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Overview

Poisoning is injury or death due to swallowing, inhaling, touching or injecting various drugs, chemicals, venoms or gases. Many substances — such as drugs and carbon monoxide — are poisonous only in higher concentrations or dosages. And others — such as cleaners — are dangerous only if ingested. Children are particularly sensitive to even small amounts of certain drugs and chemicals.

How you treat someone who may have been poisoned depends on:

- The person's symptoms.
- The person's age.
- Whether you know the type and amount of the substance that caused poisoning.

If you are concerned about possible poisoning, call Poison Help at 800-222-1222 in the United States or your regional poison control center. It may help to place a refrigerator magnet or a visible sticker in your home with the poison control number. Poison control centers are excellent resources for poisoning information and, in many situations, may advise that in-home observation is all that's needed.

When to seek emergency help

Call 911 or your local emergency number immediately if the person is:

- Drowsy or unconscious.
- Having difficulty breathing or has stopped breathing.
- Uncontrollably restless or agitated.
- Having seizures.
- Known to have taken medicines, or any other substance, intentionally or accidentally overdosed (in these situations the



poisoning typically involves larger amounts, often along with alcohol).

Call Poison Help at 800-222-1222 in the United States or your regional poison control center in the following situations:

- The person is stable and has no symptoms.
- The person is going to be transported to the local emergency department.

Be ready to describe the person's symptoms, age, weight, other medicines the person is taking, and any information you have about the poison. Try to find out the amount ingested and how long since the person was exposed to it. If possible, have on hand the pill bottle, medicine package or other suspected container so that you can refer to its label when speaking with the poison control center.

Symptoms

Poisoning symptoms can mimic other conditions, such as seizure, alcohol intoxication, stroke and insulin reaction. Symptoms of poisoning may include:

- Burns or redness around the mouth and lips.
- Breath that smells like chemicals, such as gasoline or paint thinner.
- Vomiting.
- Difficulty breathing.
- Drowsiness.
- Confusion or other altered mental status.

If you suspect poisoning, be alert for clues such as empty pill bottles or packages, scattered pills, and burns, stains and odors on the person or nearby objects. With a child, consider the possibility that the child may have applied medicated patches, taken prescription medicines or swallowed a button battery.

Treatment

Take the following actions until help arrives:

- **Swallowed poison.** Remove anything remaining in the person's mouth. If the suspected poison is a household cleaner or other chemical, read the container's label and follow instructions for accidental poisoning.
- **Poison on the skin.** Remove any contaminated clothing using gloves. Rinse the skin for 15 to 20 minutes in a shower or with a hose.
- **Poison in the eye.** Gently flush the eye with cool or lukewarm water for 20 minutes or until help arrives.
- **Button batteries.** The small, flat batteries used in watches and other electronics — particularly the larger, nickel-sized ones — are especially dangerous to small children. A battery stuck in the esophagus can cause severe tissue burns.

If you suspect that a child has swallowed one of these batteries, immediately take the child for an emergency X-ray to find its location. If the battery is in the esophagus, it will have to be removed. If it has passed into the stomach, it's usually safe to allow it to pass on through the intestinal tract.



- **Medicated patches.** If you think a child got hold of medicated patches — adhesive products for transdermal drug delivery — carefully inspect the child's skin and remove any that are attached. Also check the roof of the mouth, where medicated patches can get stuck if the child sucks on them.
- **Inhaled poison.** Get the person into fresh air as soon as possible.
- **If the person vomits,** turn the person's head to the side to prevent choking.
- **Begin CPR if the person shows no signs of life**, such as moving, breathing or coughing.
- **Call Poison Help at 800-222-1222** in the United States or your regional poison control center for additional instructions.
- **Have somebody gather pill bottles, packages or containers with labels**, and any other information about the poison to send along with the ambulance team.

In the case of an opioid overdose

If the person is at risk of overdose of opioid pain medication and naloxone (Narcan) is available, please administer. Increasingly, healthcare providers are giving people Narcan injectable prescriptions if they are at risk of overdose. Loved ones should be familiar with how to use them.

What to avoid

- **Syrup of ipecac.** Don't give syrup of ipecac or do anything to induce vomiting. Expert groups, including the American Association of Poison Control Centers and the American Academy of Pediatrics, no longer endorse using ipecac in children or adults who have taken pills or other potentially poisonous substances. No good evidence proves its effectiveness, and it often can do more harm than good.

If you still have old bottles of syrup of ipecac in your home, throw them away.

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Overview

Food poisoning, a type of foodborne illness, is a sickness people get from something they ate or drank. The causes are germs or other harmful things in the food or beverage.

Symptoms of food poisoning often include upset stomach, diarrhea and vomiting. Symptoms usually start within hours or several days of eating the food. Most people have mild illness and get better without treatment.

Sometimes food poisoning causes severe illness or complications.

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Symptoms

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Symptoms vary depending on what is causing the illness. They may begin within a few hours or a few weeks depending on the cause.

Common symptoms are:

- Upset stomach.
- Vomiting.
- Diarrhea.
- Diarrhea with bloody stools.
- Stomach pain and cramps.
- Fever.
- Headache.

Less often food poisoning affects the nervous system and can cause severe disease. Symptoms may include:

- Blurred or double vision.
- Headache.
- Loss of movement in limbs.
- Problems with swallowing.
- Tingling or numbness of skin.
- Weakness.
- Changes in sound of the voice.

When to see a doctor

Infants and children

Vomiting and diarrhea can quickly cause low levels of body fluids, also called dehydration, in infants and children. This can cause serious illness in infants.

Call your child's health care provider if your child's symptoms include vomiting and diarrhea and any of the following:

- Unusual changes in behavior or thinking.
- Excessive thirst.
- Little or no urination.
- Weakness.
- Dizziness.
- Diarrhea that lasts more than a day.
- Vomiting often.
- Stools that have blood or pus.
- Stools that are black or tarry.
- Severe pain in the stomach or rectum.
- Any fever in children under 2 years of age.
- Fever of 102 degrees Fahrenheit (38.9 degrees Celsius) or higher in older children.
- History of other medical problems.

Adults

Adults should see a health care provider or get emergency care if the following occur:

- Nervous system symptoms, such as blurry vision, muscle weakness and tingling of skin.
- Changes in thinking or behavior.
- Fever of 103 degrees Fahrenheit (39.4 degrees Celsius).
- Vomiting often.

- Diarrhea that lasts more than three days.
- Symptoms of dehydration — excessive thirst, dry mouth, little or no urination, severe weakness, dizziness, or lightheadedness.

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Causes

Many germs or harmful things, called contaminants, can cause foodborne illnesses. Food or drink that carries a contaminant is called "contaminated." Food can be contaminated with any of the following:

- Bacteria.
- Viruses.
- Parasites that can live in the intestines.

Feedback

- Poisons, also called toxins.
- Bacteria that carry or make toxins.
- Molds that make toxins.

Understanding terms

The term "food poisoning" is commonly used to describe all foodborne illnesses. A health care provider might use these terms to be more specific:

- "Foodborne illnesses" means all illnesses from any contaminated food or beverage.
- "Food poisoning" means illness specifically from a toxin in food. Food poisoning is a type of foodborne illness.

How food becomes contaminated

Food can be contaminated at any point from the farm or fishery to the table. The problem can begin during growing, harvesting or catching, processing, storing, shipping, or preparing.

