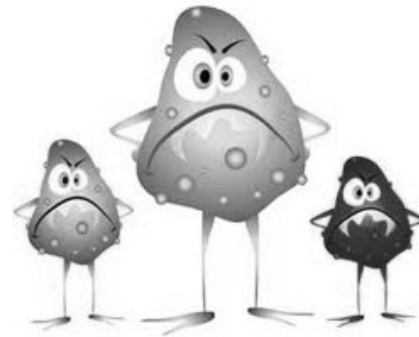


What's New in Food Safety

Updates about the common pathogens that can make us sick.



Sources:

Centers for Disease Control and Prevention (CDC) www.cdc.gov

USDA Food and Inspection Service—www.fsis.usda.gov

Food Safety.Gov

The Food and Drug Administration Outreach and Information Center—www.fda.gov

Massachusetts Food Safety Partnership

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Foodborne Illness in the United States

The Center for Disease Control (CDC) estimates that each year roughly 1 in 6 Americans (or 48 million people) get sick, 128,000 are hospitalized, and 3,000 die of foodborne diseases. The 2012 estimates provide the most accurate picture yet of which foodborne bacteria, viruses, and microbes (pathogens) cause the most illnesses in the United States.

It is helpful to know the common types of pathogens that you may encounter and which foods are at risk. You may be surprised by some of the ways we are exposed to pathogens and ways we can become sick.

While 31 known pathogens cause illness, this training will present information on the most common pathogens that cause illness, hospitalization, or in some severe cases—death:

- Norovirus
- Salmonella
- Clostridium perfringens
- Campylobacter
- Staphylococcus aureus
- E. coli O157
- Toxoplasma gondii
- Listeria monocytogenes



Norovirus



Norovirus illness is the most common type of foodborne illness, accounting for 49% of all foodborne illnesses in the United States.

Norovirus is a very contagious virus that can infect anyone. You can get it from an infected person, contaminated food or water, or by touching contaminated surfaces.

Norovirus outbreaks can occur anytime of the year, but are more common from November to April.

The virus is not associated with a particular food and new strains of the virus can appear from time to time. In 2012, a new strain was detected in Australia and this strain is currently the leading cause of norovirus outbreaks in the US.

Salmonella

Salmonella is a bacterium that may be found in many types of food: meats, eggs, fruits, vegetables...even in food processing such as with peanut butter. In the past year, large outbreaks of salmonella contaminated chicken and also cucumbers and cantaloupe melon have caused illness (salmonellosis).

Contamination of foods with the salmonella bacteria can occur anywhere from fields where food is grown to cutting boards in kitchens. Salmonella bacteria love wet environments shielded from the sun. They have the remarkable ability to survive under adverse conditions. Salmonella are known to survive for long periods in soil and in water.

Salmonella infections, which cause more hospitalizations and deaths than any other bacteria, have not declined over the past few years. Each year, 1 million people get sick from eating food contaminated with salmonella. **Children are the most likely to get salmonellosis.** The rate of diagnosed infections in children less than five years old is higher than the rate in all other persons, although the elderly and people with compromised immune systems have higher rates of infections than healthy adults.



Clostridium perfringens

Clostridium perfringens (*C. perfringens*) is a spore-forming bacteria that is found in many environmental sources, commonly found on raw meat and poultry. It is a very common cause of foodborne illness, causing nearly 1 million cases a year, with the young and elderly being most at risk.

C. perfringens grows mostly in conditions with little or no oxygen and in the ideal conditions can multiply very rapidly. The spores can survive high temperatures and then can germinate at room temperature. If the spores are on cooked foods that are not re-heated properly or held at temperatures below 140° F, the bacteria may grow very rapidly.



Beef, poultry, gravies, and pre-cooked foods are the most common source of this bacteria. *C. perfringens* infections often occur when foods are prepared in large quantities and kept warm for serving. Outbreaks happen in institutions such as schools, hospitals, nursing homes, or at events with catered foods.

Campylobacter

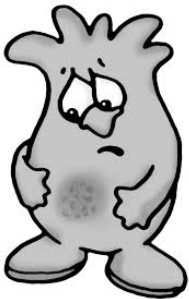
Campylobacter infection usually occurs in single, sporadic cases. Most cases of campylobacter infections are associated with eating raw or undercooked poultry or from cross-contamination of other foods by these items. Outbreaks of Campylobacter have most often been associated with unpasteurized dairy products, contaminated water, poultry, and produce.



