Food Safety

Food is at the heart of your work. You will receive food from a variety of sources. You need to make sure that food is safe to eat. This resource is designed to help you protect the people you serve from food-related harm.

Through this module, you will learn how to:

- Explain why food safety is a priority within your organization.
- Describe the three main causes of foodborne illness and how to store food to protect it from contamination.
- Describe ways to maintain proper personal hygiene to reduce contamination from people.
- Name some key storage rules necessary to keep food safe.

Washington Food Coalition

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Overview

There are four main topics for you to know about food safety.

1. Why Food Safety Matters 1
2. Foodborne Illness 2
3. Personal Health and Hygiene 10
4. Hazards 14

This course is accompanied by a series of **short videos**, also available from nonprofitsafetyhero.com.

We recommend that you print this document and have a pen or pencil handy. We've provided exercises where you can reflect on your situation and make plans. The first one is below.

REFLECTION

Let's check in with what you already know about food safety.
Write down your answers to these questions.

- ❑ Why is food safety a priority in your organization?
- ❑ What are the main causes of foodborne illness?
- ❑ What are three personal hygiene rules to reduce contamination from people?
- ❑ What are three key storage rules necessary to keep food safe?

We will loop back to these questions at the end to see how you did.

RESOURCES

- Partnership for Food Safety Education (www.fightbac.org)
- Washington State Food Worker Card booklet: https://www.doh.wa.gov/CommunityandEnvironment/Food/FoodWorkerandIndustry/FoodWorkerManual
- CDC Food Safety https://www.cdc.gov/foodsafety/communication/index.html
- USDA Food Safety Brochures and Publications: https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation/brochures-publications
- Kitchen Companion: Your Safe Food Handbook

Remember also to connect with your:

- Local Extension Office
- Local Health Department

1. Why Food Safety Matters

You have probably experienced foodborne illness at some point in your life. You eat something that makes you sick. You probably regret eating it and swear at that point to be more careful in the future. You understand physically and emotionally why food safety matters. You are not alone. In an average year, one in six Americans becomes sick from food. 128,000 people are hospitalized from foodborne illness and 3,000 people die.

You are probably like most people who lose focus on food safety as time passes and you go a long period of time not sick. You may take shortcuts or not pay as close attention to the rules that keep food safe. Our hope is that information through this module will remind you why food safety is so important and how you can be a food safety champion to make sure people around you are regularly following the rules of the road when it comes to safe food.

Food safety matters for two main reasons:

Mission: We are accountable to the people we serve. We feed a population at risk, including children, the elderly, pregnant women, and immune-compromised individuals. Our mission is rooted in keeping them safe and healthy. They trust us.

Compliance: We must follow the law. There are federal laws that govern food safety. Washington State has additional laws that you must follow. Your organization must be compliant with all of the laws governing safety and health.

Imagine that you are tasked with making a food safety poster for your food bank. It will hang in a prominent place where staff and volunteers will see it. It needs to remind people to stay focused on food safety even when no one is looking. What would you put on the poster?

2. Foodborne Illness

A foodborne illness is any illness which is caused by eating contaminated food or water. Contamination happens in three main ways:

- The food itself is contaminated.
- A person contaminates it.
- Something else contaminates it, like equipment, dirt or chips of glass (or anything else).

Our goal is this chapter is to help you to:

- Describe the foodborne illness formula.
- Recognize risky food.
- Name the proper temperatures at which food must be stored.

We will cover what you need to know about the **foodborne illness formula**.