Food can be contaminated any place it's handled, including the home, because of:

- **Poor handwashing.** Feces that remains on the hands after using the toilet can contaminate food. Other contaminants can be transferred from hands during food preparation or food serving.
- **Not disinfecting cooking or eating areas.** Unwashed knives, cutting boards or other kitchen tools can spread contaminants.
- **Improper storage.** Food left out for too long at room temperature can become contaminated. Food stored in the refrigerator for too long can spoil. Also, food stored in a refrigerator or freezer that is too warm can spoil.

Common causes

The following table shows common causes of foodborne illnesses, the time from exposure to the beginning of symptoms and common sources of contamination.

Disease cause	Timing of symptoms	Common sources
Bacillus cereus (bacterium)	30 minutes to 15 hours.	Foods such as rice, leftovers, sauces, soups, meats and others that have sat out at room temperature too long.
Campylobacter (bacterium)	2 to 5 days.	Raw or undercooked poultry, shellfish, unpasteurized milk, and contaminated water.
Clostridium botulinum (bacterium)	18 to 36 hours. Infants: 3 to 30 days.	For infants, honey or pacifiers dipped in honey. Home-preserved foods including canned foods, fermented fish, fermented beans and alcohol. Commercial canned foods and oils infused with herbs.
Clostridium perfringens (bacterium)	6 to 24 hours.	Meats, poultry, stews and gravies. Commonly, food that is not kept hot enough when served to a large group. Food left out at room temperature too long.
Escherichia coli, commonly called E. coli (bacterium)	Usually, 3 to 4 days. Possibly, 1 to 10 days.	Raw or undercooked meat, unpasteurized milk or juice, soft cheeses from unpasteurized milk, and fresh fruits and vegetables. Contaminated water. Feces of people with E. coli.
Giardia lamblia (parasite)	1 to 2 weeks.	Food and water contaminated with feces that carry the parasite. Food handlers who are carriers of the parasite.
Hepatitis A (virus)	15 to 50 days.	Raw and undercooked shellfish, fresh fruits and vegetables, and other uncooked food. Food and water contaminated with human feces. Food handlers who have hepatitis A.

Disease cause	Timing of symptoms	Common sources
Listeria (bacterium)	9 to 48 hours for digestive disease. 1 to 4 weeks for body-wide disease.	Hot dogs, luncheon meats, unpasteurized milk, soft cheeses from unpasteurized milk, refrigerated smoked fish, refrigerated pates or meat spreads, and fresh fruits and vegetables.
Norovirus (virus)	12 to 48 hours.	Shellfish and fresh fruits and vegetables. Ready-to-eat foods, such as salads and sandwiches, touched by food handlers with the virus. Food or water contaminated with vomit or feces of a person with the virus.
Rotavirus (virus)	18 to 36 hours.	Food, water or objects, such as faucet handles or utensils, contaminated with the virus.
Salmonella (bacterium)	6 hours to 6 days.	Most often poultry, eggs and dairy products. Other foods such as fresh fruits and vegetables, meat, poultry, nuts, nut products, and spices.
Shellfish poisoning (toxin)	Usually 30 to 60 minutes, up to 24 hours.	Shellfish, including cooked shellfish, from coastal seawater contaminated with toxins.
Shigella (bacterium)	Usually, 1 to 2 days. Up to 7 days.	Contact with a person who is sick. Food or water contaminated with human feces. Often ready-to-eat food handled by a food worker with shigella.
Staphylococcus aureus (bacterium)	30 minutes to 8 hours.	Meat, egg salad, potato salad or cream-filled pastries that have been left out too long or not refrigerated. Foods handled by a person with the bacteria, which is often found on skin.
Vibrio (bacterium)	2 to 48 hours.	Raw or undercooked fish or shellfish, especially oysters. Water contaminated with sewage. Rice, millet, fresh fruits and vegetables.

Other sources

Bacteria that cause foodborne illnesses can also be found in swimming pools, lakes, ponds, rivers and seawater. Also, some bacteria, such as E. coli, may be spread by exposure to animals carrying the disease.

Risk factors

Anyone can get food poisoning. Some people are more likely to get sick or have more-serious disease or complications. These people include:

- Infants and children.
 - Pregnant people.
 - Older adults.
 - People with weakened immune systems due to another disease or treatments.
-

Complications

In most healthy adults, complications are uncommon. They can include the following.

Dehydration

The most common complication is dehydration. This a severe loss of water and salts and minerals. Both vomiting and diarrhea can cause dehydration.

Most healthy adults can drink enough fluids to prevent dehydration. Children, older adults, and people with weakened immune systems or other illnesses may not be able to replace the fluids they've lost. They are more likely to become dehydrated.

People who become dehydrated may need to get fluids directly into the bloodstream at the hospital. Severe dehydration can cause organ damage, other severe disease and death if not treated.

Complications of systemic disease

Some contaminants can cause more widespread disease in the body, also called systemic disease or infection. This is more common in people who are older, have weakened immune systems or other medical conditions. Systemic infections from foodborne bacteria may cause:

- **Blood clots in the kidneys.** E. coli can result in blood clots that block the kidneys' filtering system. This condition, called hemolytic uremic syndrome, results in the sudden failure of the kidneys to filter waste from the blood. Less often, other bacteria or viruses may cause this condition.
- **Bacteria in the bloodstream.** Bacteria in the blood can cause disease in the blood itself or spread disease to other parts of the body.
- **Meningitis.** Meningitis is inflammation that may damage the membranes and fluid surrounding the brain and spinal cord.
- **Sepsis.** Sepsis is an overreaction of the immune system to systemic disease that damages the body's own tissues.

Pregnancy complications

Illness from the listeria bacteria during pregnancy can result in:

- Miscarriage or stillbirth.
- Sepsis in the newborn.
- Meningitis in the newborn.

Rare complications

Rare complications include conditions that may develop after food poisoning, including:

- **Arthritis.** Arthritis is swelling, tenderness or pain in joints.
 - **Irritable bowel syndrome.** Irritable bowel syndrome is a lifelong condition of the intestines that causes pain, cramping and irregular bowel movements.
 - **Guillain-Barre syndrome.** Guillain-Barre syndrome is an immune system attack on nerves that can result in tingling, numbness and loss of muscle control.
 - **Breathing difficulties.** Rarely, botulism can damage nerves that control the muscles involved in breathing.
-

Prevention

To prevent food poisoning at home:

- **Handwashing.** Wash your hands with soap and water for at least 20 seconds. Do this after using the toilet, before eating, and before and after handling food.
- **Wash fruits and vegetables.** Rinse fruits and vegetables under running water before eating, peeling or preparing.
- **Wash kitchen utensils thoroughly.** Wash cutting boards, knives and other utensils with soapy water after contact with raw meats or unwashed fruits and vegetables.
- **Don't eat raw or undercooked meat or fish.** Use a meat thermometer to make sure meat is cooked enough. Cook whole meats and fish to at least 145 F (63 C) and let rest for at least three minutes. Cook ground meat to at least 160 F (71 C). Cook whole and ground poultry to at least 165 F (74 C).
- **Refrigerate or freeze leftovers.** Put leftovers in covered containers in the refrigerator right after your meal. Leftovers can be kept for 3 to 4 days in the refrigerator.

refrigerator. If you don't think you'll eat them within four days, freeze them right away.

