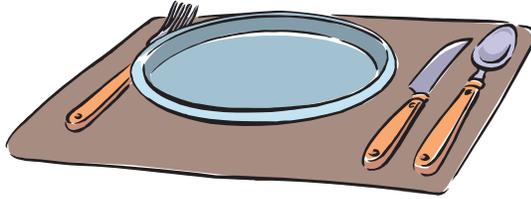# Keeping Food Safe to Eat at Home

Every year some 76 million Americans get sick with a foodborne illness. Most suffer from mild symptoms—vomiting, nausea, and diarrhea that usually last from several hours to several days. But some types of foodborne illness can be more deadly. About 5,000 people die each year from complications after eating unsafe food.

Everyone is susceptible. However, the very young, older adults, pregnant women, and people who are chronically ill are at greater risk. Recent evidence also suggests that foodborne illness can even lead to long-term health problems, such as arthritis.

Foodborne illness is nearly 100 percent preventable if food is handled safely from the time it is purchased until the time it is served. Read on to find out what you can do to keep food safe to eat at home.

CLEAN:
Wash hands and surfaces often

Wash your hands to prevent the spread of many diseases, including food-borne illness. Always wash your hands with soap and warm water for at least 20 seconds before food preparation, after handling raw meats, fish, or poultry, before eating, and after using the bathroom.

Bacteria can be spread throughout the kitchen if you don't keep cutting boards, utensils, sponges, and countertops clean. Wash with hot soapy water, and thoroughly rinse away all soapy residue. Let surfaces air dry to prevent recontaminating surfaces with a damp or dirty towel. Because cutting boards and knives are most likely to be in contact with raw meats, sanitize them in a mild sanitizing solution, or wash in a dishwasher. Prepare sanitizing solution by mixing 1 tablespoon of unscented household bleach with 1 gallon warm (not hot) water. Immerse the item in the sanitizing solution for 1 minute, and then let it air dry. Do not use a kitchen towel, it could contaminate the dishes. Also, bacteria can grow in damp, dirty towels.

SEPARATE:
Don't cross-contaminate

Bacteria can be spread if raw meat juices, dirty towels, sponges, and utensils like knives and cutting boards come in contact with food. To prevent cross-contamination:
• Wrap packages of raw meat, poultry, and fish in a plastic bag, such as a produce bag, to keep them away from other foods in your shopping cart.
• Use one cutting board for raw meats. Or, if you only have one cutting board, use one side for raw meat, fish, and poultry and the other for other foods, such as cheese, produce, and cooked foods. Also, wash the cutting board thoroughly in between foods.
• Always wash your hands and food preparation surfaces after they come in contact with raw meat, poultry, and fish.

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• Never place cooked food on a plate that previously held raw meat, poultry, and fish, unless the plate has first been cleaned.
• Put thawing food on a plate or pan, and place it on the lowest shelf in the refrigerator so it cannot drip onto other foods in the refrigerator.
• In the refrigerator, store raw food under cooked and ready-to-eat foods.

COOK:
Cook to proper temperatures

Thorough cooking kills most harmful bacteria and parasites. The best way to tell if your food is thoroughly cooked is to use a food thermometer. Food thermometers can be bought at many grocery, retail, and hardware stores.

Improperly microwaved food could have cold spots where harmful bacteria can survive and grow. For best results, cover food, stir, and rotate for even cooking. If there is no turntable in your microwave oven, turn the dish by hand once or twice during cooking. Also, heat food quickly so that it doesn't remain in the danger zone—between 40 and 140ºF—for too long. The chart below shows the temperature that various foods must reach to be safe.

CHILL:
Promptly refrigerate foods

Many people think you cannot put hot food in the refrigerator because it will make the other foods in the refrigerator spoil. This belief dates back to the days of the "ice box" when block ice was used to cool foods in an icebox. If hot foods were put into an icebox, it would cause the ice to melt. Without ice to chill the food in the icebox, the food would spoil. Obviously this is not a problem with modern refrigerators, so always refrigerate food promptly.