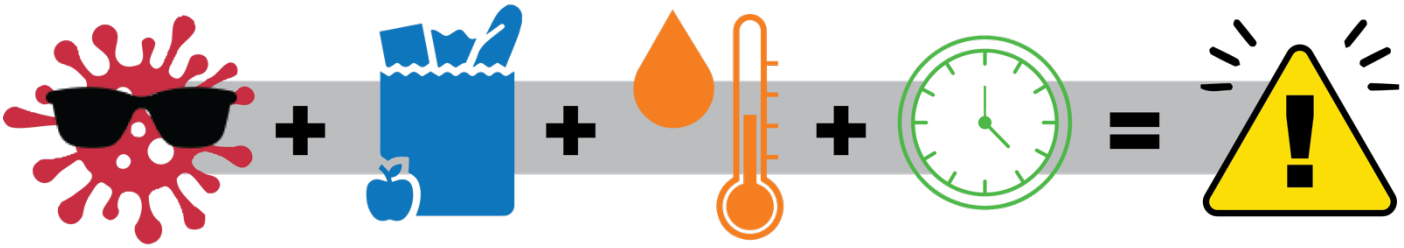
We will cover what **actions** to take to be a food safety champion in your organization.

A. Foodborne illness formula

We can boil food safety down to a basic equation. You won't need a calculator because there aren't any actual numbers to crunch. Our goal is to show you what elements add up to a risky situation.

Here's the story: Potentially bad characters (also known as bacteria or **pathogens**) get what they need to thrive in your **food**. The **environment** introduces moisture, oxygen or heat, which sustains them. **Time** passes, allowing them to grow. The result? A **risky situation**.

Here's the equation written out:



1. Pathogens

Pathogens are the "bad characters" when it comes to food safety. A pathogen is a bacterium, virus, or other microorganism that can cause disease.

EXAMPLES OF PATHOGENS

Bacteria: Salmonella, shigella, E. coli, Staph

Parasites: Giardia, Trichinella, Cyclospora

Viruses: Norovirus, Hepatitis A

Most pathogens do not cause off odors or tastes, and you can't see them. That means that you can't sleuth them out with your senses. Don't worry, though. The next section of this module focuses on what you can do to address them.

2. Food

Some foods are more hazardous than others. Here's a list of hazardous foods to be aware of:

HAZARDOUS FOODS

- Dairy and soy products
- Meat, seafood, and eggs
- Cooked rice, cooked beans, cooked potatoes & cooked vegetables
- Garlic and fresh herbs in oil or butter
- Cut melon
- Cut tomatoes
- Cut leafy greens
- Sprouts

Do you know why the following foods can be hazardous?

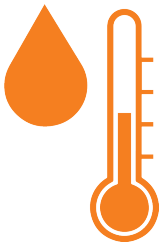
- Cut foods
  When produce is cut, it breaks the surface, exposing the internal part of the fruit or vegetable to pathogens.
- Cooked dry foods
  Cooking dry foods introduces moisture and heat.
- Canned foods
  Canned foods are low in oxygen and may be low in acid, which is a botulism risk.
- Animal or soy products
  Animal and soy products are nutritious foods that support bacterial growth.

As you work with other staff or volunteers, help them understand why foods are hazardous, so they know the reasons behind your food safety policies and procedures.

We can now see that there are four general rules to follow:

- Be careful with foods that come from animals.
- Be careful with cut produce.
- Be careful with cooked dry foods.
- Be careful with damaged canned foods and don't accept home-canned products.

3. Environmental issues



There are three main environmental issues that can make food hazardous: temperature, moisture, and cross-contamination. We will review them one-by-one.

A. TEMPERATURE

Some foods may become hazardous when stored at unsafe temperatures. Those foods include:

- Dairy products
- Meat
- Seafood
- Eggs

Foods that need temperature control for safety are called TCS (Temperature Control for Safety) foods.

B. MOISTURE

Some foods that are stored dry become hazardous when water is added.

- Cooked rice
- Cooked beans
- Cooked potatoes
- Cooked pasta

These become TCS foods when cooked.

C. CROSS-CONTAMINATION

Some foods are fine separately but pose risks when brought together with another food. Cross-contamination happens when the bacteria from one product spreads over to another. Raw meats are prime suspects for cross-contamination; it is dangerous to put lettuce and raw hamburger meat together, for example.

