



TEAMSTERS

Safety & Health FACTS

Safety and Health Department, International Brotherhood of Teamsters
25 Louisiana Avenue, NW, Washington, DC 20001 ♦ 202/624-6960 ♦ ibtsafety@teamster.org

How to Protect Workers in Flooded Areas

Storm and flood cleanup activities can be hazardous. Workers and volunteers involved with storm and flood cleanup should be aware of the potential dangers and proper safety precautions involved with these activities. The U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) has urged employers and workers to take appropriate safety measures to avoid injury and illnesses associated with the recovery and cleanup efforts.

Some of these hazards include: Electrical Hazards, Carbon Monoxide, Musculoskeletal Hazards, Heat Stress, Motor Vehicles, Hazardous Materials, Fire, Confined Spaces and Falls. In addition, floodwater often contains infectious organisms, including intestinal bacteria such as E. coli, Salmonella, and Shigella; Hepatitis A Virus; and agents of typhoid, paratyphoid and tetanus. Exposure is mostly through ingesting contaminated food or water but can also occur from contaminated soil or water entering broken areas of the skin, such as cuts, abrasions, or puncture wounds. This can result in similar signs and symptoms including nausea, vomiting, diarrhea, abdominal cramps, muscle aches, and fever.

Human remains may also contain bloodborne viruses such as hepatitis viruses and HIV, and bacteria that cause diarrheal diseases, such as shigella and salmonella. There is, however, no risk of infectious diseases from being near human remains for people who are not directly handling dead bodies.

Pools of standing or stagnant water become breeding grounds for mosquitoes, increasing the risk of encephalitis, West Nile Virus or other mosquito-borne diseases. The presence of wild animals in populated areas increases the risk of diseases caused by animal bites (e.g., rabies) as well as diseases carried by fleas and ticks.

Immunizations

The Centers for Disease Control and Prevention (CDC), Department of Health and Human Services, has issued "Interim Immunization Recommendations, for Emergency Responders: Hurricane Katrina." Updated vaccination recommendations for persons responding to the disaster area are posted on CDC's website at:

<http://www.bt.cdc.gov/disasters/hurricanes/responderimmun.asp>.

Required Immunizations:

- ◆ **Tetanus/diphtheria (Td):** Tetanus and diphtheria toxoid (receipt of primary series, and Td booster within 10 years) Wounds that are associated with a flood should be evaluated for risk; a physician may recommend a tetanus immunization. Tetanus, however, can be acquired from contaminated soil or water entering broken areas of the skin, such as cuts, abrasions, or puncture wounds. Tetanus is an infectious disease that affects the nervous system and causes severe muscle spasms, known as lockjaw. The symptoms may appear weeks after exposure and may begin as a headache, but later develop into difficulty swallowing or opening the jaw.
- ◆ **Hepatitis B** vaccine series for persons who will be performing direct patient care or otherwise expected to have contact with bodily fluids.
About 75-80% of adults who have received 2 valid doses of vaccine have developed a protective antibody level. Standard precautions to protect against exposure to blood or blood-containing fluids should be used. If a responder who is not fully vaccinated comes into contact with blood or body fluids, post exposure precautions should be taken according to previously published CDC and OSHA recommendations.

Based on the low probability of exposure in the flooded regions, the CDC does not anticipate the need for the following vaccinations for relief workers or emergency responders:

- ◆ **Hepatitis A vaccine:** Even though the water and sewage systems are damaged or out of operation in many areas along the Gulf Coast, the risk of a hepatitis A epidemic is extremely low. Vaccine will take at least one to two weeks to provide substantial immunity.
- ◆ **Typhoid vaccine:** Low probability of exposure, even under these conditions, in U.S.
- ◆ **Cholera vaccine:** In addition to the low probability of exposure, there is **no** licensed cholera vaccine available in the U.S.
- ◆ **Meningococcal vaccine:** No expectation of increased risk of meningococcal disease among emergency responders.
- ◆ **Rabies vaccine series** (the full series is required for protection): Persons who are exposed to potentially rabid animals should be evaluated and receive standard post-exposure prophylaxis, as clinically appropriate.