Bacteria grow slowly when food is kept cold. Set your refrigerator between 34 and 39ºF and your freezer at 0ºF or colder. Not only will your food be safe but it will also last longer. Follow these other safe steps for refrigeration:
• Don't keep perishables or cooked foods out of the refrigerator for longer than 2 hours total.

Safe Internal Cooking Temperatures*			
Food	**Temperature (degrees F)**	**Food**	**Temperature (degrees F)**
Ground meat and meat mixtures		*Fresh pork*	
Beef, pork, veal, and lamb	160	Medium	160
Turkey and chicken	165	Well done	170
Fresh beef, veal, and lamb		*Ham*	
Medium rare	145	Fresh (raw)	160
Medium	160	Pre-cooked (to reheat)	140
Well done	170		
		Eggs and Egg Dishes	
Poultry		Eggs	Cook until yolk and white are firm
Chicken and turkey, whole	180	Egg dishes, such as casseroles, sauces, and custard	160
Chicken and turkey, breast	170		
Chicken and turkey, dark meat	180		
Duck and goose	180	*Leftovers and casseroles*	165
Stuffing (cooked alone or in bird)	165		

* *Place a properly cleaned thermometer into the thickest part of the food, away from bone, fat, gristle, and the pan. To get the temperature of a thin food like a hamburger patty, pork chop, or chicken breast, remove the food from the heat source and insert the food thermometer sideways, about 1 to 2 inches.*

- Thaw frozen food in the refrigerator, in a microwave oven, or during cooking.
- Marinate foods in the refrigerator.
- Divide large portions of food, like a large pot of stew, into smaller portions in shallow pans that are no more than 2 inches deep for quick cooling.
- Cut large pieces of meat, like a roast, into several smaller portions to hasten cooling.
- Cover food or wrap tightly to keep out drips from other foods.

IF IN DOUBT, THROW IT OUT

Contaminated food may not look, smell, or taste bad. If you think food has not been safely handled during preparation, cooking, or storage, don't eat it. And, if it isn't safe for you to eat, do not feed it to your pet.

Inspect Your Home

Now you know what you should be doing to keep your family safe from foodborne illness. Are there any changes you need to make to keep food safe to eat? Answer the following questions to see if you need to take action.

Clean	Yes	No
1. I do not always wash my hands before handling food.		
2. Sometimes I prepare food while I am sick.		
3. I do not have hand soap in my kitchen.		
4. I do not have dish detergent to wash my dishes.		
5. I do not have hot water to wash my dishes.		
6. I allow pets to walk on the countertops.		
7. I have a dirty can opener, pots, or pans in the sink and/or on the countertop.		
8. The sink has pieces of food left in it.		
9. I use a cloth, sponge, or dish towel several times before I wash or change it.		
10. I do not always wash the cutting board with hot soapy water or in a dishwasher between uses.		
11. I put the utensils I use to taste food back into the food being prepared.		
12. The shelves or drawers of my refrigerator have bits of food, dried spills, or dirt on them.		
13. I have seen insects and other pests in my kitchen.		
14. I usually do not wash raw fruits and vegetables before using them.		

Separate	Yes	No
1. In the refrigerator I store raw food over cooked and ready-to-eat foods.		
2. I place food that is being frozen on top of the ice cube trays.		
3. I store food with cleaning supplies.		
4. I sometimes put cooked foods back onto a plate that held raw foods without first washing the plate.		
5. I don't cover refrigerated foods tightly.		

Cook	Yes	No
1. I do not have a food thermometer.		
2. I look at the color of food to see when it is done.		
3. I sometimes serve eggs with runny yolks or moist scrambled eggs.		