- **Cook leftovers safely.** You can safely thaw frozen food three ways. You can microwave it. You can move it to the refrigerator to thaw overnight. Or you can put the frozen food in a leakproof container and put it in cold water on the counter. Reheat leftovers until the internal temperature reaches 165 degrees Fahrenheit (74 degrees Celsius).
- **Throw it out when in doubt.** If you aren't sure if a food has been prepared, served or stored safely, discard it. Even if it looks and smells fine, it may not be safe to eat.
- **Throw out moldy food.** Throw out any baked foods with mold. Throw out moldy soft fruits and vegetables, such as tomatoes, berries or peaches. And throw away any nuts or nut products with mold. You can trim away mold from firm foods with low moisture, such as carrots, bell peppers and hard cheeses. Cut away at least 1 inch (2.5 centimeters) around the moldy part of the food.
- **Clean your refrigerator.** Clean the inside of the refrigerator every few months. Make a cleaning solution of 1 tablespoon (15 milliliters) of baking soda and 1 quart (0.9 liters) of water. Clean visible mold in the refrigerator or on the door seals. Use a solution of 1 tablespoon (15 milliliters) of bleach in 1 quart (0.9 liters) of water.

Safety for at-risk people

Food poisoning is especially serious during pregnancies and for young children, older adults and people with weakened immune systems. These illnesses may be life-threatening. These individuals should avoid the following foods:

- Raw or undercooked meat, poultry, fish, and shellfish.
- Raw or undercooked eggs or foods that may contain them, such as cookie dough and homemade ice cream.
- Raw sprouts, such as alfalfa, bean, clover and radish sprouts.

- Unpasteurized juices and ciders.
 - Unpasteurized milk and milk products.
 - Soft cheeses, such as feta, brie and Camembert; blue-veined cheese; and unpasteurized cheese.
 - Refrigerated pates and meat spreads.
 - Uncooked hot dogs, luncheon meats and deli meats.
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Diagnosis

A diagnosis is based on a physical exam and a review of things that may be causing vomiting, diarrhea or other symptoms. Questions from your health care provider will cover:

- Your symptoms.
- Food or drinks you've had recently.
- Symptoms in people who ate with you.
- Recent changes in the drugs you take.
- Recent travel.

Your health care provider will examine you to rule out other causes of illness and check for signs of dehydration.

Your provider may order tests including:

 Feedback

- Stool sample tests to name the bacteria, viruses, parasites or toxins.
- Blood tests to name a cause of illness, rule out other conditions or identify complications.

When one person or a family gets food poisoning, it's hard to know what food was contaminated. The time from eating the contaminated food to the time of sickness can be hours or days. During that time, you may have had one or several more meals. This makes it difficult to say what food made you sick.

In a large outbreak, public health officials may be able to find the common food all of the people shared.

Treatment

Treatment for food poisoning depends on how severe your symptoms are and what caused the illness. In most cases, drug treatment isn't necessary.

Treatment may include the following:

- **Fluid replacement.** Fluids and electrolytes, maintain the balance of fluids in your body. Electrolytes include minerals such as sodium, potassium and calcium. After vomiting or diarrhea, it's important to replace fluids to prevent dehydration. Severe dehydration may require going to the hospital. You may need fluids and electrolytes delivered directly into the bloodstream.
- **Antibiotics.** If the illness is caused by bacteria, you may be prescribed an antibiotic. Antibiotics are generally for people with severe disease or with a higher risk of complications.
- **Antiparasitics.** Drugs that target parasites, called antiparasitics, are usually prescribed for parasitic infections.

- **Probiotics.** Your care provider may recommend probiotics. These are treatments that replace healthy bacteria in the digestive system.

Drugs for diarrhea or upset stomach

Adults who have diarrhea that isn't bloody and who have no fever may take loperamide (Imodium A-D) to treat diarrhea. They also may take bismuth subsalicylate (Pepto-Bismol, Kaopectate, others) to treat an upset stomach. These nonprescription drugs are not recommended for children.

Ask your doctor about these options.

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Lifestyle and home remedies



For most people, symptoms improve without treatment within 48 hours. To help keep yourself more comfortable and prevent dehydration while you recover, try the following:

- **Let your stomach settle.** Eat after your stomach is settled and you are hungry again.
 - **Replace fluids.** Replace fluids with water, sports drinks, juice with added water or broths. Children or people at risk for serious illness should drink rehydration fluids (Pedialyte, Enfalyte, others). Talk to your doctor before giving rehydration fluids to infants.
 - **Ease back into eating.** Gradually begin to eat bland, low-fat, easy-to-digest foods, such as soda crackers, toast, gelatin, bananas and rice. Stop eating if you feel sick to your stomach again.
 - **Avoid certain foods and substances until you're feeling better.** These include dairy products, caffeine, alcohol, nicotine, and fatty or highly seasoned foods.
 - **Rest.** Rest to recover from illness and dehydration.
-

Preparing for your appointment

You'll likely see your primary health care provider. In some cases, you may need to see a specialist in infectious diseases.

Be prepared to answer the following questions.

- When did your symptoms begin?
- Have the symptoms been continuous, or do they come and go?
- Have you had bloody diarrhea or stools?
- Have you had black or tarry stools?
- Have you had a fever?

- What have you recently eaten?
 - Did anyone who ate the same food have symptoms?
 - Have you recently traveled? Where?
 - What drugs, dietary supplements or herbal remedies do you take?
 - Had you taken antibiotics in the days or weeks before your symptoms started?
 - Have you recently changed medications?
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Overview

Alcohol poisoning is a serious — and sometimes deadly — result of drinking large amounts of alcohol in a short period of time. Drinking too much too quickly can affect breathing, heart rate, body temperature and gag reflex. In some cases, this can lead to a coma and death.

Alcohol poisoning also can occur when adults or children accidentally or intentionally drink household products that contain alcohol.

If you think that someone has alcohol poisoning, get medical attention right away.

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Symptoms

Alcohol poisoning symptoms include:

- Confusion.
- Vomiting.
- Seizures.
- Slow breathing, which is fewer than eight breaths a minute.
- Breathing that's not regular. This is when there is a gap of more than 10 seconds between breaths.
- Skin that looks blue, gray or pale.
- Low body temperature, also known as hypothermia.
- Trouble staying conscious or awake.

When to see a doctor

It's not necessary to have all the above symptoms before seeking medical help. A person with alcohol poisoning who has passed out or can't wake up could die.

Alcohol poisoning is an emergency

If you think that someone has alcohol poisoning, seek medical care right away. This is true even if you don't see the usual signs.

Here's what to do:

- **Call 911** or your local emergency number right away. Never assume the person will sleep off alcohol poisoning.
- **Be prepared to give information.** If you know the kind and amount of alcohol the person drank, and when, tell hospital or emergency staff.

- **Don't leave an unconscious person alone.** Because alcohol poisoning affects the way the gag reflex works, someone with alcohol poisoning may vomit and choke and not be able to breathe. While waiting for help, don't try to make the person vomit because that could cause choking.
- **Help someone who is vomiting.** Try to keep the person sitting up. If the person must lie down, turn the head to the side to help prevent choking. Try to keep the person awake.

Don't be afraid to get help

It can be hard to decide if you think someone is drunk enough to need medical help. But it's best to take action right away rather than be sorry later. You may worry about what will happen to you or a friend or family member, especially if underage. But the results of not getting help in time can be far more serious.

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Causes

Alcohol in the form of ethanol, also called ethyl alcohol, is in alcoholic beverages. It's also in mouthwash, some cooking extracts, some medicines and certain household products. Ethyl alcohol poisoning generally results from drinking too many alcoholic beverages in a short period of time.

Other forms of alcohol can cause toxic poisoning that requires emergency treatment. They include:

- Isopropyl alcohol, which is found in rubbing alcohol, lotions and some cleaning products.
- Methanol or ethylene glycol, which is a common ingredient in antifreeze, paints and solvents.

