

# FLOODING: HEALTH, SAFETY AND ENVIRONMENTAL ISSUES

Flooding can create serious health and safety risks. Floodwater can come into contact with many sources of pollution (including waste produced from agricultural operations, chemicals and raw sewage) and can carry diseases that impact human health. Floodwater should always be considered contaminated.

Heavy rains, spring thaw and quickly melting snow can cause rivers, creeks or streams to overflow and flood. Changing rainfall patterns and extreme weather due to climate change can also increase the risk of flooding. Some floods develop slowly, while others develop in minutes.

People who live in low-lying areas tend to be at a greater risk from damage caused by flooding. Pay attention to local media for flood related information, especially in a severe flooding event, so you can prepare and respond appropriately.

Environment and Climate Change Canada issues [Public Weather Alerts](#) when heavy rainfall has the potential to cause local flooding. Alerts are issued as special weather statements, advisories, watches and warnings. Local conservation authorities also communicate local flood messaging including:

1. Flood Warnings: Flooding is imminent or already occurring
2. Flood Watches: Potential for flooding
3. Watershed Conditions Statements: Early notice of potential flooding based on heavy rain, melting snow or other factors and water safety information

Follow the advice and instructions of emergency response authorities if a flood warning has been issued for your area and be aware of the public health risks.

## Prevent injuries

### Avoid drowning

- Stay away from moving water and avoid already flooded areas. Cold water temperatures and slippery or unstable streams and riverbanks make these areas particularly dangerous
- Roadbeds may be washed out under floodwaters. Never drive through a flooded roadway. If your vehicle is suddenly caught in rising water, leave it immediately and get to higher ground
- Be especially cautious at night when it is harder to recognize flood dangers

### Avoid electrocution

Flooding can cause electrical hazards. To avoid electrical shocks or electrocution:

- Wear rubber boots
- Shut off the power to the flooded area at the breaker box. Ask your electrical utility for help if needed

- Stay out of the floodwaters as much as possible, especially near electrical lines or outlets
- Never touch or approach downed power lines or anything in contact with them. If a power line falls on your car, stay inside your car until you are told by local authorities to get out or if the car catches fire
- Do not touch a person who has been electrocuted before making sure the person is no longer touching the electrical source
- Never operate an electrical device or handle extension cords while standing in or near water
- Do not return home after a flood until local authorities have told you it is safe to do so

## Prevent illness

### Avoid exposure to floodwaters

- Where possible, avoid contact with floodwaters to reduce your exposure to infectious diseases and chemical hazards
- If you are exposed to floodwaters and you develop diarrhea, vomiting or fever, seek immediate medical attention
- If you have open cuts or wounds that are exposed to floodwater, thoroughly clean with soap and potable water and seek medical attention if needed
- It is important to have up-to-date immunizations as there are many pathogens in floodwaters that can lead to vaccine-preventable illnesses, like tetanus
- Children, pregnant women and people with respiratory conditions should not handle water and materials contaminated by sewage

### Avoid drinking contaminated water

- Municipal water is safe and treated, but in the event of flooding, follow public service announcements about the municipal water supply
- If your water comes from a well and has been contaminated with flood waters, do not use the water for cooking, drinking, or bathing – use bottled water or water from an approved source
- Boiling does not remove chemicals from well water contaminated by floodwaters
- Flooded wells should be disinfected (use the [Public Health Ontario well disinfection tool](#)) once waters recede, and tested for bacteria before water is consumed

## Prevent food-borne illness and keep food safe

- Do not eat food or drink liquids that have come into contact with floodwaters, including items in the freezer or fridge, opened jars of food and bottled drinks. If you are unsure whether an item is spoiled or contaminated, throw it out
- Undamaged, commercially prepared foods in airtight, waterproof cans, jars or pouches that remain sealed or are unopened are safe to use if you follow these procedures before opening:
  1. Remove the labels on cans or pouches as they may have come into contact with dirt or bacteria
  2. Brush or wipe away any visible dirt or silt
  3. Thoroughly wash the cans, jars or pouches with soap and water that is safe for drinking
  4. Sanitize the cans with a mild bleach and water solution – 5 mL (1 teaspoon) of bleach per 750 mL (3 cups) of water or in boiling hot water
  5. Air dry the cans, jars, and pouches to prevent potential contamination when they are opened

6. Relabel the cans, jars, and pouches, including the best before date, with a permanent marker
- If the flood causes a power outage, keep your fridge and freezer closed as much as possible to maintain cold temperatures
  - Throw out meat, fish, poultry, eggs and any leftovers that have been out for more than two hours at temperatures above 4°C (40°F)
  - Typical symptoms of food-borne illness include stomach cramps, diarrhea, nausea, fever, chills, headache, and vomiting. If you experience any of these symptoms, seek medical attention

## Prevent mould

Exposure to mould can have a negative impact on respiratory health. Health effects may include eye, nose and throat irritation; worsening of asthma symptoms; wheezing and shortness of breath. The level of risk depends on the amount of mould growth, length of time it has been present, and the overall health of the individual.