4. Time

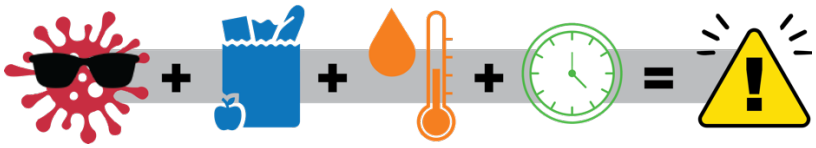
The last element of our formula is time. The time it takes for a pathogen to incubate until you feel sick—and how long it makes you feel sick—varies by pathogen. Foodborne bacteria are capable of doubling their population every 20 minutes. It can take only 4 hours for some bacteria to grow enough to make someone sick.

This chart shares some examples of incubation and duration of illness:

Disease/Agent	Incubation	Duration
Bacillus cereus (emetic toxin)	1-6 hours	24 hours
Staphylococcus aureus	1-6 hours	24-48 hours
Bacillus cereus (enterotoxin)	6-24 hours	24-48 hours
Clostridium perfringens	6-24 hours	<24 hours
Salmonella sp.	5 hours – 5 days	3-7 days
Norovirus	24-48 hours	24-48 hours
Escherichia coli O157:H7	1-8 days	5-10 days
Campylobacter jejuni	1-10 days	2-5 days
Hepatitis A virus	15-50 days	2-3 months

5. Risky Situation

The result of these elements combining is often illness. That means nausea, vomiting, diarrhea, fever, or other symptoms. Long term complications can occur, such as kidney damage, arthritis, birth defects, neurological damage, and even death. We began this module focused on why food safety matters. We want to eliminate—or at least reduce—the risks that can cause harm from foodborne illness.



You just heard about the five parts of the foodborne illness formula. Where do you need to spend more time thinking or check in on your food safety system?

B. Food Safety Actions

Now that you know the foodborne illness formula, let's explore what you can do to reduce or eliminate risk. You can take simple steps to make sure that the food you provide your clients is safe.

There are four main ways that you can take action to keep food safe:

1. Food handling and storage
2. Problem spotting
3. Cleanliness
4. Temperature

We will cover them one by one, with opportunities for you to pause and reflect on the practice of your organization.

1. Food Handling and Storage

We need to consider the full supply chain in thinking about risks and ways we can address them. The steps in the supply chain include source, receiving, storing, and tracking food.

Step	Tips
A. Source: before delivery, where did the food come from?	
Procurement Transportation	• Procure food from reliable sources • Record who donated the food • Follow refrigeration requirements in transportation
B. Receiving: safely moving the food from truck to facility	
Temperature control Pest management Expired food management	• Make sure cold foods arrive cold • Put away in this order: chilled, frozen, dry • Arrange food to follow "first in/first out" rule • Check expiration dates • Check for evidence of pests
C. Storing: keeping the food safe prior to distribution	
Packaging Storage zones Food separation Temperature control Clean and dry	• Store in original packaging • Store in designated storage zones • Separate raw meat and poultry • Store raw meat and poultry frozen or UNDER all other products because of leakage • Keep clean and dry

Step	Tips
D. Tracking: knowing what the food is and where it came from	
Labeling Recording-keeping	• Include what the food is, ingredients, date, source, and allergens on the label • Create labels for smaller bundles of food that originate from bulk supplies • Keep the original labels from bulk supplies of food

Temperature range

- ❑ Refrigerated food (including cut produce): 41˚ F or less
- ❑ Frozen foods: 0˚ F, or less
- ❑ Dry foods: 50-70˚ F
- ❑ Whole produce: room temperature
- ❑ Temperature danger zone: between 41˚ F and 135˚ F

That was a lot of information to remember. Let's see what you recall. Write down three things that you should remember related to food storage and handling.

1.

2.

3.

2. Problem-Spotting

You just learned how to store and handle food. It can still happen that food goes bad, or maybe it arrives to your facility bad.