Binge drinking

A major cause of alcohol poisoning is binge drinking. This is when a male rapidly consumes five or more alcoholic drinks within two hours or a female consumes at least four drinks within two hours. An alcohol binge can occur over hours or last up to several days.

A person can consume a fatal dose of alcohol before passing out. Even when the person is unconscious or stops drinking, the stomach and intestines continue to release alcohol into the bloodstream, and the level of alcohol in the body continues to rise.

How much is too much?

Unlike food, which can take hours to digest, the body absorbs alcohol quickly — long before most other nutrients. And it takes a lot more time for the body to get rid of alcohol. Most alcohol is processed by the liver.

The more you drink, especially in a short period of time, the greater your risk of alcohol poisoning.

Here's what one drink means.

- **Beer:** 12 fluid ounces (360 milliliters) with about 5% alcohol.
- **Malt liquor:** 8 to 9 fluid ounces (240 to 270 milliliters) with about 7% alcohol.
- **Wine:** 5 fluid ounces (150 milliliters) with about 12% alcohol.
- **Liquor such as gin, rum, vodka or whiskey:** 1.5 fluid ounces (45 milliliters) of an 80-proof drink, which has about 40% alcohol.

But the amount of alcohol in one drink may be much higher than those in the list above. For example, some craft beers may have four times the amount of alcohol that's in a regular beer. Alcohol content is displayed on the label. Or you can ask the server about alcohol content. Be aware of the alcohol content of what you're drinking and adjust how much you drink based on this knowledge.

Mixed drinks may contain more than one serving of alcohol.

Risk factors

Several factors can increase your risk of alcohol poisoning, including:

- Your height and weight.
- Health conditions that affect how your body processes alcohol.
- Whether you've eaten recently.
- Whether you've had alcohol along with other drugs, including medicines you take for health reasons.
- The percentage of alcohol in your drinks.

- How fast and how much alcohol you drink.
 - How your body processes alcohol.
-

Complications

Severe complications can result from alcohol poisoning, including:

- **Choking.** Alcohol may cause vomiting. Because it depresses the gag reflex, this increases the risk of choking on vomit if a person passes out.
 - **Stopping breathing.** Accidentally inhaling vomit into the lungs can lead to a dangerous or fatal interruption of breathing, also known as asphyxiation.
 - **Severe loss of fluids.** Vomiting can result in severe dehydration, which happens when the body doesn't have enough water and other fluids. This can lead to dangerously low blood pressure and a fast heart rate.
 - **Seizures.** The blood sugar level may drop low enough to cause seizures.
 - **Hypothermia.** The body temperature may drop so low that it leads to cardiac arrest.
 - **Unusual heartbeat.** Alcohol poisoning can cause a heartbeat that is not regular. It can even cause the heart to stop.
 - **Brain damage.** Heavy drinking may cause brain damage that can't be reversed.
 - **Death.** Any of the issues above can lead to death.
-

Prevention

To avoid alcohol poisoning:

- **Drink alcohol in moderation, if at all.** If you choose to drink alcohol, do so in moderation. For healthy adults, that means up to two drinks a day for males and one drink a day for females. When you drink, enjoy your drink slowly.
- **Don't drink alcohol along with certain medicines.** Some medicines can cause harmful effects when taken with even small amounts of alcohol. And certain health conditions may mean it takes less alcohol than expected to reach the level of alcohol poisoning. Ask your health care provider if these risks apply to you.
- **Don't drink on an empty stomach.** Having some food in your stomach may slow the process of absorbing alcohol somewhat. But it won't prevent alcohol poisoning during binge drinking.
- **Communicate with your teens.** Talk to your teenagers about the dangers of alcohol, including binge drinking. Evidence suggests that children who are warned about alcohol by their parents and who report close relationships with their parents are less likely to start drinking.
- **Store products safely.** If you have small children, store alcohol-containing products, including cosmetics, mouthwashes and medicines, out of their reach. Use childproof bathroom and kitchen cabinets to prevent access to household cleaners. Keep toxic items in your garage or storage area safely out of reach. Consider keeping alcoholic beverages under lock and key.
- **Get follow-up care.** Ask about follow-up care for alcohol poisoning. Meeting with a health care provider, particularly an experienced chemical dependency counselor, can help prevent future binge drinking.

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Diagnosis

In addition to checking for visible signs and symptoms of alcohol poisoning, your doctor will likely order blood and urine tests to check blood alcohol levels and identify other signs of alcohol toxicity, such as low blood sugar.

Treatment

Alcohol poisoning treatment usually involves supportive care while the body rids itself of the alcohol. This typically includes:

- Monitoring to prevent breathing or choking problems.
- Oxygen therapy.
- Fluids given through a vein to prevent dehydration.
- Use of vitamins and glucose to help prevent serious complications.



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People who accidentally consume methanol or isopropyl alcohol may need hemodialysis. This is a mechanical way of filtering waste and toxins from the blood. It can speed the removal of alcohol from the blood.

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Lifestyle and home remedies

Home remedies for alcohol poisoning won't work. Alcohol poisoning is an emergency situation.

Dangerous myths

You can't reverse the effects of alcohol poisoning, and you could make things worse through some actions. Here's what doesn't work:

- **Sleeping it off.** A person can lose consciousness while asleep.
 - **Black coffee or caffeine.** Coffee and other caffeinated drinks do not stop or reduce the effects of alcohol poisoning.
 - **A cold shower.** The shock of cold can cause a person to pass out.
 - **Walking it off.** This does not make alcohol leave the body faster.
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Overview

Lead poisoning occurs when lead builds up in the body, often over months or years. Even small amounts of lead can cause serious health problems. Children younger than 6 years are especially vulnerable to lead poisoning, which can severely affect mental and physical development. At very high levels, lead poisoning can be fatal.

Lead-based paint and lead-contaminated dust in older buildings are common sources of lead poisoning in children. Other sources include contaminated air, water and soil. Adults who work with batteries, do home renovations or work in auto repair shops also might be exposed to lead.

There is treatment for lead poisoning, but taking some simple precautions can help protect you and your family from lead exposure before harm is done.

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Symptoms

Initially, lead poisoning can be hard to detect — even people who seem healthy can have high blood levels of lead. Signs and symptoms usually don't appear until dangerous amounts have accumulated.

Lead poisoning symptoms in children

Signs and symptoms of lead poisoning in children include:

- Developmental delay
- Learning difficulties
- Irritability
- Loss of appetite
- Weight loss
- Sluggishness and fatigue



- Abdominal pain
- Vomiting
- Constipation
- Hearing loss
- Seizures
- Eating things, such as paint chips, that aren't food (pica)

Lead poisoning symptoms in newborns

Babies exposed to lead before birth might:

- Be born prematurely
- Have lower birth weight
- Have slowed growth

Lead poisoning symptoms in adults

Although children are primarily at risk, lead poisoning is also dangerous for adults.

Signs and symptoms in adults might include:

- High blood pressure
- Joint and muscle pain
- Difficulties with memory or concentration
- Headache
- Abdominal pain
- Mood disorders
- Reduced sperm count and abnormal sperm
- Miscarriage, stillbirth or premature birth in pregnant women

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Causes

Lead is a metal that occurs naturally in the earth's crust, but human activity — mining, burning fossil fuels and manufacturing — has caused it to become more widespread. Lead was also once used in paint and gasoline and is still used in batteries, solder, pipes, pottery, roofing materials and some cosmetics.