Chill	Yes	No
1. The temperature inside my refrigerator is above 39°F.		
2. The temperature of my freezer is above 0°F.		
3. I do not have a refrigerator or a freezer thermometer.		
4. I sometimes thaw food on the counter.		
5. I sometimes let cooked food sit out at room temperature for more than two hours.		
6. I sometimes cool hot food at room temperature before I put it in the refrigerator.		
7. I sometimes put a large pot of hot food in the refrigerator to cool.		

Scoring Your Inspection

If you answered "Yes" to any of the items, you need to make changes to prevent foodborne illness at home. The following food safety actions correspond to the items in the food safety inspection.

CLEAN

1. Wash your hands with warm soapy water for at least 20 seconds to remove bacteria and viruses. Always wash your hands before handling food, during food preparation, after using the bathroom changing diapers, and after touching animals.

2. Do not handle food while you are sick. Sick people who handle food could contaminate food with harmful microorganisms.

3. Hand soap is essential to removing bacteria and viruses found on hands. Water alone will not remove them.

4. Dish detergent and hot water will remove dirt and microorganisms from countertops, cutting boards, utensils, and hands. Water alone will not effectively clean a surface.

5. Dish water should be warm to hot. The warmer the water, the quicker dish detergent dissolves and the better it can remove soil and fat build-up on the surface being cleaned.

6. Do not allow animals to walk on countertops. Animals have bacteria and viruses on their bodies, so they could contaminate food and surfaces. If they do walk on countertops, wash and sanitize these surfaces.

7. Thoroughly clean dirty equipment with dish detergent and water. Dirty equipment is a potential source of contamination.

8. Always wash, rinse, and sanitize the sink before and after it has been used to prepare raw foods, such as meat, fish, and poultry. Bacteria that is naturally present on the surface of these foods could contaminate other foods that come in contact with a dirty sink.

9. Wash dishcloths, sponges, or towels frequently in soapy water, rinse, and then immerse in a mild sanitizing solution (1 tablespoon of bleach per gallon of warm, *not hot*, water). Let them air dry. Or, launder daily. If you use a dishcloth, sponge, or towel is used to clean, it can pick up microorganisms along with dirt. While rinsing will remove the dirt, it will not kill microorganisms that might be on the cloth. If you use it later, you may be spreading microorganisms to other surfaces.

10. Wash cutting boards with soapy water before food residues soak into or dry onto them. Always wash cutting boards after you use them to prepare raw food and before you use them with cooked or ready-to-eat foods. Plastic (and some wooden) cutting boards can be cleaned in the dishwasher. A new cutting board made of plastic or other synthetic material is more easily cleaned and sanitized than a wooden board. However, a knife-scarred plastic board can be as difficult to clean as a wooden one.

11. Utensils used to taste food must be cleaned before they are reused. A bacteria called *Staphylococcus aureus* is commonly found on the skin and in the mouth, throat, and nose of many people. This bacteria can contaminate food if a tasting utensil is used again without cleaning.

12. Regularly clean refrigerator shelves and cupboard drawers with dish detergent and warm water to remove dirt, food, and grease that could contaminate foods.

13. Identify and eliminate places where insects and rodents are entering or nesting in your house. Insects and rodents can carry dangerous microorganisms. Seal all openings leading to the outside, remove food debris, and store food scraps and garbage in tightly covered cans until collected.

14. Wash whole fruits and vegetables that will not be peeled or cooked. Also, wash them before cutting. Washing, peeling, and cooking are the best ways to remove microorganisms that are on fruits and vegetables. *Never* immerse fruits and vegetables into a sanitizing solution that you make at home. The solution can be absorbed into the food making it unsafe to eat.

SEPARATE

1. Store raw or thawing raw meat, poultry, and fish on the lowest shelf of the refrigerator or in a separate area of the refrigerator so their juices do not drip onto and contaminate other food.

2. Never place food in the freezer on top of ice trays or an ice keeper. While a food is freezing, drips could contaminate the ice. Harmful microorganisms could be present in ice cubes that are used for drinking.