There are three "high risk" areas to problem-spot:

A. CROSS-CONTAMINATION

We have already mentioned this above. Raw meat is the main source of cross contamination. It is important to keep raw meat away from other food. Here is a list of practices to watch for:

- Raw meat is prepared in an area away from other foods.
- A separate cutting board is used for raw meat.
- Raw meat is stored below other foods in the refrigerator and freezer.

- Meat with a higher cooking temperature (like chicken) is stored below meat with a lower cooking temperature (like fish).

B. TEMPERATURE-ABUSED FOODS

No matter how well you follow the temperature rules, it could happen that food is spoiled because of temperature. Here is a list of practices to watch for:

- Cooked food is left out.
- Food is not cooked to the correct internal temperature.
- Food is not held at the proper temperature.
- Food is incorrectly cooled or reheated.

C. CANNED OR BOTTLED FOODS

You could receive canned or bottled food that is compromised.

Here are signs that canned or bottled foods are bad:

- Swollen ends
- Leaks
- Seal problems
- Lids that are popped
- Major dents along the seam or seal
- Rust

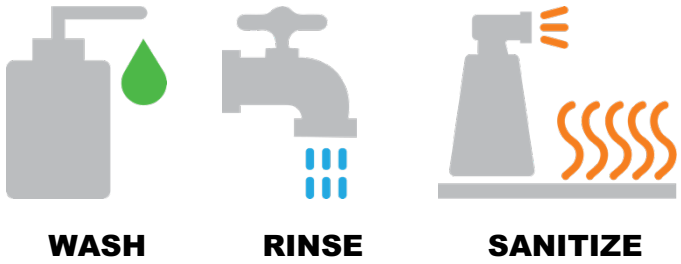
You should discard bad food. Aren't sure? When in doubt, throw it out.

3. Cleanliness

Pathogens can't thrive in clean spaces, which means that we can be food safety champions by keeping our surfaces clean. Specifically, we want to keep surfaces clean that have touched hands and food. That means tables, water taps, door handles and food handling equipment.

There are two ideas to know about cleanliness: HOW and WHEN.

HOW to clean: *Wash, rinse, and sanitize.*

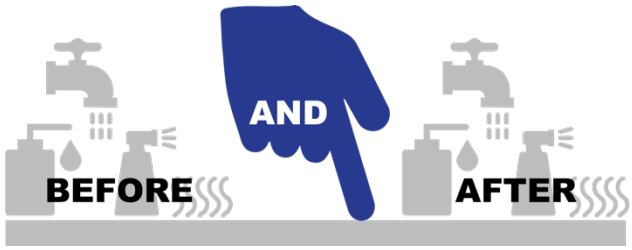


Cleaning and sanitizing are not the same. Cleaning uses soap and water to remove dirt and food from surfaces. Sanitizing uses chemical or heat to kill germs. Surfaces that look clean may still have germs on them. Sanitizing reduces these germs to safer levels.

The most common sanitizer is a bleach solution made by mixing 1 teaspoon of unscented bleach with one gallon of water. Just be sure to read and follow the label directions.

WHEN to clean: *Before and after touching the surface.*

For example, you wash your hands before handling food and then wash them again after handling food. You sanitize the work surface before you handle those chicken thighs that arrived this morning, and you wash and sanitize it again after you finish the job.



Think about the surfaces that people touch the most in your food bank. What system would help you ensure that they are sanitized on a regular basis?

That is what you need to know about foodborne illness and how you can reduce the risk of people getting sick. Pause here to review what you learned.

3. Personal Health and Hygiene

People have the biggest impact on food. More germs come from workers than from the food. Two important ideas to understand:

A. A healthy person is one of the most important ingredients in preventing foodborne illness. **When you feel sick, you should not work with food. <u>You may not work with food if you have</u>**:

- Diarrhea, vomiting or jaundice
- Diagnosed infections that can be spread through food such as Salmonella, Shigella, E. coli, or hepatitis A.
- Infected, uncovered wounds
- Continual sneezing, coughing, or runny nose

If you are sick, tell the Person in Charge. Go home. If you can't go home, stay away from food and food-related duties.