Lead in paint

Lead-based paints for homes, children's toys and household furniture have been banned in the United States since 1978. But lead-based paint is still on walls and woodwork in many older homes and apartments. Most lead poisoning in children results from eating chips of deteriorating lead-based paint.

Water pipes and imported canned goods

Lead pipes, brass plumbing fixtures and copper pipes soldered with lead can release lead particles into tap water. Lead solder in food cans, banned in the United States, is still used in some countries.

Other sources of lead exposure

Lead sometimes can also be found in:

- **Soil.** Lead particles from leaded gasoline or paint settle on soil and can last years. Lead-contaminated soil is still a major problem around highways and in some urban settings. Some soil close to walls of older houses contains lead.
- **Household dust.** Household dust can contain lead from lead paint chips or from contaminated soil brought in from outside.
- **Pottery.** Glazes found on some ceramics, china and porcelain can contain lead that can leach into food served or stored in the pottery.
- **Toys.** Lead is sometimes found in toys and other products produced abroad.
- **Cosmetics.** Tiro, an eye cosmetic from Nigeria, has been linked to lead poisoning. Kohl is another eye makeup that may contain lead.
- **Herbal or folk remedies.** Lead poisoning has been linked to greta and azarcon, traditional Hispanic medicines, as well as some from India, China and other countries.
- **Mexican candy.** Tamarind, an ingredient used in some candies made in Mexico, might contain lead.
- **Lead bullets.** Time spent at firing ranges can lead to exposure.
- **Occupations.** People are exposed to lead and can bring it home on their clothes when they work in auto repair, mining, pipe fitting, battery manufacturing, painting, construction and certain other fields.

Risk factors

Factors that may increase your risk of lead poisoning include:

- **Age.** Infants and young children are more likely to be exposed to lead than are older children. They might chew paint that flakes off walls and woodwork, and their hands can be contaminated with lead dust. Young children also absorb lead more easily, and it's more harmful for them than it is for adults and older children.



- **Living in an older home.** Although the use of lead-based paints has been banned since the 1970s, older homes and buildings often retain remnants of this paint. People renovating an older home are at even higher risk.
- **Certain hobbies.** Making stained glass and some jewelry requires the use of lead solder. Refinishing old furniture might put you in contact with layers of lead paint.
- **Living in developing countries.** Developing countries often have less strict rules regarding exposure to lead than do developed countries. American families who adopt a child from another country might want to have the child's blood tested for lead poisoning. Immigrant and refugee children also should be tested.

Lead can harm an unborn child. If you're pregnant or planning a pregnancy, be especially careful to avoid exposure to lead.

Complications

Exposure to even low levels of lead can cause damage over time, especially in children. The greatest risk is to brain development, where irreversible damage can occur. Higher levels can damage the kidneys and nervous system in both children and adults. Very high lead levels may cause seizures, unconsciousness and death.

Prevention

Simple measures can help protect you and your family from lead poisoning:

- **Wash hands and toys.** To help reduce hand-to-mouth transfer of contaminated dust or soil, wash your children's hands after outdoor play, before eating and at bedtime. Wash their toys regularly.
- **Clean dusty surfaces.** Clean your floors with a wet mop and wipe furniture, windowsills and other dusty surfaces with a damp cloth.



- **Remove shoes before entering the house.** This will help keep lead-based soil outside.
- **Run cold water.** If you have older plumbing containing lead pipes or fittings, run your cold water for at least a minute before using. Don't use hot tap water to make baby formula or for cooking.
- **Prevent children from playing on soil.** Provide them with a sandbox that's covered when not in use. Plant grass or cover bare soil with mulch.
- **Eat a healthy diet.** Regular meals and good nutrition might help lower lead absorption. Children especially need enough calcium, vitamin C and iron in their diets to help keep lead from being absorbed.
- **Keep your home well maintained.** If your home has lead-based paint, check regularly for peeling paint and fix problems promptly. Try not to sand, which generates dust particles that contain lead.

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Overview

Salmonella infection (salmonellosis) is a common bacterial disease that affects the intestinal tract. Salmonella bacteria typically live in animal and human intestines and are shed through stool (feces). Humans become infected most frequently through contaminated water or food.

Some people with salmonella infection have no symptoms. Most people develop diarrhea, fever and stomach (abdominal) cramps within 8 to 72 hours after exposure. Most healthy people recover within a few days to a week without specific treatment.

In some cases, diarrhea can cause severe dehydration and requires prompt medical attention. Life-threatening complications also may develop if the infection spreads beyond the intestines. The risk of getting salmonella infection is higher with travel to countries without clean drinking water and proper sewage dispos

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Symptoms

Salmonella infection is usually caused by eating raw or undercooked meat, poultry, and eggs or egg products or by drinking unpasteurized milk. The incubation period — the time between exposure and illness — can be 6 hours to 6 days. Often, people who have salmonella infection think they have the stomach flu.

Possible signs and symptoms of salmonella infection include:

- Diarrhea



- Stomach (abdominal) cramps
- Fever
- Nausea
- Vomiting
- Chills
- Headache
- Blood in the stool

Signs and symptoms of salmonella infection generally last a few days to a week. Diarrhea may last up to 10 days, but it may take several months before bowels return to usual stool habits.

A few varieties of salmonella bacteria result in typhoid fever, a sometimes deadly disease that is more common in developing countries.

When to see a doctor

Most people don't need to seek medical attention for salmonella infection because it clears up on its own within a few days.

However, if the affected person is an infant, young child, older adult or someone with a weakened immune system, call a health care provider if illness:

- Lasts more than a few days
- Is associated with high fever or bloody stools
- Appears to be causing dehydration, with signs such as such as urinating less than usual, dark-colored urine and having a dry mouth and tongue

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Causes

Salmonella bacteria live in the intestines of people, animals and birds. Most people are infected with salmonella by consuming food or water that has been contaminated by feces.

Infected food and water

Commonly infected foods include:

- **Raw meat, poultry and seafood.** Feces may get onto raw meat and poultry during the butchering process. Seafood may be contaminated if harvested from contaminated water.
- **Raw or undercooked eggs.** While an egg's shell may seem to be a perfect barrier to contamination, some infected chickens produce eggs that contain salmonella before the shell is even formed. Raw eggs are used in homemade versions of foods such as mayonnaise and hollandaise sauce.
- **Unpasteurized dairy products.** Unpasteurized milk and milk products — sometimes called raw milk — may be contaminated with salmonella. The pasteurization process kills harmful bacteria, including salmonella.

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- **Fruits and vegetables.** Some fresh produce, particularly imported varieties, may be irrigated in the field or washed during processing with water contaminated with salmonella. Contamination can also occur in the kitchen, when juices from raw meat and poultry come into contact with uncooked foods, such as salads.

Improperly handled food

Many foods become contaminated when prepared by people who don't wash their hands thoroughly after using the toilet or changing a diaper or after handling contaminated food.

Infected surfaces

Infection can also occur if people touch something that is contaminated and then put their fingers in their mouths.

Infected pets and other animals

Animals and pets, especially birds and reptiles, may carry salmonella bacteria on their feathers, fur or skin or in their feces. Some pet foods may be contaminated with salmonella and can infect animals.

Risk factors

Factors that may increase your risk of salmonella infection include:

- Activities that may bring you into closer contact with salmonella bacteria
- Health problems that may weaken your resistance to infection in general

Increased exposure

- **International travel.** Salmonella infection, including varieties that cause typhoid fever, is more common in developing countries with poor sanitation.
- **Owning, handling or petting animals.** Some animals, particularly birds and reptiles, can carry salmonella bacteria. Salmonella can also be found in animal pens, tanks, cages and litter boxes.

