All About Mold

Information About Mold

Mold plays a very important role in our lives. Without mold, we wouldn't have certain life-saving drugs like penicillin. We also wouldn't have cheese.

Sometimes, though, mold grows in places it shouldn't - including inside our homes or workplaces.

This kind of mold needs to be cleaned up so that it doesn't cause health problems, such as headaches, runny eyes and noses, and coughing; or trigger attacks in kids and adults with asthma.

Use the flyers below to learn more about mold. You can also call the Michigan Department of Health and Human Services (MDHHS) at 1-517-335-9436, if you need more help.

- **All About Mold** - information on finding mold, cleaning and testing* for mold, and 'toxic black mold'
- **Mold & Your Health** - information on common health problems caused by mold
- **Steps for Cleaning Mold** - step-by-step clean up instructions for mold in your home
- **Mold & Home Owners** - addresses some common problems a home owner may face with mold and consumer protection issues
- **Mold & Renter Disputes** - provides step-by-step instructions a renter may follow to address problems with mold in a rental home or apartment.
- **All About Mold (for Health Care Providers)** - more information about mold from a clinical perspective

** Please note that MDHHS can't test your home for mold. We also do not recommend testing for mold. The flyer, "All About Mold," explains why. The State of Michigan does not provide certification for "mold remediators" or mold testing companies.*

Centers for Disease Control and Prevention

Water, Sanitation, & Hygiene (WASH)-related Emergencies & Outbreaks

Disinfection of Drilled or Driven Wells After an Emergency

Working on a well after a natural disaster can be hazardous. Disasters such as earthquakes, fires, and floods can damage well piping and electrical systems. Unless you are highly skilled, electrical repairs are best conducted by a qualified electrician or well contractor.

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 flood events. If your water smells like fuel or has a chemical odor or if you live in an area where the potential for a release of fuels, pesticides, or other hazardous chemicals is high, contact your local health department for specific advice. 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.

Drinking water wells are best disinfected by a well or pump contractor. If you suspect that your well might be contaminated, contact your local or state health department or agriculture extension agent for specific advice on disinfecting your well. Use this guidance after checking with local authorities for flood precautions for private wells in your area.

- Safety Precautions to Take Before Starting +
- Disinfection of Drilled or Driven Wells +
- Sampling After Disinfection +
- Disinfection Issues and Concerns +

More Information

- CDC. Disinfecting Wells After a Disaster
- EPA. What to Do After the Flood. A guide to well and pump inspection and emergency disinfection of wells that have been flooded (with illustrated instructions), including PDF documents in English, Spanish, and Vietnamese.
- EPA. Private Drinking Water Wells
- WHO. Household Water Treatment and Safe Storage Following Emergencies and Disasters. [PDF – 6 pages]
- WHO. The International Network to Promote Household Water Treatment and Safe Storage
- National Ground Water Association. How to Find a Contractor

Page last reviewed: February 24, 2020

Floods

Flooding is not uncommon in Michigan. In 2013, historic flooding along the Grand Rapids River affected many homes and businesses. In 2014, severe flooding caused a great deal of damage in the city of Detroit. Heavy rains often cause flash flooding across the state. Flooding poses safety, health, and economic threats and could mean having to leave your home. It's is worth taking a little time to learn what to do if flooding occurs.

How to Stay Safe

Avoid Floodwater

You can prevent injuries by avoiding or minimizing your exposure to floodwater. Floodwater can be contaminated with chemicals and/or sewage, and can have dangerous pieces of floating or hidden metal and glass. Turn off main electrical breakers or fuse boxes and avoid downed power lines to prevent electrocution. Driving through floodwater is dangerous and should be avoided. Even six inches of water can easily cause a vehicle to lose control and two feet of water can sweep away a vehicle. **Remember: Turn around, don't drown!**

How to Stay Healthy

Drinking Water Safety

Listen to public announcements or contact your local health department to find out if your tap water is safe to use. Until the water is safe, use bottled water or boil or disinfect water. Make sure you are using safe drinking water to wash dishes, brush your teeth, prepare or wash food, wash your hands, make ice, or make baby formula!

- For more information about drinking water safety, visit water.epa.gov/drink/emerprep.

Food Safety

Make sure your food and water are safe before you consume them. Flood water can be contaminated with poisonous chemicals and even sewage, which can cause you and your family to become very ill if consumed.

