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What are the most common foodborne diseases?

The most commonly recognized foodborne infections are those caused by the bacteria

Campylobacter, *Salmonella*, and *E. coli O157:H7*, and by a group of viruses called calicivirus, also known as the Norwalk and Norwalk-like viruses.

Campylobacter is a bacterial pathogen that causes fever, diarrhea, and abdominal cramps. It is the most commonly identified bacterial cause of diarrheal illness in the world. These bacteria live in the intestines of healthy birds, and most raw poultry meat has *Campylobacter* on it. Eating undercooked chicken, or other food that has been contaminated with juices dripping from raw chicken is the most frequent source of this infection.

Salmonella is also a bacterium that is widespread in the intestines of birds, reptiles and mammals. It can spread to humans via a variety of different foods of animal origin. The illness it causes, salmonellosis, typically includes fever, diarrhea and abdominal cramps. In persons with poor underlying health or weakened immune systems, it can invade the bloodstream and cause life-threatening infections.

E. coli O157:H7 is a bacterial pathogen that has a reservoir in cattle and other similar animals. Human illness typically follows consumption of food or water that has been contaminated with microscopic amounts of cow feces. The illness it causes is often a severe and bloody diarrhea and painful abdominal cramps, without much fever. In 3% to 5% of cases, a complication called hemolytic uremic syndrome (HUS) can occur several weeks after the initial symptoms. This severe complication includes temporary anemia, profuse bleeding, and kidney failure.





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Calicivirus, or Norwalk-like virus is an extremely common cause of foodborne illness, though it is rarely diagnosed, because the laboratory test is not widely available. It causes an acute gastrointestinal illness, usually with more vomiting than diarrhea, that resolves within two days. Unlike many foodborne pathogens that have animal reservoirs, it is believed that Norwalk-like viruses spread primarily from one infected person to another. Infected kitchen workers can contaminate a salad or sandwich as they prepare it, if they have the virus on their hands. Infected fishermen have contaminated oysters as they harvested them.

Prevention Tips

The idea that the food on the dinner table can make someone sick may be disturbing, but there are many steps you can take to protect your families and dinner guests. It's just a matter of following basic rules of food safety.

Prevention of foodborne illness starts with your trip to the supermarket.

- Pick up your packaged and canned foods first.
- Don't buy food in cans that are bulging or dented or in jars that are cracked or have loose or bulging lids.
- Don't eat raw shellfish and use only pasteurized milk and cheese and pasteurized or otherwise treated ciders and juices if you have a health problem, especially one that may have impaired your immune system.





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- Choose eggs that are refrigerated in the store. Before putting them in your cart, open the carton and make sure that the eggs are clean and none are cracked.
- Select frozen foods and perishables such as meat, poultry or fish last. Always put these products in separate plastic bags so that drippings don't contaminate other foods in your shopping cart.
- Don't buy frozen seafood if the packages are open, torn or crushed on the edges. Avoid packages that are above the frost line in the store's freezer. If the package cover is transparent, look for signs of frost or ice crystals. This could mean that the fish has either been stored for a long time or thawed and refrozen.
- Check for cleanliness at the meat or fish counter and the salad bar. For instance, cooked shrimp lying on the same bed of ice as raw fish could become contaminated.
- When shopping for shellfish, buy from markets that get their supplies from state-approved sources; stay clear of vendors who sell shellfish from roadside stands or the back of a truck. And if you're planning to harvest your own shellfish, heed posted warnings about the safety of the water.
- Take an ice chest along to keep frozen and perishable foods cold if it will take more than an hour to get your groceries home.

Safe Storage

- The first rule of food storage in the home is to refrigerate or freeze perishables right away. The refrigerator temperature should be 40 degrees Fahrenheit (5 degrees Celsius), and the freezer should be zero F (minus 18 C). Check both "fridge" and freezer periodically with a refrigerator/freezer thermometer.





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- Poultry and meat heading for the refrigerator may be stored as purchased in the plastic wrap for a day or two. If only part of the meat or poultry is going to be used right away, it can be wrapped loosely for refrigerator storage. Just make sure juices can't escape to contaminate other foods.
- Wrap tightly foods destined for the freezer. Leftovers should be stored in tight containers.
- Store eggs in their carton in the refrigerator itself rather than on the door, where the temperature is warmer.
- Seafood should always be kept in the refrigerator or freezer until preparation time.
- Don't crowd the refrigerator or freezer so tightly that air can't circulate. Check the leftovers in covered dishes and storage bags daily for spoilage. Anything that looks or smells suspicious should be thrown out.
- A sure sign of spoilage is the presence of mold, which can grow even under refrigeration. While not a major health threat, mold can make food unappetizing. Most moldy foods should be thrown out. But you might be able to save molding hard cheeses, salami, and firm fruits and vegetables if you cut out not only the mold but a large area around it. Cutting the larger area around the mold is important because much of the mold growth is below the surface of the food.
- Always check the labels on cans or jars to determine how the contents should be stored. Many items besides fresh meats, vegetables, and dairy products need to be kept cold. For instance, mayonnaise and ketchup should go in the refrigerator after opening. If you've neglected to refrigerate items, it's usually best to throw them out.





