

Hand Hygiene and Protective Gloves in Hurricane-Affected Areas

Flood environments present many health and safety challenges for rescue workers, emergency responders and clean-up crews. Preventing or minimizing disease exposure when working in contaminated flood waters is possible by taking various precautions, specifically with proper hand hygiene and the use of protective gloves.

Minimizing Disease Exposure When Working in Contaminated Flood Water

After an emergency, it is often difficult to find running water. Still, it is imperative to wash your hands with soap and clean (or disinfected) water to avoid illness.

Before working in flooded environments, assemble adequate supplies of the following items:

- Clean water, disposable latex or nitrile gloves; hand lotion
- Household bleach; rubbing alcohol (or alcohol-based towelettes).
- Spray bottles

Wash hands with soap and clean (or disinfected) water before preparing or eating food; after toilet use; after participating in decontamination and other cleanup activities; and after handling articles contaminated with floodwater or sewage.

- If clean water is not available, contaminated water can be bleach-disinfected by mixing $\frac{1}{4}$ teaspoons of household bleach per 1 gallon of water and let stand for 30 minutes.
- Label containers (e.g., "Bleach-disinfected water -- do not drink").
- If clean water is available, follow these procedures:
 - ◆ Place hands under running water pointed downwards;
 - ◆ Rub hands together (with soap if available) and wash all surfaces well, including under fingernails.

- ◆ After rinsing thoroughly, dry hands completely with a clean towel.

If water is not available, use alcohol-based products made for washing hands.

- Use a solution of 70% (v/v) rubbing (isopropyl) alcohol (~3 quarts rubbing alcohol, and ~1 quart water).
- Using a sprayer, cover all surfaces well, including wrists, palms, backs of hands, fingers and under fingernails. Rub gently and allow to air dry.
- Alcohol-based towelettes or hand rubs significantly reduce the number of germs on skin (The Association for Professionals in Infection Control (APIC) suggests using a towelette to cleanse the hands and then an alcohol gel to thoroughly disinfect).

Glove Safety in Contaminated Flood Waters

It is extremely important to wear protective gloves when working in contaminated flood waters, particularly when handling human or animal remains. Ungloved hands should never make direct contact with body fluids and fecal materials, or flood waters contaminated with fecal material.

When working in contaminated flood waters:

- Wear a combination of gloves (if possible) including an inner cut-resistant glove (nitrile or similar washable material) and an outer nitrile or latex disposable glove (preferably 4 to 8 mil thickness).
- Protect gloved hands from cuts or any puncture wounds caused by sharp objects.

- Should a puncture wound occur, carefully remove the contaminated gloves and wash the affected area with soap and clean (or disinfected) water or an alcohol-based hand cleaner. See a doctor or health department official if the wound is contaminated with feces, soil, or body fluids. **Seek immediate medical attention if the wound becomes red, swells, or oozes pus.**
- Avoid touching your face with contaminated gloves; hand-to-mouth contact is a major route of contracting disease.
- Remove contaminated gloves after use; discard if gloves become torn or damaged.
- Take extra care when removing contaminated gloves.
 - ◆ Point the hand downward and peel off the outer glove starting at the wrist, turning them inside out as you proceed. Do the same for any inner gloves worn.
- ◆ Be careful to avoid splashes of contaminated body fluids or fecal materials to your face or that of others.
- ◆ Avoid contacting any uncontaminated areas of skin.
- Properly discard outer gloves if disposable and disinfect inner washable gloves, if used.
- Wash hands with soap and clean (or disinfected) water, or use an alcohol-based hand cleaner immediately after removing contaminated gloves.

Additional Concerns

- Workers allergic to latex should use nitrile gloves.
- To protect against dermatitis, which can occur from prolonged exposure to perspiration in gloves, a thin cotton glove can be worn inside the external gloves.
- Frequent hand-washing, especially with alcohol-based disinfectants can irritate the skin and make it more susceptible to abrasion. Use hand lotion to alleviate dryness. However, do not use hand lotion under latex gloves because this can break down the gloves.
- Contaminated clothing, tools and equipment should be thoroughly cleaned using soap and clean water if available.

This is one in a series of informational fact sheets highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory impaired individuals upon request. The voice phone is (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.

For more complete information:



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