Stomach or bowel disorders



The body has many natural defenses against salmonella infection. For example, strong stomach acid can kill many types of salmonella bacteria. But some medical problems or medications can short-circuit these natural defenses.

Examples include:

- **Antacids.** Lowering the stomach's acidity allows more salmonella bacteria to survive.
- **Inflammatory bowel disease.** This disorder damages the lining of your intestines, which makes it easier for salmonella bacteria to take hold.
- **Recent use of antibiotics.** This can reduce the number of "good" bacteria in your intestines, which may impair your ability to fight off a salmonella infection.

Immune problems

Some medical problems or medications appear to increase your risk of catching salmonella by weakening your immune system. This interferes with your body's ability to fight infection and disease. Examples include:

- HIV/AIDS
- Sickle cell disease
- Malaria
- Anti-rejection drugs taken after organ transplants
- Corticosteroids

Complications

Salmonella infection usually isn't life-threatening. However, in certain people — especially infants and young children, older adults, transplant recipients, pregnant women, and people with weakened immune systems — the development of complications can be dangerous.

Dehydration

If you can't drink enough to replace the fluid you're losing from diarrhea, you may become dehydrated. Warning signs include:

- Urinating less than usual or dark-colored urine
- Dry mouth and tongue
- Sunken eyes
- No tears when crying
- Being more tired than usual
- Irritability or confusion

Bacteremia

If salmonella infection enters your bloodstream (bacteremia), it can infect tissues throughout your body, including:

- The urinary system (urinary tract infection)
- The tissues surrounding the brain and spinal cord (meningitis)
- The lining of the heart or valves (endocarditis)
- The bones or bone marrow (osteomyelitis)
- The lining of blood vessels, especially if you've had a vascular graft, such as heart vessel bypass surgery

Reactive arthritis

People who have had salmonella are at higher risk of developing reactive arthritis from salmonella infection. Also known as Reiter's syndrome, reactive arthritis typically causes:

- Eye irritation
- Painful urination
- Painful joints



Prevention

The U.S. Department of Agriculture (USDA) oversees and updates inspection, sampling and testing programs for poultry and meat. The purpose is to cut the number of salmonella infections in the United States.

You can avoid getting salmonella and spreading bacteria to others in several ways, including safely preparing food, hand-washing, avoiding contamination, and not eating raw meat, dairy or egg products.

Preventive methods are especially important when preparing food or providing care for infants, older adults and people with weakened immune systems.

Wash your hands

Washing your hands thoroughly can help prevent the transfer of salmonella bacteria to your mouth or to any food you're preparing. Wash your hands with soap and water for 20 seconds after you:

- Use the toilet
- Change a diaper
- Handle raw meat or poultry
- Clean up pet feces
- Touch pets or other animals and their habitats, especially reptiles or birds

Keep things separate

To prevent cross-contamination:

- Store raw meat, poultry and seafood away from other foods in your refrigerator
- If possible, have two cutting boards in your kitchen — one for raw meat and the other for fruits and vegetables
- Never place cooked food on an unwashed plate that previously held raw meat
- Wash food preparation surfaces thoroughly with soap and water



Avoid eating raw eggs

Homemade cookie dough, ice cream, mayonnaise, hollandaise sauce and eggnog all contain raw eggs. If you must consume raw eggs, make sure they've been pasteurized.

Cook and store food properly

Be sure to cook food thoroughly and refrigerate or freeze food promptly.

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Carbon monoxide poisoning

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Overview

Carbon monoxide poisoning occurs when carbon monoxide builds up in the blood. When too much carbon monoxide is in the air, the body replaces the oxygen in the red blood cells with carbon monoxide. This can lead to serious tissue damage, or even death.

Carbon monoxide is gas that has no odor, taste or color. Burning fuels, including gas, wood, propane or charcoal, make carbon monoxide. Appliances and engines that aren't well vented can cause the gas to build up to dangerous levels. A tightly enclosed space makes the buildup worse.

Anyone exposed to carbon monoxide needs to get into fresh air and seek medical care right away. Call emergency medical services (EMS) or dial 911 right away for someone who's in a coma or can't respond.

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Symptoms

Carbon monoxide poisoning affects the brain and heart the most. Exposure over time might lead to symptoms that can be mistaken for the flu without the fever. Clearer symptoms of carbon monoxide poisoning can include:

- Headache.
- Weakness.
- Dizziness.
- Nausea or vomiting.
- Shortness of breath.
- Confusion.
- Blurred vision.
- Drowsiness.
- Loss of muscle control.
- Loss of consciousness.

Symptoms related to the nervous system and brain can come on after recovery from carbon monoxide poisoning. The risk of these is higher in people who lost consciousness from the carbon monoxide and older people. Symptoms might include:

- Memory loss.
- Personality changes.
- Movement problems.

Carbon monoxide poisoning can be especially dangerous for people who are asleep, drugged or drunk. Carbon monoxide can cause brain damage or death before anyone realizes there's a problem.

When to see a doctor

For possible carbon monoxide poisoning, get into fresh air and seek medical care right away.

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Causes

Many fuel-burning products and engines make carbon monoxide. Most often the amount of carbon monoxide from these sources isn't cause for worry in areas with good air flow. But if they're used in a partly closed or closed space,

the carbon monoxide level can be a danger. Examples are using a charcoal grill indoors or a running car inside a garage.

Breathing the fumes causes carbon monoxide to replace oxygen in the blood. This prevents oxygen from getting to tissues and organs.

Breathing in smoke during a fire also can cause carbon monoxide poisoning. And smoking through a water pipe, called a hookah, has been linked to increasing numbers of younger people getting carbon monoxide poisoning.

Risk factors

Breathing in carbon monoxide can be especially dangerous for:

- **Unborn babies.** Fetal blood cells take up carbon monoxide more easily than adult blood cells do.
 - **Infants and children.** Young children take breaths more often than adults do.
 - **Older adults.** Older people who have carbon monoxide poisoning may be more likely to get brain damage.
-

Complications

Damage from carbon monoxide depends on how much is breathed in and for how long. Carbon monoxide poisoning can cause:

- Brain damage that doesn't heal.
- Damage to the heart, possibly leading to life-threatening heart problems.
- Death.

Prevention

To help prevent carbon monoxide poisoning:

- **Have carbon monoxide detectors in the home.** Put them near each sleeping area on every level of the house. Check the batteries at least twice a year at the same time as checking the smoke detector batteries.

If the alarm sounds, believe it! Leave the house and call 911 or the fire department. Carbon monoxide detectors are also made for motor homes and boats.

- **Open the garage door before starting the car.** Never leave a car running in the garage, especially if the garage is attached to the house. That's true even if the garage door is open.
- **Use gas appliances only as intended.** Never use a gas stove or oven for heat. Use gas camp stoves outdoors only. Use fuel-burning space heaters only when someone is awake to keep an eye on them and doors or windows are open. Don't run a generator in an enclosed space, such as the basement or garage.
- **Make sure there's space around fuel-burning appliances and engines.** These include all gas appliances, space heaters and wood-burning stoves. Make sure they're vented properly.

Have professionals set up all gas, oil or coal-burning appliances. Have a qualified service-provider service them yearly.