Personal Hygiene

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. To avoid waterborne disease, it is important to wash hands with soap and clean, running water, especially before work breaks, meal breaks, and at the end of the work shift.

Personal Protective Equipment (PPE)

Physical injuries were a source of most injuries following Hurricane Andrew in 1992.

OSHA's personal protective equipment standards (29 CFR 1910.132-138) require employers to furnish, and require employees to use, suitable protective equipment where there is a "reasonable probability" that injury can be prevented by such equipment. The standards also set provisions for specific equipment. For more information, refer to the IBT Safety and Health Fact Sheet: *Protect Yourself with Personal Protective Equipment*.

Workers and volunteers involved with flood cleanup should avoid direct skin contact with flood waters if possible and through the use of appropriate PPE and clothing. In most instances, the selection of PPE will be dependent on site specific conditions, hazards, and tasks; the list below provides interim guidance by the CDC on PPE and clothing for flood response workers responding to Hurricane Katrina:

Hand Protection (29 CFR 1910.138)

- ◆ Heavy, waterproof, cut-resistant work gloves. Other types of protective gloves may be required if handling identified material hazards;
- ◆ To prevent skin irritation from exposure to molds, wear long gloves that reach the middle of the forearm. If you are using a disinfectant, a biocide such as chlorine bleach, or a strong cleaning solution, you should select gloves made from natural rubber, neoprene, nitrile, polyurethane, or PVC. Avoid touching mold or moldy items with your bare hands;
- ◆ Use impervious gloves when handling blood and body fluids, such as in human remains.

Foot Protection (29 CFR 1910.136)

- ◆ Electrically insulated, watertight boots with steel shank, toe, and insole. Tennis shoes or sneakers should *not* be worn because they will transfer contamination and will not prevent punctures, bites, or crush injuries;
- ◆ Before entering a contaminated area that has been flooded, you should don plastic or rubber boots to avoid contact with floodwater. Hip waders may be appropriate to help prevent contact with flood waters;
- ◆ Safety shoes with slip resistant soles would be appropriate where there are piles of debris and unstable or slippery work surfaces;

Eye and Face Protection (29 CFR 1910.133)

- ◆ To protect against eye injuries caused by dust, flying debris and welding flash, use safety glasses with side shields (as a minimum) or full face shields. An eyewear retainer strap is

suggested. Consider safety goggles for protection from fine dust particles, or for use over regular prescription eye glasses. Only use protective eyewear that has an ANSI Z-87 mark on the lenses or frames. Sun/glare-protective lenses may be needed in some work settings;

- ◆ Where exposure to molds may be possible, wear goggles that do not have ventilation holes;
- ◆ Use eye protection, such as goggles or a faceshield, when large quantities or splashes of blood are anticipated.

Body Protection (29 CFR 1910.132)

- ◆ If water is suspected of being contaminated with hazardous chemicals, cleanup workers may need to wear special chemical resistant outer clothing;
- ◆ To decrease the risk of mosquito and other insect bites, such as fire ants, wear long-sleeved shirts, long pants, and socks. Use insect repellants that contain DEET or Picaridin (make sure you follow directions written on the label);
- ◆ Use gowns when large quantities or splashes of blood are anticipated.

Respiratory Protection (29 CFR 1910.135)

Respiratory Protection should be worn to protect against breathing dust containing asbestos, silica and other toxins; potential chemical exposures;

OSHA's standard for Respiratory Protection (29 CFR 1910.134) states that respirators should be provided by the employer when such equipment is necessary to protect the health of the employee. The employer should provide the respirators which are applicable and suitable for the purpose intended. Under some work conditions, NIOSH approved respirators may be necessary (e.g., for exposures to mold-contaminated materials/environments, or other recognized chemical, physical, or biological hazards);

For more information, see IBT Safety and Health Fact Sheet, *Respiratory Protection*.

- ◆ An N-95 or greater respiratory protection is acceptable for most activities, including silica and Portland cement dust.
- ◆ If there is asbestos present, use a half mask elastomeric respirator with N, R, or P-100 series filters.
- ◆ If airborne contaminants are causing eye irritation, full face respirators with P-100 organic vapor (OV)/acid gas (AG) combination cartridges should be used.
- ◆ Respirators must fit properly to protect you.