3. Store household chemicals away from food, utensils, dishes, and glassware. If these items are stored in the same location, they could accidentally contaminate food.

4. Never place cooked food on a plate that previously held raw meat, poultry, and fish. The juices from food might contain bacteria that could contaminate cooked or ready-to-eat foods. Wash the plate before using it to hold cooked food. Better yet, use a separate plate.

5. Store food in airtight containers to prevent contamination from drips and mold. Mold is in the air and can contaminate uncovered stored food. Mold is a common cause of spoiled refrigerated foods. The presence of air permits the growth of mold, and some molds produce toxins that could cause illness. Covering food also protects it from the drips of other raw food.

COOK

1. Cook foods to proper internal temperatures. Foods not cooked to recommended temperatures can be unsafe to eat. Cooking destroys harmful micro-

organisms, such as bacteria, viruses and parasites. In general, place a properly cleaned thermometer into the thickest part of the food, away from bone, fat, gristle, or the pan. This might be difficult for thin foods. To measure the temperature of a hamburger patty, pork chop, or chicken breast, remove the food from the heat source and insert the food thermometer sideways about 1 to 2 inches.

2. The only reliable way to determine the temperature of a food is to use a food thermometer that has a range of at least 0 to 220 °F.

3. Adequate cooking of eggs kills the harmful bacteria *Salmonella enteritidis*. For fried eggs, cook both sides, turning the eggs until the whites are completely set and the yolks begin to thicken but are not hard. When making scrambled eggs, make sure no visible liquid egg remains.

CHILL

1. Set your refrigerator temperature between 34 and 39°F to keep your food safe but increase its shelf-life. Both harmful and spoilage bacteria can multiply rapidly if food warms to temperatures above 40°F. Also, only cool small amounts of hot food in your refrigerator. The temperature of the refrigerator will increase if too much hot food is put into it at one time.

2. Set your freezer at 0°F or colder. The colder the freezer temperature, the longer your food will last. For example, ground beef stored at 0°F tastes good for about 4 months. Ground beef stored at temperatures above 0°F will have a noticeably shorter shelf-life. For each 5 to 10 degrees above 0°F, shelf-life is cut approximately in half. Sliced foods, cured foods, and fatty foods lose quality most rapidly during frozen storage.

3. Buy a refrigerator thermometer from your local grocery, retail, or hardware store. Place the thermometer in the warmest location, which is usually toward the front and top of the refrigerator. Check temperatures frequently.

4. Keep food at a safe temperature during thawing to prevent bacterial growth. As soon as food begins to thaw and becomes warmer than 40ºF, any bacteria that was present before freezing can start to grow again. Freezing doesn't kill most bacteria. There are three safe ways to thaw food—in the refrigerator, during cooking, or in the microwave oven followed by immediate cooking.

5. Minimize the length of time potentially hazardous foods are kept between 40 and 140°F. Potentially hazardous foods support the growth of harmful bacteria. Potentially hazardous foods are low in acid, high in moisture, and contain some protein. Potentially hazardous foods include meat, fish, poultry, eggs, dairy products, and most cooked vegetables. Also, do not store cakes and pies that contain icing, filling, or meringue made with eggs or dairy products at room temperature.

6. Do not let potentially hazardous foods be at tem peratures between 40 and 140ºF for more than 2 hours. The longer food is at an unsafe temperature, the quicker bacteria will grow in it.

7. Hot food that is cooled in a large container takes far too long to cool to 40°F or colder. The center of a large amount of food stored in a large container will remain warm long enough for bacteria to grow. Even if the food is properly reheated, bacterial toxins may not be destroyed and could make your family sick. Cool hot food quickly in the refrigerator. Put hot food into shallow pans that are about 2 inches deep; loosely cover the pans with a lid, plastic wrap, or aluminum foil, label the side of the pan with the date the food was cooked, and refrigerate immediately. Use the food within 4 days. Freeze any food that won't be used within 4 days.

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