- **Keep fireplaces in good condition.** Clean the fireplace chimney and flue every year.
- **Keep vents and chimneys unblocked during remodeling.** Check that they aren't covered by tarps or debris.
- **Do repairs before returning to where the poisoning occurred.** If carbon monoxide poisoning has occurred in the home, find and repair the source of

the carbon monoxide before staying there again. Have a qualified service person check and repair any appliances that might have caused the leak.

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Radiation sickness

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Overview

Radiation sickness is damage to the body caused by a large dose of radiation often received over a short time. This is called acute radiation sickness. The amount of radiation absorbed by the body, called the absorbed dose, determines how bad the illness will be.

Radiation sickness also is called acute radiation syndrome or radiation poisoning. Radiation sickness is not caused by common medical imaging tests that use low-dose radiation, such as X-rays, CT scans and nuclear medicine scans.

Although radiation sickness is serious and often fatal, it's rare. Since the atomic bombings of Hiroshima and Nagasaki, Japan, during World War II, most cases of radiation sickness have occurred after nuclear industrial accidents, such as the 1986 fire that damaged the nuclear power plant at Chernobyl, Ukraine.

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Symptoms

The severity of radiation sickness symptoms depends on how much radiation you've absorbed. How much you absorb depends on the strength of the radiated energy, the time of your exposures, and the distance between you and the source of radiation.

Symptoms also are affected by the type of exposure, such as total or partial body. The severity of radiation sickness also depends on how sensitive the affected tissue is. For instance, the gastrointestinal system and bone marrow are highly sensitive to radiation.

Initial symptoms

The first symptoms of treatable radiation sickness are usually nausea and vomiting. The amount of time between exposure and when these symptoms develop is a clue to how much radiation a person has absorbed.

After the first round of symptoms, a person with radiation sickness may have a brief period with no noticeable illness, followed by the onset of new, more-serious symptoms.

If you've had a mild exposure, it may take hours to weeks before symptoms begin. But with high exposure, symptoms can begin minutes to days after exposure.

Possible symptoms include:

- Nausea and vomiting.
- Diarrhea.
- Headache.

- Fever.
- Dizziness and disorientation.
- Weakness and fatigue.
- Hair loss.
- Bloody vomit and stools from internal bleeding.
- Infections.
- Low blood pressure.

When to see a doctor

An accident or attack that causes radiation sickness would lead to a lot of attention and public concern. If such an event happens, listen to radio, television or online reports to learn about emergency instructions for your area.

If you know you've been overexposed to radiation, seek emergency medical care.

Causes

Radiation sickness is caused by being exposed to a high dose of radiation. Radiation is the energy released from atoms as either a wave or a tiny particle of matter.

Radiation sickness happens when high-energy radiation damages or destroys certain cells in the body. Areas of the body most at risk of being affected by high-energy radiation are the bone marrow cells and the lining of the intestinal tract.

Risk factors

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Being exposed to a source of high-dose radiation increases the risk of radiation sickness. Sources of high-dose radiation include:

- An accident at a nuclear industrial facility.
 - An attack on a nuclear industrial facility.
 - A small radioactive device going off.
 - An explosive device that sends out radioactive material. This is called a dirty bomb.
 - A nuclear weapon going off.
-

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Complications

Having radiation sickness can contribute to both short-term and long-term mental health problems, such as grief, fear and anxiety about:

- Experiencing a radioactive accident or attack.
 - Mourning friends or family who haven't survived.
 - Dealing with the uncertainty of a mysterious and potentially fatal illness.
 - Worrying about the eventual risk of cancer due to radiation exposure.
-

Prevention

In the event of a radiation emergency, listen to the radio or watch television to hear what protective actions local, state and federal authorities recommend. Those actions depend on the situation, but you will be told to either stay in place or evacuate your area.

Shelter in place

If you're advised to stay where you are, whether you're at home or work or elsewhere, do the following:

- Close and lock all doors and windows.
- Turn off fans, air conditioners and heating units that bring air in from outside.
- Close fireplace dampers.
- Bring pets indoors.
- Move to an inner room or basement.
- Stay tuned to your emergency response network or local news.
- Stay put for at least 24 hours.

Evacuate

If you're advised to evacuate, follow the instructions provided by your local authorities. Try to stay calm and move quickly and in an orderly manner. Travel lightly, but take supplies, including:

- Flashlight.
- Portable radio.
- Batteries.
- First-aid kit.
- Necessary medicines.
- Sealed food, such as canned foods, and bottled water.
- Manual can opener.
- Cash and credit cards.

- Extra clothes.

Be aware that most emergency vehicles and shelters won't accept pets. Take them only if you're driving your own vehicle and going someplace other than a shelter.

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Lead poisoning

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Diagnosis

Your child's health care provider may recommend that your child be tested for lead levels during routine check-ups. Generally, this testing happens at ages 1 and 2. Lead screening also might be recommended for older children who haven't been tested.

A simple blood test can detect lead poisoning. A small blood sample is taken from a finger prick or from a vein. Lead levels in the blood are measured in micrograms per deciliter (mcg/dL).

There is no safe blood level of lead. However, a level of 5 micrograms per deciliter (mcg/dL) is used to indicate a possibly unsafe level for children. Children whose blood tests at those levels should be tested periodically. A child whose levels become too high — generally 45 mcg/dL or higher — should be treated.

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Treatment

The first step in treating lead poisoning is to remove the source of the contamination. If you can't remove lead from your environment, you might be able to reduce the likelihood that it will cause problems.

For instance, sometimes it's better to seal in rather than remove old lead paint. Your local health department can recommend ways to identify and reduce lead in your home and community.

For children and adults with relatively low lead levels, simply avoiding exposure to lead might be enough to reduce blood lead levels.

Treating higher levels

For more-severe cases, your doctor might recommend:

- **Chelation therapy.** In this treatment, a medication given by mouth binds with the lead so that it's excreted in urine. Chelation therapy might be

recommended for children with a blood level of 45 mcg/dL or greater and adults with high blood levels of lead or symptoms of lead poisoning.

- **ethylenediaminetetraacetic acid (EDTA) chelation therapy.** Health care providers treat adults with lead levels greater than 45 mcg/dL of blood and children who can't tolerate the drug used in conventional chelation therapy most commonly with a chemical called calcium disodium ethylenediaminetetraacetic acid (EDTA). EDTA is given by injection.

Request an appointment

Preparing for your appointment

If you think you or your child has been exposed to lead, see your health care provider or contact your local public health department. A blood test can help determine blood lead levels.

Here's some information to help you get ready for your appointment.

What you can do

Make a list of:

- **Symptoms or behavior changes** you've noticed
- **Key personal information**, including where you live and whether you or your child has been close to any sources of lead
- **All medications, vitamins or supplements** you or your child takes, including doses
- **Questions to ask** your provider

For lead poisoning, basic questions to ask your provider include:



- What's likely causing these symptoms?
- What tests are needed?
- Is this condition likely temporary or chronic?
- What's the best course of action?
- Are there brochures or other printed material I can have? What websites do you recommend?

Don't hesitate to ask other questions.

What to expect from your doctor

Your health care provider is likely to ask you questions, including:

- Have you recently moved to a different home or changed schools?
- When was your house built? Are you renovating?
- Do you have a new job that might expose you to lead?
- Does your child have a sibling or playmate who has had lead poisoning?

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E. coli

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Overview

Escherichia coli (E. coli) bacteria normally live in the intestines of healthy people and animals. Most types of E. coli are harmless or cause relatively brief diarrhea. But a few strains, such as E. coli O157:H7, can cause severe stomach cramps, bloody diarrhea and vomiting.