- ◆ Surgical masks should not be used because they do not provide adequate protection.
- ◆ In dusty environments with strong odors, use a combination particulate filter/organic vapor cartridge, if enough breathing air is present.
- ◆ If entering a confined space, which may have unknown concentrations of toxic gases or may be deficient in oxygen, a self-contained breathing apparatus (SCBA) may need to be provided. See IBT Safety and Health Fact Sheet on *Permit-required Confined Spaces*.
- ◆ Avoid breathing dust (fungal spores) generated by wet building materials. To prevent wheezing and irritation from exposure to molds, use an N-95 NIOSH-approved disposable respirator as a minimum when working with small areas of moldy or damp materials. More protection may be needed for extended work.
- ◆ Use masks when large quantities or splashes of blood are anticipated.

Head Protection (29 CFR 1910.135)

- ◆ Soft hat or other protective head cover. Wear an American National Standards Institute (ANSI) rated hardhat if there is any danger of falling debris or electrical hazards;

Hearing Protection (29 CR 1910.95)

- ◆ Use hearing protection when working in an environment with any noise that you must shout over to be heard; for more information, see IBT Safety and Health Fact Sheet, *Hearing Conservation and Occupational Noise Exposure*.

Fall Protection

- ◆ Fall protection with lifelines tied off to suitable anchorage points including bucket trucks, whenever possible. For more information, see IBT Safety and Health Fact Sheet, *Fall Protection in General Industry*.

References

Cleanup Hazards. Occupational Safety and Health Administration (OSHA), Department of Labor.

http://www.osha.gov/OshDoc/data_Hurricane_Facts/Bulletin1.pdf

Fact Sheets on Disaster Recovery Hazards. Occupational Safety and Health Administration (OSHA), Department of Labor.

<http://www.osha.gov/OshDoc/hurricaneRecovery.html>

Flood Cleanup. Occupational Safety and Health Administration (OSHA), Department of Labor, 9/2005.

http://www.osha.gov/OshDoc/data_Hurricane_Facts/floodcleanup.pdf

Emergency Preparedness and Response, Centers for Disease Control and Prevention (CDC), Department of Health and Human Services.

<http://www.bt.cdc.gov/disasters/hurricanes/index.asp>

Hurricane Katrina Response: Storm Flood and Cleanup. National Institute for Occupational Safety and Health (NIOSH). Centers for Disease Control and Prevention (CDC), Department of Health and Human Services.

<http://www.cdc.gov/niosh/topics/flood/>

Interim Immunization Recommendations, for Emergency Responders: Hurricane Katrina. Centers for Disease Control and Prevention (CDC), Department of Health and Human Services.

<http://www.bt.cdc.gov/disasters/hurricanes/responderimmun.asp>

Interim Guidance on Personal Protective Equipment and Clothing for Flood Response Workers. National Institute for Occupational Safety and Health (NIOSH). Centers for Disease Control and Prevention (CDC), Department of Health and Human Services.

<http://www.cdc.gov/niosh/topics/flood/ppe-flood.html>

Keeping Workers Safe During Clean Up and Recovery Operations Following Hurricanes.

Occupational Safety and Health Administration (OSHA), Department of Labor.

<http://www.osha.gov/OshDoc/hurricaneRecovery.html>

Prevent injury after a Natural Disaster. Centers for Disease Control and Prevention (CDC), Department of Health and Human Services.

<http://www.bt.cdc.gov/disasters/injury.asp>

Protect Yourself with Personal Protective Equipment. Safety and Health Fact Sheet. IBT Safety and Health Department. <http://www.teamster.org/resources/sh/factsheets/ppe.pdf>

Safety Awareness for Responders to Hurricane Katrina: Protecting Yourself While Helping Others. National Institute for Environmental Health Sciences (NIEHS).

http://www.teamster.org/resources/sh/presentations/NIEHS-Hurricane_workersafety/NIEHS-Hurricane_workersafety.pdf