

## Healthy Steps with Food Safety

Infectious diseases spread through food or beverages are a common, distressing, and sometimes life-threatening problem for millions of people in the United States and around the world. The U.S. Centers for Disease Control and Prevention (CDC) estimates 76 million people suffer foodborne illnesses each year in the United States, accounting for 325,000 hospitalizations and more than 5,000 deaths.

Foodborne disease is extremely costly. Health experts estimate that the yearly cost of all foodborne diseases in this country is \$5 to \$6 billion in direct medical expenses and lost productivity. Infections with the bacteria *Salmonella* alone account for \$1 billion yearly in direct and indirect medical costs.

There are more than 250 known foodborne diseases. Bacteria cause most cases, followed by viruses and parasites. Natural and manufactured chemicals in food products also can make people sick. Some diseases are caused by toxins (poisons) from the disease-causing organism, others by bodily reactions to the organism itself. People infected with foodborne germs may have no symptoms or develop symptoms ranging from mild intestinal discomfort to severe dehydration and bloody diarrhea.

### Preventing Foodborne Illness

Many times, foodborne diseases are easy to avoid. These are some basic ways to prevent being infected by most foodborne germs.

**CLEAN: Wash hands and surfaces often.** Keep everything clean while preparing meals. Wash hands and kitchen surfaces often with soap and water. Wash cutting boards, dishes, and utensils after preparing each food item and before going on to the next item. Paper towels are recommended for cleaning up kitchen surfaces.

**SEPARATE: Don't cross-contaminate.** Separate raw meat, poultry, and seafood from other foods when shopping at the grocery store and storing them in your refrigerator. Use one cutting board for raw meat, poultry, and seafood and a separate one for other food. Never place cooked food on a plate that previously held raw meat, poultry, or seafood unless the plate has been thoroughly cleaned.

## Defrosting Food

There are three safe ways to defrost food: in the refrigerator, in cold water, and in the microwave.

### Refrigerator Thawing

Planning ahead is the key to this method because of the lengthy time involved. A large frozen item like a turkey requires at least a day (24 hours) for every 5 pounds of weight. Even small amounts of frozen food - such as a pound of ground meat or boneless chicken breasts - require a full day to thaw. When thawing foods in the refrigerator, there are several variables to take into account.

- Some areas of an appliance may keep the food colder than other areas. Food placed in the coldest part will require longer defrosting time.
- Food takes longer to thaw in a refrigerator set at 35 °F than one set at 40 °F.

After thawing in the refrigerator, ground meat and poultry should remain useable for an additional day or two before cooking; red meat, 3 to 5 days. Foods defrosted in the refrigerator can be refrozen without cooking, although there may be some loss of quality.

### Cold Water Thawing

This method is faster than refrigerator thawing but requires more attention. The food must be in a leak-proof package or plastic bag. If the bag leaks, bacteria from the air or surrounding environment could be introduced into the food. Also, meat tissue can also absorb water like a sponge, resulting in a watery product.

The bag should be submerged in cold tap water, changing the water every 30 minutes so it continues to thaw. Small packages of meat or poultry - about a pound - may defrost in an hour or less. A 3- to 4-pound package may take 2 to 3 hours. For whole turkeys, estimate about 30 minutes per pound. If thawed completely, the food must be cooked immediately. Foods thawed by the cold water method should be cooked before refreezing.

### Microwave Thawing

When microwave defrosting food, plan to cook it immediately after thawing because some areas of the food may become warm and begin to cook during microwave defrosting. Holding partially cooked food is not recommended because any bacteria present wouldn't have been destroyed and, indeed, may have reached optimal temperatures for bacteria to grow.

Foods thawed in the microwave should be cooked before refreezing.

## Cooking Food

### **Cook to safe temperatures.**

Use a food thermometer to make sure meat, poultry, and egg dishes are cooked to safe temperatures. Do not second-guess the internal temperature of cooked foods—follow the recommended temperatures in the chart below. Keep hot food hot, 140 °F or above. When reheating, leftovers should be thoroughly heated to 165 °F; sauces and soup should be brought to a rolling boil.