You may be exposed to E. coli from contaminated water or food — especially raw vegetables and undercooked ground beef. Healthy adults usually recover from infection with E. coli O157:H7 within a week. Young children and older adults have a greater risk of developing a life-threatening form of kidney failure.

Symptoms

Signs and symptoms of E. coli O157:H7 infection usually begin three or four days after exposure to the bacteria. But you may become ill as soon as one day after exposure to more than a week later. Signs and symptoms include:

Feedback

- Diarrhea, which may range from mild and watery to severe and bloody
- Stomach cramping, pain or tenderness
- Nausea and vomiting, in some people

When to see a doctor

Contact your doctor if your diarrhea is persistent, severe or bloody.

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Causes

Only a few strains of *E. coli* trigger diarrhea. The *E. coli* O157:H7 strain belongs to a group of *E. coli* that produces a powerful toxin that damages the lining of the small intestine. This can cause bloody diarrhea. You develop an *E. coli* infection when you ingest this strain of bacteria.

Feedback

Unlike many other disease-causing bacteria, *E. coli* can cause an infection even if you ingest only small amounts. Because of this, you can be sickened by *E. coli* from eating a slightly undercooked hamburger or from swallowing a mouthful of contaminated pool water.

Potential sources of exposure include contaminated food or water and person-to-person contact.

Contaminated food

The most common way to get an *E. coli* infection is by eating contaminated food, such as:

- **Ground beef.** When cattle are slaughtered and processed, *E. coli* bacteria in their intestines can get on the meat. Ground beef combines meat from many different animals, increasing the risk of contamination.
- **Unpasteurized milk.** *E. coli* bacteria on a cow's udder or on milking equipment can get into raw milk.
- **Fresh produce.** Runoff from cattle farms can contaminate fields where fresh produce is grown. Certain vegetables, such as spinach and lettuce, are particularly vulnerable to this type of contamination.

Contaminated water

Human and animal stool may pollute ground and surface water, including streams, rivers, lakes and water used to irrigate crops. Although public water systems use chlorine, ultraviolet light or ozone to kill *E. coli*, some *E. coli* outbreaks have been linked to contaminated municipal water supplies.

Private water wells are a greater cause for concern because many don't have a way to disinfect water. Rural water supplies are the most likely to be contaminated. Some people also have been infected with *E. coli* after swimming in pools or lakes contaminated with stool.

Personal contact

E. coli bacteria can easily travel from person to person, especially when infected adults and children don't wash their hands properly. Family members of young children with *E. coli* infection are especially likely to get it themselves. Outbreaks have also occurred among children visiting petting zoos and in animal barns at county fairs.

Risk factors

E. coli can affect anyone who is exposed to the bacteria. But some people are more likely to develop problems than are others. Risk factors include:

- **Age.** Young children and older adults are at higher risk of experiencing illness caused by *E. coli* and more-serious complications from the infection.
- **Weakened immune systems.** People who have weakened immune systems — from AIDS or from drugs to treat cancer or prevent the rejection of organ transplants — are more likely to become ill from ingesting *E. coli*.
- **Eating certain types of food.** Riskier foods include undercooked hamburger; unpasteurized milk, apple juice or cider; and soft cheeses made from raw milk.
- **Time of year.** Though it's not clear why, the majority of *E. coli* infections in the U.S. occur from June through September.
- **Decreased stomach acid levels.** Stomach acid offers some protection against *E. coli*. If you take medications to reduce stomach acid, such as esomeprazole (Nexium), pantoprazole (Protonix), lansoprazole (Prevacid) and omeprazole (Prilosec), you may increase your risk of an *E. coli* infection.

Complications

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Most healthy adults recover from *E. coli* illness within a week. Some people — particularly young children and older adults — may develop a life-threatening form of kidney failure called hemolytic uremic syndrome.

Prevention

No vaccine or medication can protect you from *E. coli*-based illness, though researchers are investigating potential vaccines. To reduce your chance of being exposed to *E. coli*, avoid swallowing water from lakes or pools, wash your hands often, avoid risky foods, and watch out for cross-contamination.

Mayo Clinic Minute: Avoiding summer *E. coli* infection



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Risky foods

- **Cook hamburgers until they're 160 F (71 C).** Hamburgers should be well-done, with no pink showing. But color isn't a good guide to know if the meat is done cooking. Meat — especially if grilled — can brown before it's

Feedback

completely cooked. Use a meat thermometer to ensure that meat is heated to at least 160 F (71 C) at its thickest point.

- **Drink pasteurized milk, juice and cider.** Any boxed or bottled juice kept at room temperature is likely to be pasteurized, even if the label doesn't say so. Avoid any unpasteurized dairy products or juice.
- **Wash raw produce thoroughly.** Washing produce may not get rid of all *E. coli* — especially in leafy greens, which provide many places for the bacteria to attach themselves to. Careful rinsing can remove dirt and reduce the amount of bacteria that may be clinging to the produce.

Avoid cross-contamination

- **Wash utensils.** Use hot soapy water on knives, countertops and cutting boards before and after they come into contact with fresh produce or raw meat.
- **Keep raw foods separate.** This includes using separate cutting boards for raw meat and foods, such as vegetables and fruits. Never put cooked hamburgers on the same plate you used for raw patties.
- **Wash your hands.** Wash your hands after preparing or eating food, using the bathroom, or changing diapers. Make sure that children also wash their hands before eating, after using the bathroom and after contact with animals.

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Diagnosis

Treatment is likely to start right away for anyone brought to an emergency room with suspected carbon monoxide poisoning. To confirm the diagnosis, the health care team might test a blood sample for carbon monoxide. This test should be done as soon as possible after removing the person from the suspected exposure environment. But the test shouldn't delay treatment.

Treatment



Individual hyperbaric oxygen unit, also called monoplace hyperbaric oxygen unit

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Hyperbaric oxygen therapy room

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Get into fresh air right away. Call 911 or emergency medical help if you or someone with you has symptoms of carbon monoxide poisoning. These include headache, dizziness, nausea, shortness of breath, weakness and confusion.

At the hospital, treatment may involve:

- **Breathing pure oxygen.** In the emergency room, standard treatment involves breathing pure oxygen through a mask placed over the nose and mouth. This helps oxygen reach organs and tissues. People who can't breathe on their own might be put on a machine that breathes for them, called a ventilator.
- **Getting treatment in an oxygen chamber.** This is called hyperbaric oxygen therapy. It involves breathing pure oxygen in a chamber for a set amount of time. The air pressure in the chamber is 2 to 3 times higher than usual. This helps replace carbon monoxide with oxygen in the blood.

Hyperbaric oxygen therapy might be used for severe carbon monoxide poisoning. It helps protect heart and brain tissue from carbon monoxide damage. Hyperbaric oxygen therapy might also be used for pregnant women to protect unborn babies from damage from carbon monoxide poisoning.

More Information

[Hyperbaric oxygen therapy](#)

Preparing for your appointment

If you or someone you're with has symptoms of carbon monoxide poisoning, get into fresh air immediately and call 911 or emergency medical help. Symptoms can include headache, dizziness, nausea, shortness of breath, weakness and confusion.



The health care team at the hospital will need information as soon as you arrive. On the way to the hospital, try to prepare to answer questions about:

- Possible sources of carbon monoxide.
 - Symptoms and when they started.
 - Mental concerns, such as confusion and memory problems.
 - Loss of consciousness.
 - Other medical conditions, including pregnancy.
 - Smoking habits.
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