It only takes a very few Campylobacter organisms to make a person sick. Even one drop of juice from raw chicken can have enough Campylobacter in it to infect a person! One way to become infected is to cut poultry meat on a cutting board, and then use the unwashed cutting board or utensil to prepare vegetables or other raw or lightly cooked foods. The Campylobacter organisms from the raw meat can get onto the other foods.

Staphylococcus aureus

Staphylococcus aureus (Staph) is a common bacterium found on the skin and in the noses of up to 25% of healthy people and animals. Usually it causes no illness in these healthy people unless it is transmitted to food products. Staphylococcus aureus is important because it has the ability to make several types of toxins, many of which are responsible for foodborne illness.



Staph is salt tolerant and can grow in salty foods like ham. As the bacterium multiplies in food, it produces toxins that can cause food poisoning. Staphylococcal toxins are resistant to heat and cannot be destroyed by cooking.

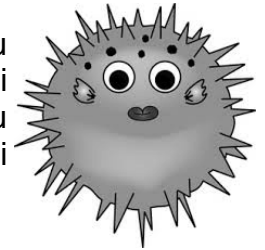
Foods at highest risk of producing toxins from Staphylococcus aureus are those that are made by hand and require no cooking. Foods are most at risk by being left too long at room temperature. Some examples of foods that have caused staphylococcal food poisoning are sliced meat, puddings, pastries and sandwiches. The foods may not smell bad or look spoiled in order to produce the toxins.

Staph infections cause other illnesses besides foodborne illness. The bacterium is associated with skin and respiratory infections including boils and pneumonia. It is a hard bacteria to control and has become resistant to antibiotics. A resistant form of staph, known as MRSA, is dangerous and troublesome in hospitals, nursing homes, and other institutions with patients with weakened immune systems.

E. coli O157

Escherichia coli (abbreviated as E. coli) are a large and diverse group of bacteria. Although most strains of E. coli are harmless, others can make you sick. The types of E. coli that can cause diarrhea can be transmitted through contaminated water or food. It does get a bit confusing—even to microbiologists.

E. coli O157 is the most common strain of the bacteria that can make you sick, and what you mostly hear about in the news. You can get E. coli O157 infection by eating undercooked meat, especially ground beef. You can also get it by eating contaminated fruits or vegetables. A recent E. coli O157 outbreak reported by the CDC was linked to raw spinach.



While rates of known E. coli O157 illness appear to be declining, it is still listed as one of the top 5 pathogens that cause hospitalizations. The people most at risk are, again, the very young and the elderly.

Toxoplasma gondii

A single-celled parasite called Toxoplasma gondii causes a disease known as toxoplasmosis. A healthy person's immune system usually keeps the parasite from causing illness. However, pregnant women and individuals who have compromised immune systems should be cautious; for them, a Toxoplasma infection could cause serious health problems.

A Toxoplasma infection occurs by eating undercooked meats, especially pork, lamb, or venison; or cross-contaminated by knives, utensils, cutting boards and other foods that have had contact with raw, contaminated meat. Another risk is through the cleaning of cat litter-boxes. Pregnant women, especially, should not clean litter boxes as cat litter may be infected with the parasite. Cats will not show any sign of illness if infected with the parasite, but the infection is very dangerous for a pregnant woman and to newborn infants of women infected.



Listeria monocytogenes



Listeria bacteria, found in soil and water, can hide unnoticed in the equipment or appliances where food is prepared, including in factories and grocery stores. People most at risk for this infection are pregnant women, newborns, and the elderly. When someone eats food contaminated with Listeria, sickness or miscarriage may not occur until weeks later when it is difficult to identify which food was the source.

Listeria is killed by pasteurization and cooking; however, in some ready-to-eat foods, such as hot dogs and deli meats, contamination may occur after factory cooking but before packaging. **Unlike most bacteria, Listeria can grow and multiply in some foods in the refrigerator.** Listeria is the 3rd leading cause of death, terribly high considering just over a thousand, not millions, of people become sick from listeria each year.

To Your Health!

In 2012, the trends in foodborne illness show us that the most common pathogens described in the last pages are still with us and sometimes occur with food sources not commonly associated with foodborne illness.

