Advice Sheet - Post-Flood Health and Safety Advice

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Categories: Health and Medical

Flooding Health Concerns

Floods are a common natural disaster throughout the world. Heavy seasonal rains and areas with melting snowpacks may cause significant increases in both standing water, as well as rapidly moving rivers and tributaries that can be highly hazardous. Obvious health concerns such as drowning and disease are worries for travelers and residents of flood-prone areas. Lesser realized risks, such as electrical dangers and displaced wildlife, also need to be considered. The following is a global overview of flooding concerns worldwide.

Rapidly Moving Water

Even water that appears shallow or slow-moving may have very deep segments due to erosion, along with swift undercurrents. Never attempt to cross standing water. If you cannot see the road or its line-markings, do not drive through the water. As little as one foot of water (30 cm) can move most cars off of the road, and as little as six inches (15 cm) of fast-moving water can sweep a person off of his or her feet.

Displaced Wildlife

Any natural disaster may cause a disruption to the environment and the wildlife that dwell within the affected area. Snakes, other reptiles, mammals, birds, and insects may become displaced and suffer from scarce resources of food and shelter similar to their human counterparts. Occurrences of diseases such as rabies may rise; animal encounters should be avoided. If bitten or scratched, seek medical attention immediately. The wound should be thoroughly cleansed with soap and water, and rabies prophylaxis should be strongly considered if the offending animal was mammalian and unable to be identified as having been vaccinated.

Hypothermia

Prolonged exposure to cold or cool water or mud can lead to hypothermia and decreased survival time, even at temperatures as high as 27 C (80 F). Between 21 and 27 C (70 and 80 F), survival time is estimated to be as little as three hours for some, with exhaustion and unconsciousness occurring between three and 12 hours' time. In areas where the water temperature is 4.5-15.5 C (40-60 F), the survival time is reduced to one to six hours. Keeping dry is very important to surviving in most flood-prone environments.

Mechanical Hazards

Floodwaters are very strong and can displace large structures, breaking them apart in the process. Exposed glass and metal, as well as nails and other sharp objects, as well as nails

and other sharp objects that can cause serious injury, may be hidden in murky waters, Continually shifting waters may cause entrapment, as large, moving objects may suddenly pin a victim unexpectedly. Watch for potential paths of water movement, and take caution not to attempt to cross the path. Additionally, electrical lines may be broken, and charged power lines may remain in floodwaters, causing electrical hazards. Until the power is turned off at the main breaker, assume the lines are still active. This includes flooded basements and dwellings. Some countries do not have "safety breakers" that "trip" when overloaded or suffering from a ground fault or short.

Toxic Spills

Flooding may occur near industrial sites, raising concerns of toxic chemicals and hazards released in an uncontrolled manner into the environment, contaminating the surrounding ecosystems unabated. Poisoning caused by the release of above or underground chemicals that combine inadvertently may occur immediately or take months following exposure. The resulting illnesses may range from dermatitis to cancer, depending on the exposure. Mitigation and control of the release will depend on the area and government control where flooding occurs. Avoidance of contaminated floodwaters and personal protective clothing and equipment to prevent contact with water is the best means of preventing illness and injury.

Food

Food may be easily contaminated by floodwater contact. Contaminants with pathogens and chemicals may cause illness if particular care is not taken before consuming even sealed, nonperishable food. Any food that has come into contact with floodwaters should be treated as if it is contaminated. All food should be cooked thoroughly. Food may only be salvaged if it is in a commercially canned metal or rigid, sealed plastic container and can be washed in a solution of warm, clean water and detergent. It should then be sanitized by soaking in a solution of one tablespoon of bleach in a gallon of clean water. Products should be relabeled with any information from the original label. Cans with "easy open" tops should be considered unsafe and discarded, as bacteria may enter at the seams.

Water

Sealed and bottled water is preferred for consumption. If sealed and bottled water is not available, there are several methods to treat water:

- Add eight drops of sodium hypochlorite (bleach) to clear water or 16 drops to turbid water in a one-gallon, standard-sized container and agitate. Wait 30 minutes before drinking.
- Treat clear water with water purification tablets per the manufacturer's directions.
- **six hours** if sunny or **two days** if cloudy.
- Boil water vigorously for at least one minute in a clean container. At altitudes greater than 2,000 meters (6,562 feet), boil for at least three minutes.
- Add five drops of a 2-percent iodine solution to one liter of water and let stand at least 30 minutes - longer if colder than 25 C (33 F). Do not use iodine if thyroid disease is present or if pregnant, unless there is no alternative.
- Portable water filters. Use per manufacturer's directions. These do not filter all chemicals and viruses. Check the manufacture's guide.

Disease Threats

Disease hazards following a flood will vary depending upon location. The most common threats will be due to waterborne disease risks from bacteria or viruses carried from poor sanitation and agricultural disruption. In developing countries, diseases such as cholera, leptospirosis, and typhoid fever may be common following floods. In more industrialized areas, illnesses such as Campylobacter, Giardia, and Cryptosporidia are the more likely pathogens. In temperate climates, mosquito-borne threats are a problem for several weeks following floods, when waters recede and standing pools have yet to be absorbed into the soil, yielding plentiful breeding grounds for disease vectors. Under these conditions, epidemics for illnesses such as dengue, malaria, hemorrhagic fevers, and other pathogens may become a threat. It is important in any case to maintain a good sense of personal hygiene, wash hands frequently, use mosquito repellent and insect-treated nets when unable to stay indoors, and ensure that all immunizations are up to date. If traveling, bring anti-diarrhea prophylaxis that will cover the most common pathogens to the area as well as anti-motility agents, and use these in the event of illness. Seek medical attention promptly for any fever or illness lasting greater than several days, despite treatment.

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