B. Even healthy people carry pathogens on their body. Bacteria like Staphylococci are found on the hair, skin, mouth, nose and in the throat of healthy people. It causes projectile vomiting. According to one estimate, nearly fifty percent of healthy food handlers carry disease agents that can be transmitted by food. A key step in keeping food safe for the people we serve is keeping pathogens and contaminants that we carry around with us out of the food we provide.

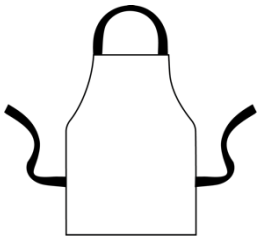
As a food safety champion, you are paying close attention to HANDS, HAIR, FLUIDS, and SORES. By fluids, we mean saliva, nasal fluids, diarrhea, and vomit. You are making sure people are following food personal hygiene protocols in your facility and staying home with they should not come to the food bank.

There are four main ways to practice good personal hygiene for food safety.

Handwashing

Gloves or utensils

Attire



Personal cleanliness

We will cover them one-by-one with opportunities to reflect on your practice.

A. Handwashing

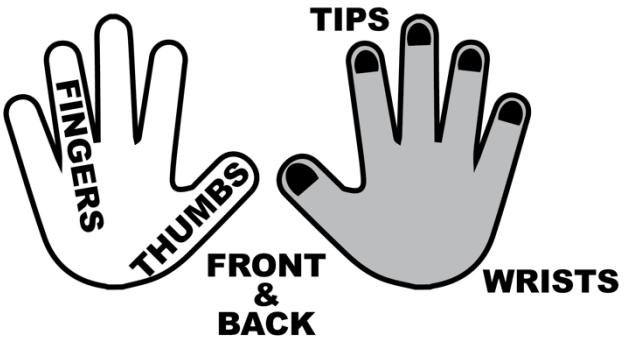
Handwashing requires that you have hot and cold running water, soap, and paper towels. You want to make sure you have a well-stocked handwashing area in your facility.

Let's focus on how and when to wash hands.

HOW to properly wash hands:

1. Wet your hands with running water
2. Apply soap
3. Vigorously scrub hands and arms for 10-15 seconds
4. Rinse thoroughly under running water
5. Dry hands and arms with a single use paper towel or warm-air hand dryer

The whole process should take at least 20 seconds.



Be sure to wash all six zones of the hands.

WHEN to wash hands:

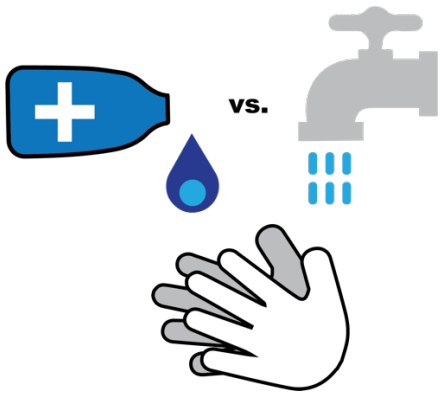
- Before:
  - Preparing or handling food
- After:
  - Using the toilet
  - Handling raw meat, poultry, or seafood
  - Handling garbage or dirty dishes
  - Sneezing, coughing, using a tissue, etc.
  - Handling chemicals
  - Handling animals

Question: Is hand sanitizer as good as handwashing?

Answer: No.

Hand gel works great on respiratory track germs. It does **not** work as well on digestive tract germs. They are bred to be sturdy to survive stomach acids. You must handwash with soap and water to do away with those germs.

Washing hands with soap and water is the best way to get rid of germs in most situations. If soap and water are not available, use hand wipes to remove dirt and then use alcohol-based hand sanitizer (at least 60% alcohol).