A lot has changed in the way food is produced and distributed. Today, food in your grocery store may come from all over the world! Science continues to find harmful pathogens that we didn't know about years ago.

It can be difficult to recognize when harmful pathogens in food have made someone sick. *It's hard to tell if food is unsafe, because you can't see, smell, or taste the microbes it may contain.*

Sometimes people think their illness was caused by their last meal. In fact, there is a wide range of time between eating a contaminated food and the onset of illness. You may become sick from between 20 minutes to 6 weeks after eating some foods with dangerous pathogens. It depends on a variety of factors, especially that everyone's health is different, including the ability to fight off disease.

We know that pregnant women, young children, people with chronic illness that weakens their immune systems, and people older than 65 years are at more risk of foodborne illnesses.

Some current lessons learned:

- E. coli O157, listeria, and campylobacter infections have declined steadily between 1996 and 2008 but have not declined much further since 2008. **Salmonella infection did not decline and continues to be the most common bacterial infection associated with the most hospitalizations and deaths.**
- When two or more cases of foodborne illness occur during a limited period of time with the same organism, that are associated with either the same food service operation (such as a restaurant) or the same food product, public health authorities consider it an outbreak
- Six years after a nationwide Salmonella outbreak was first linked to peanut butter, peanut and peanut butter production remains an area for food safety improvement. Continued partnerships with regulatory agencies and industry are required to ensure safe products for consumers.
- There have been two outbreaks of human salmonellosis linked to dry pet food in the United States. People should be aware that dry pet food is not manufactured to be a sterile product and may be contaminated with Salmonella bacteria.

- Keeping children away from pet food and washing hands right after handling pet food and treats are important steps to prevent illness. Pets can be infected with Salmonella but still appear healthy and spread bacteria.
- Although the peanut butter and pet food outbreaks appear to be over, many of the recalled products have a long shelf life and may still be in people's homes
- Raw sprouts have caused numerous outbreaks of foodborne illness in the past. Raw sprouts can become contaminated in several ways: during growth, harvest, distribution, or storage.
- To reduce the risk for illness from raw sprouts, it is recommended that children, elderly adults, pregnant women, and persons with weakened immune systems avoid eating raw sprouts of any kind.
- After the outbreak of listeria infection was linked to cantaloupe in 2011, cantaloupe production remains an area for food safety improvement. The outbreak was a reminder of the need to further promote safe produce handling for producers of fresh produce and consumers to prevent illness.
- Collaborative international investigation efforts between the Public Health Agency of Canada, CDC, and US and Canadian regulatory agencies resulted in additional illnesses being identified in the United States. International collaboration can be a critical part of investigating widespread outbreaks.
- Cross-contamination of foods continues to be a large issue. A recent listeria outbreak involving soft cheese suggested that cross-contamination of cut and repackaged cheeses through common cutting boards or utensils caused the outbreak.
- Keeping the refrigerator at 41°F or below is important because – unlike most foodborne bacteria – Listeria will grow in the refrigerator, and it will grow faster at refrigerator temperatures above 41°F. and, the longer ready-to-eat, refrigerated foods are stored in the refrigerator, the more time Listeria has to grow. Finally, Listeria can spread from one food to another through spills in the refrigerator. That's why keeping the refrigerator clean is also important!

Food Safety at Home

We handle food in the following steps:

- ✓ **Shopping**
- ✓ **Storing**
- ✓ **Preparing**
- ✓ **Cooking**
- ✓ **Cooling**
- ✓ **Reheating**

Each step requires care and attention! There are 4 fundamentals for food safety!

Food Safety at Home

Follow four basic rules—**Clean, Separate, Cook, and Chill** – and you will Fight BAC!®. Fight BAC!® (www.fightbac.org) is a national campaign designed to teach everyone about food safety.