To keep your food safe:

- Throw away any food that may have come in contact with flood or storm water. This includes food containers with screw-caps, snap-lids, crimped caps (soda pop bottles), twist caps, flip tops, snap-open, and home canned foods as these types of items cannot be disinfected.
- Throw away any perishable food items in your refrigerator, such as meat, poultry, fish, eggs, and leftovers, if the power has been out for 4 or hours or more.
- Food items in unopened, store-bought cans that may have come in contact with flood or storm water must be washed and disinfected (see instructions below). If a canned good item is bulging, opened or damaged, throw it away, whether it has come in contact with flood water or not.

- Throw away any food with an unusual odor, color or texture.
- **Remember: When in doubt, throw it out!**

Wash and disinfect food items in unopened, store-bought cans that may have come in contact with flood or storm water:

1. Remove the label and wash the can well with soap and clean water.
2. Prepare a solution of bleach and water by mixing one capful of unscented household chlorine bleach into one gallon of water.
3. Disinfect the can by submerging it into the bleach water for one full minute. Do not rinse the can off. Allow the can to air dry before using it or storing it in a clean, dry place.
4. Re-label the can with a sharpie or other permanent marker. Don't forget to include any expiration date that was listed on the original label.

For more information about food safety, visit www.foodsafety.gov.

Mold

Mold begins to grow on items that were wet for two days or longer. You may not be able to see mold, but it can harm your health. Mold can cause asthma attacks or irritation to the eyes, nose, and skin. Getting rid of mold is important to staying healthy.

- Protect yourself from mold and cleaning chemicals by using protective gear such as long pants, long- sleeved shirts, rubber boots, gloves, and goggles.
- Wear an N-95 mask, available at hardware stores, to keep from breathing in mold. Do not use dust masks or handkerchiefs as the mold spores can pass through the very small holes in the material and get into your lungs. N- 95 masks are specially designed to keep tiny particles, like mold spores, from passing through the mask. Make sure the mask fits snugly around your nose and mouth.

For more information about mold, visit the Michigan Department of Health and Human Services' Mold Website

How to Prepare

Make a Plan

Before any emergency, having a household emergency plan and emergency supplies to ensure you and your family stay safe and healthy. A flood can mean possible evacuations from your home or limited travel. Not being able to get to a store or being separated from your family are good reasons to plan with everyone ahead of time. Keeping your household emergency plan and important documents in plastic bags or waterproof containers will protect them from floodwaters and other water damage.

Additional Information

- Flood Safety and Protecting Your Home Michigan Committee for Severe Weather Awareness Website

- Floods Centers for Disease Control and Prevention (CDC)/Emergency Preparedness
- FloodSmart.gov provides information on how to purchase a flood insurance policy. You can also contact your insurance agent for more information.

Centers for Disease Control and Prevention

Natural Disasters and Severe Weather

Reentering Your Flooded Home

When returning to a home that's been flooded after natural disasters such as hurricanes, tornadoes, and floods, be aware that your house may be contaminated with mold or sewage, which can cause health risks for your family.

When you first reenter your home:

Try to return to your home during the daytime so that you do not have to use any lights. Use battery-powered flashlights and lanterns, rather than candles, gas lanterns, or torches.

- If you have standing water in your home and can turn off the main power from a dry location, then go ahead and turn off the power, even if it delays cleaning. If you must enter standing water to access the main power switch, then 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.**
- Have an electrician check the house's electrical system before turning the power on again.
- If you smell gas or suspect a leak, turn off the main gas valve, open all windows, and your house immediately. Notify the gas company or the police or fire departments or State Fire Marshal's office, and do not turn on the lights or do anything that could cause a spark. Do not return until you are told it is safe to do so.
- If the house has been closed up for several days, enter briefly to open doors and windows to let the house air out for a while (at least 30 minutes) before you stay for any length of time.
- If your home has been flooded and has been closed up for several days, assume your home has mold.
- If your home has been flooded, it also may be contaminated with sewage. See Floodwater After a Disaster or Emergency.

Throw away unsafe food.

Throw away food that may have come in contact with flood or storm water; perishable foods that have not been refrigerated properly due to power outages; and those with an unusual odor, color, or texture. Unsafe food can make you sick even if it looks, smells, and tastes normal. When in doubt, throw it out. For more information, visit Keep Food and Water Safe After a Disaster or Emergency.

Use safe water.

Floodwater can contaminate your drinking water. Some contaminants from surface water get into the groundwater and affect private drinking water wells and municipal water systems that use groundwater.

- Follow local guidance on whether your water is safe to drink.
- If you have a private well and live in an area with flooding, get your water tested before you use it.
- 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. 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. For more information, visit Keep Food and Water Safe After a Disaster or Emergency.