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- Some precautions will help make sure that foods that can be stored at room temperature remain safe. Potatoes and onions should not be stored under the sink because leakage from the pipes can damage the food. Potatoes don't belong in the refrigerator, either. Store them in a cool, dry place. Don't store foods near household cleaning products and chemicals.
- Check canned goods to see whether any are sticky on the outside. This may indicate a leak. Newly purchased cans that appear to be leaking should be returned to the store, which should notify the FDA.

Keep It Clean

The first cardinal rule of safe food preparation in the home is: Keep everything clean. The cleanliness rule applies to the areas where food is prepared and, most importantly, to the cook.

- Wash hands with warm water and soap for at least 20 seconds before starting to prepare a meal and after handling raw meat or poultry.
- Cover long hair with a net or scarf, and be sure that any open sores or cuts on the hands are completely covered. If the sore or cut is infected, stay out of the kitchen.
- Keep the work area clean and uncluttered. Wash countertops with a solution of 1 teaspoon of chlorine bleach to 1 quart of water or with a commercial kitchen cleaning agent diluted according to product directions. They're the most effective at getting rid of bacteria.





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- Also, be sure to keep dishcloths clean because, when wet, they can harbor bacteria and may promote their growth. Wash dishcloths weekly in hot water in the washing machine.
- Sanitize the kitchen sink drain periodically by pouring down the sink a solution of 1 teaspoon of bleach to 1 quart of water or a commercial kitchen cleaning agent. Food particles get trapped in the drain and disposal and, along with the moistness, create an ideal environment for bacterial growth.
- Use smooth cutting boards made of hard maple or a non-porous material such as plastic and free of cracks and crevices. Avoid boards made of soft, porous materials. Wash cutting boards with hot water and soap, using a scrub brush. Then, sanitize them by washing in an automatic dishwasher or by rinsing with a solution of 1 teaspoon of chlorine bleach to 1 quart of water.
- Always wash and sanitize cutting boards after using them for raw foods, such as seafood or chicken, and before using them for ready-to-eat foods. Consider using one cutting board only for foods that will be cooked, such as raw fish, and another only for ready-to-eat foods, such as bread, fresh fruit, and cooked fish.
- Always use clean utensils and wash them between cutting different foods.
- Wash the lids of canned foods before opening to keep dirt from getting into the food. Also, clean the blade of the can opener after each use. Food processors and meat grinders should be taken apart and cleaned as soon as possible after they are used.
- Do not put cooked meat on an unwashed plate or platter that has held raw meat.
- Wash fresh fruits and vegetables thoroughly, rinsing under running water. Don't use soap or other detergents. If necessary--and appropriate--use a small scrub brush to remove surface dirt.





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Keep Temperature Right

The second cardinal rule of safe home food preparation is: Keep hot foods hot and cold foods cold.

- Use a digital or dial food thermometer to ensure that meats are completely cooked. Insert the thermometer into the center of the food and wait 30 seconds to ensure an accurate measurement. Beef, lamb, and veal should be cooked to at least 145 F (63 C); pork and ground beef to 160 F (71 C); whole poultry and thighs to 180 F (82 C); poultry breasts to 170 F (77 C); and ground chicken or turkey to 165 F (74 C).
- Eggs should be cooked until the white and the yolk are firm. Avoid foods containing raw eggs, such as homemade ice cream, mayonnaise, eggnog, cookie dough and cake batter, because they carry a Salmonella risk. Their commercial counterparts usually don't because they're made with pasteurized eggs. Cooking the egg-containing product to an internal temperature of at least 160 F (71 C) will kill the bacteria.
- Seafood should be thoroughly cooked to an internal temperature of at least 145 F (63 C). Fish that's ground or flaked, such as a fish cake, should be cooked to at least 155 F (68 C), and stuffed fish to at least 165 F (74 C).
- Fish is done when the thickest part becomes opaque and the fish flakes easily when poked with a fork.
- Shrimp can be simmered three to five minutes or until the shells turn red.
- Clams and mussels are steamed over boiling water until the shells open (five to 10 minutes). Then boil three to five minutes longer.
- Oysters should be sautéed, baked or boiled until plump, about five minutes.





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- Cooked foods should not be left standing on the table or kitchen counter for more than two hours. Disease-causing bacteria grow in temperatures between 40 and 140 F (4 and 60 C). Cooked foods that have been in this temperature range for more than two hours should not be eaten.
- If a dish is to be served hot, get it from the stove to the table as quickly as possible. Reheated foods should be brought to a temperature of at least 165 F (74 C). Keep cold foods in the refrigerator or on a bed of ice until serving. This rule is particularly important to remember in the summer months.
- After the meal, leftovers should be refrigerated as soon as possible. (Never mind that scintillating dinner table conversation!) Meats should be cut in slices of three inches or less and all foods should be stored in shallow containers to hasten cooling. Be sure to remove all the stuffing from roast turkey or chicken and store it separately. Giblets should also be stored separately. Leftovers should be used within three days.
- Don't thaw meat and other frozen foods at room temperature. Instead, move them from the freezer to the refrigerator for a day or two; or defrost submerged in cold water. You can also defrost in the microwave oven or during the cooking process. Cook foods immediately after defrosting in the microwave or cold water.
- Never taste any food that looks or smells "off" or comes out of leaking, bulging or severely damaged cans or jars with leaky lids.

Source: Excerpted from

FDA Consumer - The Unwelcome Dinner Guest: Preventing Foodborne Illness