Clean: Wash hands and surfaces often

Since you can't see them...pathogens can be present throughout the kitchen. Here are some tips:

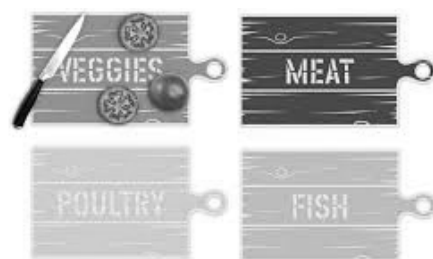
- Wash your hands thoroughly with warm, running water and soap for 20 seconds before and after handling food.
- Keep the food preparation areas of your kitchen clean and clutter free. You need adequate and sanitary space to prepare food that is safe.
- Wash your cutting boards, dishes, utensils, tabletops and countertops with hot soapy water after preparing each food item and before you go onto the next food.
- All food service surfaces are to be cleaned and sanitized with a solution of 1/4 teaspoon of chlorine bleach to 1 quart water, before and after meals.
- Once cutting boards (including plastic, non-porous, acrylic and wooden boards) become excessively worn or develop hard-to-clean grooves, you should replace them.
- Consider using paper towels to clean kitchen surfaces. If you use cloth towels, wash frequently in hot water in the washing machine.
- Important: Rinse raw produce in clean, running water. Do not use soap or other detergents. Use a clean vegetable brush to clean bumpy produce, like melons.
- Do not re-wash triple washed or ready-to-eat salads. Research has recently shown you are more likely to cross-contaminate the greens.



Separate: Don't cross-contaminate

Keep raw food that needs to be cooked, like meat and poultry, away from fruits and vegetables that will be eaten raw.

- Separate raw meat, poultry and seafood from other foods in your grocery shopping cart and in your refrigerator.
- Use a different cutting board for raw meat products from vegetables.



- Always wash hands and all kitchen items that come in contact with raw meat, poultry, seafood, eggs, and unwashed produce.
- Put raw meat, chicken, or fish **below** other foods in your refrigerator.
- Use a clean plate for cooked foods, especially meats, poultry, and fish.

Cook: Cook to proper temperatures

Food safety experts agree that foods are properly cooked when they are heated for a long enough time and at a high enough temperature.

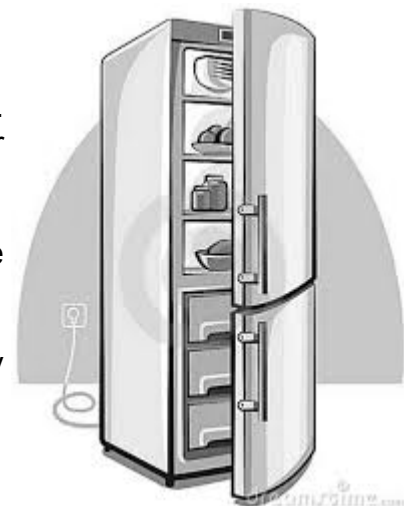
- Use a **clean food thermometer** to measure the internal temperature of cooked foods:
 - ☑ Beef, pork and lamb may be cooked to 145° F. with a rest time of 3 minutes.
 - ☑ Cook all ground meats to 160° F.
 - ☑ Poultry (chicken, turkey, duck) must be cooked to 165° F.
- Cook eggs until the yolk and white are firm. Don't use recipes in which the eggs remain raw or only partially cooked.
- Fish should be opaque and flake easily with a fork.
- When cooking in the microwave, make sure you cover, stir and rotate food during cooking. Use a food thermometer to make sure foods have reached a safe internal temperature of 165° F.
- If you are reheating food, leftovers should be heated to 165° F. Bring sauces, soup and gravy to a boil.