Use generators and other electrical equipment safely.

- Talk to your utility company about using electrical equipment, including power generators. Be aware that it is against the law and a violation of electrical codes to 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. In addition, the improper connection of a generator to your home's electrical circuits may endanger line workers helping to restore power in your area.
- 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. For more information, see Protect Yourself and Others From Electrical Hazards After a Disaster.
- 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. Visit Preventing Carbon Monoxide Poisoning After an Emergency for more information.

Dry out your home to prevent mold.

If flood or storm water has entered your home, dry it out as soon as possible to prevent mold. Follow these steps:

- If you have electricity and an electrician has determined that it's safe to turn it on, use a "wet-dry" shop vacuum (or the vacuum function of a carpet steam cleaner), an electric-powered water transfer pump, or sump pump to remove standing water. If you are operating equipment in wet areas, be sure to wear rubber boots.
- If you do not have electricity, or it is not safe to turn it on, you can use a portable generator to power equipment to remove standing water. **Note: If you must use a gasoline-powered pump, generator, pressure washer, or any other gasoline-powered tools to clean your home, never operate the gasoline engine inside a home, basement, garage, carport, porch, or other enclosed or partially enclosed structures, or less than 20 feet from any door, window, or vent, even if the windows and doors are open. Such improper use can create dangerously high levels of carbon monoxide and cause** carbon monoxide poisoning.
- If weather permits, open windows and doors of the house to aid in the drying-out process.
- Use fans and dehumidifiers to remove excess moisture. Fans should be placed at a window or door to blow the air outwards rather than inwards, so not to spread the mold.
- Have your home heating, ventilating, and air-conditioning (HVAC) system checked and cleaned by a maintenance or service professional who is experienced in mold cleanup **before you turn it on**. If the HVAC system was flooded with water, turning on the mold-contaminated HVAC will spread mold throughout the house. Professional cleaning will kill the mold and prevent later mold growth. When the service determines that your system is clean and if it is safe to do so, you can turn it on and use it to help remove excess moisture from your home.
- Prevent water outdoors from reentering your home. For example, rainwater from gutters or the roof should drain away from the house; the ground around the house should slope away from the house to keep basements and crawl spaces dry.
- Ensure that crawl spaces in basements have proper drainage to limit water seepage. Ventilate to allow the area to dry out.

For more information on mold cleanup, visit Homeowner's and Renter's Guide to Mold Cleanup After Disasters.

Clean up your home safely.

Take steps to protect yourself and your loved ones during your cleanup after a flood. Follow our cleanup tips and monitor your radio or television for up-to-date emergency information. For more information, visit Clean Up Safely After a Disaster.

Page last reviewed: October 9, 2018

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CDC Centers for Disease Control and Prevention

Water, Sanitation, & Hygiene (WASH)-related Emergencies & Outbreaks

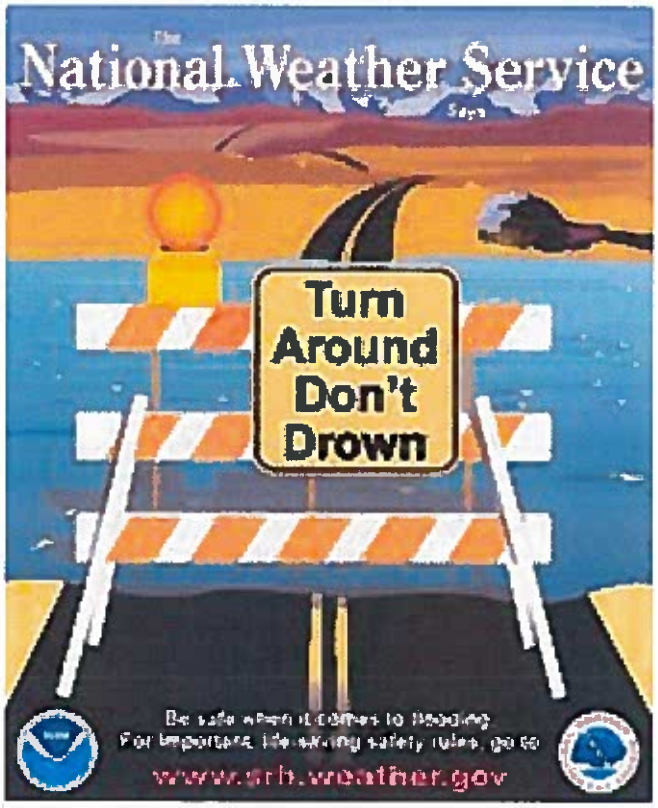
Flood Waters or Standing Waters

Floodwater and standing waters can be dangerous and can make you vulnerable to infectious diseases, chemical hazards, and injuries. Protect yourself and your loved ones from the risks brought by floodwater by following these steps.