#### **TEMPERATURE RULES:**

**145 °F** Beef, lamb, and veal (steaks and roasts), medium rare (medium—160 °F)

**160 °F** Ground meats (beef, pork, veal, and lamb), pork (chops, ribs, and roasts), egg dishes

**165 °F** Ground turkey and chicken, stuffing, casseroles, leftovers

**170 °F** Chicken and turkey (breasts)

**180 °F** Chicken & turkey (whole bird, legs, thighs, and wings)

## Storing Food

**CHILL: Refrigerate promptly.** Refrigerate or freeze perishables, prepared food, and leftovers within 2 hours. Place leftovers into shallow containers for rapid cooling. The refrigerator should be maintained at 40 °F or below and the freezer at 0 °F or below. Use an appliance thermometer to check the temperature. Keep cold food cold, 40 °F or below. Never defrost food at room temperature. Thaw food in the refrigerator, under cold running water, or in the microwave. Marinate foods in the refrigerator.

Additionally, consumers buying fresh, packaged, or canned food should always check to be sure the package or can is intact before purchasing. Do not purchase packages that are punctured or appear to have been opened. Follow label advice for products that are packaged with safety seals. Do not consume food if the seal has been broken. For canned goods, do not eat the contents if the cans are dented, cracked, or bulging. These are warning signs that the product may not be safe.

Do not use products that spurt liquid or foam when the container is opened. **If you have questions about a product, do not taste the product to determine if it is safe.** Do not use packaged food received in the mail if you don't know where it came from.

### **How Long Should Canned Foods Be Kept?**

Store canned foods and other shelf-stable products in a cool, dry place. Never put them above the stove, under the sink, in a damp garage or basement, or any place exposed to high or low temperature extremes. Store high-acid foods, such as tomatoes and other

fruit, up to 18 months. Low-acid foods, such as meat and vegetables, can be kept 2 to 5 years.

Clean the top of the container before opening. After opening, inspect the product. Do not use products that are discolored, moldy, or have an off odor. While extremely rare, a toxin produced by *Clostridium botulinum* is the worst danger in canned foods. **NEVER USE** food from containers that show signs of “botulism”: leaking, bulging, rusting, or badly dented cans; cracked jars; jars with loose or bulging lids; canned food with a foul odor; or any container that spurts liquid when opening. **DO NOT TASTE THIS FOOD!** Even the tiniest amount of *botulinum* toxin can be deadly.

For advice, or if you think a meat or poultry product has made you sick, **call the USDA Meat and Poultry Hotline at 1-888-MPHotline (1-888-674-6854); TTY: 1-800-256-7072.**

### **What Is Foodborne Illness?**

Foodborne illness often presents itself as flu-like symptoms such as nausea, vomiting, diarrhea, or fever, so many people may not recognize the illness is caused by bacteria or other pathogens in food.

Thousands of types of bacteria are naturally present in our environment. Not all bacteria cause disease in humans. For example, some bacteria are used beneficially in making cheese and yogurt.

Bacteria that cause disease are called pathogens. When certain pathogens enter the food supply, they can cause foodborne illness. Millions of cases of foodborne illness occur each year. Most cases of foodborne illness can be prevented. Proper cooking or processing of food destroys bacteria.

Age and physical condition place some persons at higher risk than others, no matter what type of bacteria is implicated. Very young children, pregnant women, the elderly and people with compromised immune systems are at greatest risk from any pathogen (such as people undergoing cancer treatments, or that have kidney disease, AIDS, diabetes, etc.).

Some persons may become ill after ingesting only a few harmful bacteria; others may remain symptom free after ingesting thousands.

### **How Bacteria Get in Food**

Bacteria may be present on products when you purchase them. Plastic-wrapped boneless chicken breasts and ground meat, for example, were once part of live chickens or cattle. Raw meat, poultry, seafood, and eggs are not sterile. Neither is fresh produce such as lettuce, tomatoes, sprouts, and melons.

