pet?

- Make sure that your family is in a safe location before you begin your search.
- If you are in a shelter that houses pets, inform one of the pet caretakers. Give the pet caretaker your pre-made missing pet handout.
- Once you have been cleared to leave the shelter and return home, contact animal control about your lost pet.
- For more information about pet safety during an emergency, please visit online:
<https://www.cdc.gov/features/petsanddisasters/index.html>



ADDITIONAL WEB AND SOCIAL MEDIA RESOURCES

- https://www.cdc.gov/disasters/hurricanes/hurricane_harvey.html
- <https://www.cdc.gov/disasters/hurricanes/index.html>
- <https://www.cdc.gov/nceh/toolkits/hurricanes/default.html>
- <https://www.cdc.gov/disasters/floods/index.html>
- <https://www.cdc.gov/nceh/toolkits/floods/default.html>
- <https://www.cdc.gov/disasters/hurricanes/pdf/infographic-be-ready-hurricanes.pdf>
- <https://www.cdc.gov/disasters/hurricanes/educationalmaterials.html>
- <https://www.cdc.gov/phpr/infographics/br-floods.htm>
- <http://www.nws.noaa.gov/os/water/tadd/>

FOR MORE INFORMATION

CDC website – <http://www.cdc.gov>

CDC Harvey website – https://www.cdc.gov/disasters/hurricanes/hurricane_harvey.html

CDC emergency website – <https://www.emergency.cdc.gov>

CDC-INFO by phone:

Monday - Friday

8:00 a.m. - 8:00 p.m. EST

800-CDC-INFO

(800-232-4636)

TTY 888-232-6348

CDC-INFO by email:

<https://wwwn.cdc.gov/dcs/ContactUs/Form>

Related Websites

- **FEMA website** – <https://www.fema.gov>
- **FDA website** – <https://www.fda.gov>



**U.S. Department of
Health and Human Services**
Centers for Disease
Control and Prevention