Don't drive in flooded areas — turn around, don't drown!

Floodwater can pose a drowning risk 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.

- Always follow warnings about flooded roads.
- Don't drive in flooded areas—cars or other vehicles won't protect you from floodwaters. They can be swept away or may stall in moving water.



National Weather Service: Turn Around Don't Drown®

Stay out of floodwater.

Floodwaters contain many things that may harm health. We don't know exactly what is in floodwater at any given point in time. Floodwater can contain:

- Downed power lines
- Human and livestock waste
- Household, medical, and industrial hazardous waste (chemical, biological, and radiological)
- Coal ash waste that can contain carcinogenic compounds such as arsenic, chromium, and mercury
- Other contaminants that can lead to illness
- Physical objects such as lumber, vehicles, and debris
- Wild or stray animals such as rodents and snakes

Exposure to contaminated floodwater can cause:

- Wound infections
- Skin rash

- Gastrointestinal illness
- Tetanus
- Leptospirosis (not common)

It is important to protect yourself from exposure to floodwater regardless of the source of contamination. The best way to protect yourself is to stay out of the water.

If you come in contact with floodwater:

- Wash the area with soap and clean water as soon as possible. If you don't have soap or water, use alcohol-based wipes or sanitizer.
- Take care of wounds and seek medical attention if necessary.
- Wash clothes contaminated with flood or sewage water in hot water and detergent before reusing them.

If you must enter floodwater, wear rubber boots, rubber gloves, and goggles.

Prevent injuries.

Floodwater may contain sharp objects, such as glass or metal fragments, that can cause injury and lead to infection. Prompt first aid can help heal small wounds and prevent infection.

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.

For more information, visit: Emergency Wound Care After a Natural Disaster

Prevent infection of open wounds and rashes.

Open wounds and rashes exposed to floodwater can become infected. Vibrios, for example, are naturally occurring bacteria that live in certain coastal waters and can cause skin infections when an open wound is exposed to them. This can happen during floods. To protect yourself and your family:

- Avoid exposure to floodwater if you have an open wound.
- Cover clean, 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 attention.

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).

For more information, visit: Emergency Wound Care After a Natural Disaster

Protect yourself and your loved ones from diarrheal diseases.

Be aware that floodwater may contain sewage, and eating or drinking anything contaminated by floodwater can cause diarrheal disease (such as *E. coli* or *Salmonella* infection). To protect yourself and your family:

- Wash your hands after contact with floodwater. Also be sure to wash children's hands with soap and water often and always before meals.
- Do not allow children to play in floodwater areas.
- Do not allow children to play with toys that have been contaminated by floodwater and have not been disinfected.

- Do not bathe in water that may be contaminated with sewage or toxic chemicals. This includes rivers, streams, or lakes that are contaminated by floodwater.

For more information, visit:

- Personal Hygiene and Handwashing After a Disaster or Emergency
- Handwashing, Hygiene, and Diapering
- Cleaning and Sanitizing with Bleach
- CDC Floodwaters or Standing Waters

Protect yourself from animal and insect bites.

Floodwater can displace animals, insects, and reptiles. To protect yourself and your family, be alert and avoid contact.

For more information, visit: Protect Yourself from Animal- and Insect-Related Hazards After a Disaster

Be aware of possible chemicals in floodwater.

Floods can cause containers of chemicals to move from their normal storage spots.

- Don't attempt to move propane tanks you might find— they're dangerous and can cause a fire or explosion. If you find any, contact the police, fire department, or your State Fire Marshal's office immediately.
- Be extremely careful when removing car batteries. Even if they are in floodwater, car batteries may still have an electrical charge. Use insulated gloves and avoid coming in contact with any acid that may have spilled from the damaged car battery.

For more information, visit:

- Protect Yourself From Chemicals Released During a Natural Disaster
- Chemical Emergencies

Avoid electrical hazards inside or outside your home.

After a hurricane, flood or other natural disaster you need to be careful to avoid electrical hazards both in your home and elsewhere.

- Shut off electrical power and natural gas or propane tanks in your home to avoid fire, electrocution, or explosions.
- 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 you believe someone has been electrocuted, call or have someone else call 911 or emergency medical help.

For more information, visit: Protect Yourself and Others From Electrical Hazards After a Disaster

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