Foods, including safely cooked, ready-to-eat foods, can become cross-contaminated with bacteria transferred from raw products, meat juices or other contaminated products, or from food handlers with poor personal hygiene.

### **In Case of Suspected Foodborne Illness**

Follow these general guidelines:

1. **Preserve the evidence.** If a portion of the suspect food is available, wrap it securely, mark "DANGER" and freeze it. Save all the packaging materials, such as cans or cartons. Write down the food type, the date, other identifying marks on the package, the time consumed, and when the onset of symptoms occurred. Save any identical unopened products.
2. **Seek treatment as necessary.** If the victim is in an "at risk" group, seek medical care immediately. Likewise, if symptoms persist or are severe (such as bloody diarrhea, excessive nausea and vomiting, or high temperature), call your doctor.
3. **Call the local health department** if the suspect food was served at a large gathering, from a restaurant or other food service facility, or if it is a commercial product.
4. **Call the USDA Meat and Poultry Hotline** if the suspect food is a USDA-inspected product and you have all the packaging.

There are times when the food you have in your home could become unsafe if not handled properly, such as if there is a power failure. In addition, many organizations, including the American Red Cross and the U.S. Department of Homeland Security, encourage consumers to keep a supply of nonperishable food in their homes in case of emergency.

### **How Can You Keep Food Safe During a Power Failure?**

**Keep the freezer door closed to keep cold air inside.** Don't open the door any more than necessary. A full freezer will stay at safe temperatures about 2 days; a half-full freezer about 1 day. If your freezer is not full, group packages so they form an "igloo" to protect each other. If you think the power will be out for several days, try to find some dry ice. Keep dry ice wrapped and do not touch it with your bare hands. Use cubed ice or block ice in the refrigerator.

**Even if food has started to thaw, foods can be safely kept in the freezer.** The foods in your freezer that partially or completely thaw before power is restored may be safely refrozen if they still contain ice crystals or are 40 °F or below. You will have to evaluate each item separately. *When in doubt, throw it out.*

In general, refrigerated items should be safe up to 4 hours. Keep the door closed as much as possible. Discard any perishable foods (such as meat, poultry, fish, eggs, and leftovers) that have been above 40 °F for 2 hours or more. Also discard any other food that has an unusual odor, color, or texture, or feels warm to the touch.

**Keep an appliance thermometer in the refrigerator and freezer at all times.** This will remove the guesswork of just how cold the unit is because it will give you the exact temperature. The key to determining the safety of foods in the refrigerator and freezer is knowing how cold they are. The refrigerator temperature should be at 40 °F or below; the freezer, 0 °F or lower.

### **What Food and Water Should You Keep in Your Home?**

The American Red Cross and the U.S. Department of Homeland Security recommend the following:

- Keep a supply of nonperishable food and a 3-day supply of commercially bottled water per person (minimum of 3 gallons) on hand in case of an emergency.
- Since there may not be power, purchase food that requires no refrigeration, cooking, water, or special preparation. Good food choices are dried fruit; canned fruit or vegetables; shelf-stable cans of meat, poultry, and fish; jars of peanut butter and jelly; small packages of cereal, granola bars, and crackers; nonfat dry milk; and small boxes of juice drinks. Select small cans of food so there won't be any leftovers that will need refrigeration. Remember to include infant formula, pet food, and foods for family members with special dietary needs.
- Have a manually operated can opener on hand.
- Periodically use and refresh your supply.