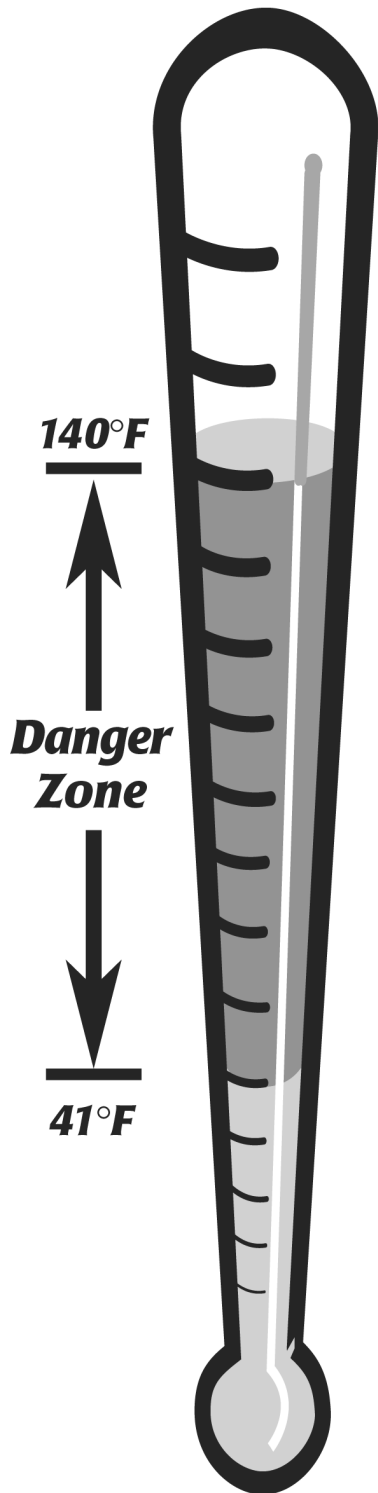


Chill: Refrigerate food promptly

Cold temperatures slow the growth of harmful bacteria. Use your YFIC thermometer to keep refrigerator temperature at 41° F or lower.

- Split leftovers into small amounts and put into the refrigerator to cool within 2 hours.
- Store foods in the refrigerator so that air can freely circulate.
- Marinate foods in the refrigerator.
- Thaw food in the refrigerator or in the microwave—never at room temperature





Check Time and Temperature

Harmful Pathogens Grow Quickly Between 41 °F—140°F

- 2 hours is the maximum time that perishable foods may be left in “danger zone” temperatures.**

- 2 hours include:**
 - * shopping time**
 - * preparation time**
 - * cooling time**

- Keep cold food cold**
 - * Check the temperatures in your refrigerator and freezer at least weekly.**

- Keep hot food hot**
 - * Check cooking temperature with a food thermometer.**
 - * Hold hot foods at 140° F.**



STEPS TO SAFE AND HEALTHY FRUITS & VEGETABLES

From the Store to Your Table

Fruits and vegetables are healthy to eat. But did you know that harmful germs, like *Salmonella*, *E. coli*, and *Listeria*, can sometimes be on fruits and vegetables? There are steps that can help keep you healthy—and your fruits and vegetables safer to eat—from the store to your table.



Fruit and Vegetable Safety at the Store or Market



Check for Bruises

- Choose fruits and vegetables that are free of bruises or damaged spots, unless you plan to cook them.



Keep Precut Fruits and Vegetables Cold

- Choose precut and packaged fruits and vegetables that are refrigerated or kept on ice.

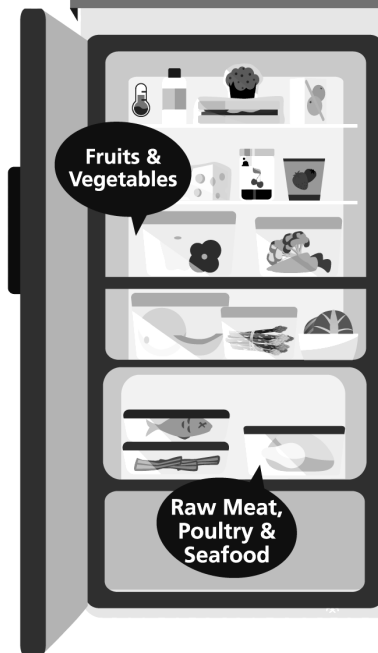


Separate

- Separate fruits and vegetables from raw meat, poultry, and seafood in your shopping cart and in your grocery bags.

Fruit and Vegetable Safety at Home

Get fruits & vegetables home and in the fridge in 2 hours or less



Wash

- Wash your hands before and after preparing fruits and vegetables.
- Wash or scrub all fruits and vegetables under running water before eating, cutting, or cooking.
- Fruits and vegetables labeled “prewashed” do not need to be washed again at home.



Keep Cold

- Refrigerate cut, peeled, or cooked fruits and vegetables as soon as possible, or within 2 hours.
- Use a refrigerator thermometer to make sure the temperature stays at 40°F or below.



Separate

- Store fruits and vegetables away from, and not next to or below, raw meat, poultry, and seafood. These items can drip juices that may have germs.
- Use a separate cutting board for fruits and vegetables that is never used for cutting or preparing raw meats, poultry, or seafood.
- Wash cutting boards, counter tops, and utensils with hot, soapy water before and after preparing fruits and vegetables.

For more information, call 1-800-CDC-INFO or visit www.cdc.gov.

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**What's New in Food
Safety
February 2014**

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and submit to the YFCI office
within two (2) weeks of receipt of this home study.**