Follow these tips to prevent mould growth:

- Immediate action is important. Mould will begin to grow within 48 hours
- Check for mould anywhere that is damp and especially where water damage has occurred
- Look for signs of mould, leaks or excessive moisture, such as stains or discolouration on floors, walls, windowpanes, ceiling tiles, fabrics and carpets
- Drywall and ceiling tiles that have been wet for prolonged periods should be discarded as there is a greater chance they may have mould growing on them
- Use a vacuum cleaner with a high efficiency particulate air (HEPA) filter or use a central vacuum system that is exhausted outside. Vacuum all surfaces thoroughly, including non-washable items such as sofas, chairs and mattresses that remained dry in the flood.
- Always wear boots, rubber gloves and a face mask when cleaning mould
- Scrub small areas of mould with water and mild detergent immediately. Dry the area quickly and completely. Open windows and doors to provide plenty of fresh air or use a portable dehumidifier
- Individuals with known mould allergies or asthma should not clean or remove mouldy materials
- Homeowners should consult a professional for help with cleaning areas of mould greater than one square metre

## Clean and disinfect

Flooding can pose a potential health risk to homeowners because bacteria and other microorganisms may live in the remaining debris. It is extremely important to clean, disinfect and possibly replace materials that have been damaged by flooding.

Follow these tips to stay safe:

- Assume that everything touched by floodwater has been contaminated and must be cleaned and disinfected or thrown away. If the material is replaceable and cannot be thoroughly cleaned and rapidly dried, it should be replaced
- Wear rubber boots, face masks, protective eyewear, and rubber gloves when cleaning up after a flood

- Always wash hands after handling articles contaminated by floodwater. If soap and potable water are not available for hand washing, use an alcohol-based hand sanitizer that has 70-90% alcohol with a Natural Product Number (NPN) and is within its expiry date
- Discard items that have been contaminated with floodwater and cannot be washed and disinfected, such as mattresses, carpeting, carpet padding, rugs, upholstered furniture, cosmetics, stuffed animals, baby toys, pillows, wooden cutting boards, baby bottle nipples, pacifiers, foam-rubber items, books, and wall coverings
- All hard surfaces and items that can be cleaned and disinfected, such as flooring, sealed wood/drywall, concrete, molding, plastic and metal furniture, countertops, appliances, children's toys, sinks and other plumbing fixtures should be washed with a solution of potable water and soap, and then disinfected using a bleach solution
- Children's toys that have been disinfected should be rinsed thoroughly with potable water after disinfection
- Surfaces that may come in contact with food (such as countertops, pantry shelves and fridges) should be carefully cleaned with a solution of potable water and soap, and disinfected with a bleach solution
- Dry clean or wash all linens and clothing in hot potable water and laundry detergent

#### **Use undiluted household bleach (5.25%) when preparing a solution (5,000 PPM)**

- Mix 100ml (20 teaspoons) of bleach into 1L (4 cups) of water
- When making bleach and water solution, always add the bleach to the water
- Ensure the bleach remains on the surface for at least 10 minutes
- Never mix bleach with ammonia or other household cleaners. Mixing bleach with ammonia products will produce dangerous toxic fumes
- Ensure the area you are working in is well-ventilated – use fans or open windows and doors
- Ensure a new diluted bleach solution is made daily, if needed

**For more information on this or any other health related topic, contact York Region Health Connection at 1-800-361-5653; TTY 1-866-512-6228 or visit [york.ca/health](http://york.ca/health)**

## **More resources**

- [Conservation Ontario: Flood and Erosion Management](#)
- [Government of Canada: Addressing Moisture and Mould in Your Home](#)
- [Government of Canada: Get Prepared After a Flood](#)
- [Infection Prevention Tips for Flood and Hurricane Season, Association for Professionals in Infection Control and Epidemiology](#)
- York Region Emergency Management: [York Region's Emergency Preparedness Guide](#)

#### **Flood Warning Forecast/Notice/Warning information**

- [Government of Canada: Public Weather Alerts](#)
- [Province of Ontario's Flood Forecasting and Warning Program](#)
- [Lake Simcoe Region Conservation Authority \(LSRCA\)](#)
- [Toronto Region Conservation Authority \(TRCA\)](#)