## Bacteria That Cause Foodborne Illness

BACTERIA	FOUND	TRANSMISSION	SYMPTOMS
<i>Campylobacter jejuni</i>	intestinal tracts of animals and birds, raw milk, untreated water, and sewage sludge.	Contaminated water, raw milk, and raw or undercooked meat, poultry, or shellfish.	Fever, headache and muscle pain followed by diarrhea (sometimes bloody), abdominal pain, and nausea that appear 2 to 5 days after eating; may last 7 to 10 days.
<i>Clostridium botulinum</i>	Widely distributed in nature; soil, water, on plants, and intestinal tracts of animals and fish. Grows only in little or no oxygen.	Bacteria produce a toxin that causes illness. Improperly canned foods, garlic in oil, vacuum-packed and tightly wrapped food.	Toxin affects the nervous system. Symptoms usually appear 18 to 36 hours, but can sometimes appear as few as 4 hours or as many as 8 days after eating; double vision, droopy eyelids, trouble speaking and swallowing, and difficulty breathing. Fatal in 3 to 10 days if not treated.
<i>Clostridium perfringens</i>	Soil, dust, sewage, and intestinal tracts of animals and humans. Grows only in little or no oxygen.	Called "the cafeteria germ" because many outbreaks result from food left for long periods in steam tables or at room temperature. Bacteria destroyed by cooking, but some toxin-producing spores may survive.	Diarrhea and gas pains may appear 8 to 24 hours after eating; usually last about 1 day, but less severe symptoms may persist for 1 to 2 weeks.

BACTERIA	FOUND	TRANSMISSION	SYMPTOMS
<p><i>Escherichia coli</i> <b>O157:H7</b></p>	<p>Intestinal tracts of some mammals, raw milk, unchlorinated water; one of several strains of <i>E. coli</i> that can cause human illness.</p>	<p>Contaminated water, raw milk, raw or rare ground beef, unpasteurized apple juice or cider, uncooked fruits and vegetables; person-to-person.</p>	<p>Diarrhea or bloody diarrhea, abdominal cramps, nausea, and malaise; can begin 2 to 5 days after food is eaten, lasting about 8 days. Some, especially the very young, have developed hemolytic-uremic syndrome (HUS) that causes acute kidney failure. A similar illness, thrombotic thrombocytopenic purpura (TTP), may occur in adults.</p>
<p><i>Listeria monocytogenes</i></p>	<p>Intestinal tracts of humans and animals, milk, soil, leaf vegetables; can grow slowly at refrigerator temperatures.</p>	<p>Ready-to-eat foods such as hot dogs, luncheon meats, cold cuts, fermented or dry sausage, and other deli-style meat and poultry, soft cheeses and unpasteurized milk.</p>	<p>Fever, chills, headache, backache, sometimes upset stomach, abdominal pain and diarrhea; may take up to 3 weeks to become ill; may later develop more serious illness in at-risk patients (pregnant women and newborns, older adults, and people with weakened immune systems).</p>

BACTERIA	FOUND	TRANSMISSION	SYMPTOMS
<i>Salmonella</i> (over 2300 types)	Intestinal tracts and feces of animals; Salmonella Enteritidis in eggs.	Raw or undercooked eggs, poultry, and meat; raw milk and dairy products; seafood, and food handlers.	Stomach pain, diarrhea, nausea, chills, fever, and headache usually appear 8 to 72 hours after eating; may last 1 to 2 days.
<i>Shigella</i> (over 30 types)	Human intestinal tract; rarely found in other animals.	Person-to-person by fecal-oral route; fecal contamination of food and water. Most outbreaks result from food, especially salads, prepared and handled by workers using poor personal hygiene.	Disease referred to as "shigellosis" or bacillary dysentery. Diarrhea containing blood and mucus, fever, abdominal cramps, chills, and vomiting; 12 to 50 hours from ingestion of bacteria; can last a few days to 2 weeks.
<i>Staphylococcus aureus</i>	On humans (skin, infected cuts, pimples, noses, and throats).	Person-to-person through food from improper food handling. Multiply rapidly at room temperature to produce a toxin that causes illness.	Severe nausea, abdominal cramps, vomiting, and diarrhea occur 1 to 6 hours after eating; recovery within 2 to 3 days -- longer if severe dehydration occurs.

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