REFLECTION

You should wash hands for 20 seconds in order to get all of the germs hiding on all of the sides of your hands. Common guidance is to sing the Happy Birthday song twice or the ABC song once.

Personalize the idea of a song to your interests. **What song could you sing for 20 seconds every time you wash hands?**

B. Gloves

There are times when clean hands are not enough. You may need to use gloves to protect ready-to-eat food from contaminants. For example, you must use gloves or utensils when handling unwrapped bread to be extra sure not to transfer germs from your hands to the bread. You may have a cut on your hand and need to cover it well before handling food. Gloves are a key tool in your food safety practice.

There are three things to know about gloves:

1. Wash your hands BEFORE and AFTER putting on gloves.
2. CHANGE gloves in these circumstances:
   - If they get ripped or contaminated.
   - Between working with RAW and READY-TO-EAT foods
   - After taking out garbage, eating, or smoking
3. NEVER wash or reuse gloves.

REFLECTION

You are tasked with explaining to a new volunteer how to use gloves. What three lessons about gloves can you explain to this person?

1.
2.
3.

C. Attire

We have talked a lot about hands. Germs can also be carried in on your body. Your clothes or your hair may carry in contaminants. You want to pay close attention to your attire and how you have set yourself up for success.

Make sure you have:

- Clean clothing and apron
- Appropriate shoes
- Hat/hair restraint (including facial hair)
- No jewelry on (remove it before starting work)

How is this food safety superhero displaying attention to their personal hygiene and attire? Add labels to the picture.

D. Personal Cleanliness

It is important to be clean and well-kept when working with food.

- Bathe regularly
- Short fingernails
- Infected wounds or cuts on hands must be covered with a bandage and glove.

A new set of volunteers has just begun. You want to make sure they pass inspection when it comes to personal hygiene issues. You start to walk out to meet them, but you decide first to make a list of what you will be looking for. What is on your checklist?

That is what you need to know about personal hygiene. Pause here to review what you learned.

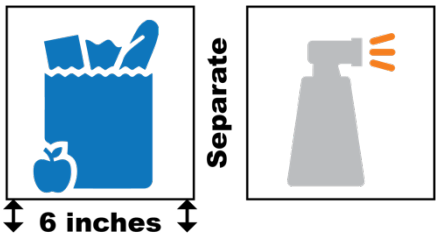
4. Hazards

The third type of contaminants that can get into food are physical and chemical hazards. These are the other things found in food banks that can contaminate food:

Physical	Chemical
• Hair • Glass • Rust • Paper • Plastic • Rodent droppings • Flies • Bones from meat/fish	• Pesticides sprayed on fruit or vegetables • Freezer refrigerants • Food additives • Cleaning products

There are two main ways to protect against these types of hazards:

A. Store food properly



- Keep food and supplies separate
- Keep food 6 inches off the floor.
  Did you know that a standard pallet is 6½ inches tall?

B. Keep pests out of your food

Things to observe:

- Sightings of live or dead insects or eggs
- Droppings/smear marks against the wall
- Damaged packaging
- Gnawed boxes or wood
- Sounds or smells

Visualize your space… or if you are in the space now, take a look around. Imagine that you are a sleuth looking for evidence of hazards in your food bank. What would you be looking for? What would you see in terms of how food is stored? Where would be your biggest cause for concern in terms of pests?

What steps could you take to strengthen your practice related to hazards?

At the beginning of this guide, we asked four questions. Write your answers to them below.

- ❑ Why is food safety a priority in your organization?

- ❑ What are the main causes of foodborne illness?
  1.
  2.
  3.

- ❑ What are three personal hygiene rules to reduce contamination from people?
  1.
  2.
  3.

- ❑ What are three key storage rules necessary to keep food safe?
  1.
  2.
  3.

What are the three next steps you will take to ensure that your food bank is food safe?

1.

2.

3.

Congratulations! You are now a Food Safety Superhero!