

## Chapter 1 Providing Safe Food

Foodservice operations work hard to minimize foodborne illnesses. As a result of these efforts, foodborne illnesses have declined in recent years. However, operations still face many challenges to food safety.

Pressure to work quickly can make it hard to take the time to follow food safety practices. Your staff may speak a different language than you do, which can make it difficult to communicate. Cultural differences can also influence how food handlers view food safety. Staff often have different levels of education, making it more challenging to teach them food safety.

Illness-causing microorganisms are more frequently found on food that once was considered safe.

Food that is received from suppliers that are not practicing food safety can cause a foodborne-illness outbreak.

The number of customers at high risk for getting a foodborne illness is increasing. An example of this is the growing elderly population.

Training new staff leaves less time for food safety training.

The ServSafe program will provide the tools needed to overcome the challenges in managing a good food safety program.

Foodborne illnesses cost the United States billions of dollars each year. National Restaurant Association figures show that one foodborne-illness outbreak can cost an operation thousands of dollars. It can even result in closure. Some business costs were highlighted in the video. There are also human costs, which are identified on the slide.

Unsafe food is usually the result of contamination, which is the presence of harmful substances in food. To prevent foodborne illnesses, you must recognize the contaminants that can make food unsafe. These can come from pathogens, chemicals, or physical objects. They might also come from certain unsafe practices in your operation. Note: This will be discussed in depth in chapter 2.

Purchasing food from unsafe sources is a risk factor for foodborne illness. Keep in mind that food prepared in a private home is considered to be from an unsafe source and must be avoided. The other risk factors for foodborne illness are related to four main practices: time-temperature abuse, cross-contamination, poor personal hygiene, and poor cleaning and sanitizing.

Pathogens can be spread to food if equipment has not been cleaned and sanitized correctly between uses.

The list of TCS (Time Temperature Control for Safety) food includes the following:

- Milk and dairy products
- Shell eggs (except those treated to eliminate nontyphoidal *Salmonella*)
- Meat: beef, pork, and lamb
- Poultry
- Fish
- Shellfish and crustaceans
- Baked potatoes
- Heat-treated plant food, such as cooked rice, beans, and vegetables
- Tofu or other soy protein; synthetic ingredients, such as textured soy protein in meat alternatives
- Sprouts and sprout seeds
- Sliced melons; cut tomatoes; cut leafy greens
- Untreated garlic-and-oil mixtures

Like TCS food, ready-to-eat food also needs careful handling to prevent contamination.

The immune system is the body's defense against illness.

Elderly people are at high risk because their immune systems have weakened with age.

Very young children are at high risk because they have not built up strong immune systems.

Certain medical conditions and medications can weaken a person's immune system. These include:

- Cancer or chemotherapy treatment
- HIV/AIDS
- Transplants

As a manager, your job is more than just understanding food safety practices and creating the necessary procedures. You also must train your staff to follow these procedures.

Staff should be trained when they are first hired and on an ongoing basis. Your entire staff needs general food safety knowledge. Other knowledge will be specific to the tasks performed on the job. For example, everyone needs to know the correct way to wash their hands. However, only receiving staff need to know how to inspect produce during receiving.

Staff need to be retrained in food safety regularly. When a food handler completes training, document it.

When a food handler completes food safety training, document it.

Once staff are trained, monitor them to make sure they are following procedures.

At times, you may notice employees doing tasks incorrectly. Each incorrect task could lead to an increase in risk. When this happens, it is important to correct the situation immediately. This is called corrective action. If an employee often completes a task incorrectly or if multiple employees complete a task incorrectly, they should be retrained.

Staff aren't the only ones who need training to keep food safe. The FDA Food Code requires the Person in Charge of a foodservice operation to become a certified food protection manager. And they must be onsite at all times during operating hours.

For some types of operations, the person in charge may not need to be onsite at all times. That is the case if the regulatory authority has decided that the operation poses a minimal risk for causing a foodborne illness. That decision would be based on the kind of operation it is and the type of food that's served or sold. Cashier-less markets and convenience stores are good examples of operations where the person in charge may not need to be onsite at all times.

The person in charge must also be able to show that they have the required knowledge. To become a Certified Food Protection Manager, you must pass a test from an accredited program. The program must be accredited by an agency approved by a Conference for Food Protection. Completing the ServSafe Manager Course and passing the ServSafe Food Protection Manager Certification Examination meets this requirement.

But, why is it so important to become certified? A Centers for Disease Control and Prevention study suggests that the presence of a Certified Food Protection Manager reduces the risk of a foodborne illness outbreak for an establishment. The study also suggests that it was a distinguishing factor between restaurants that experienced a foodborne illness outbreak and those that had not.

Also, the FDA's Retail Food Risk Factor Studies suggest that the presence of a Certified Food Protection Manager has a positive correlation with more effective control of certain risk factors, such as poor personal hygiene, in different facility types.

The FDA issues a *Food Code*. This science-based code provides recommendations for food safety regulations. The *Food Code* was created for city, county, state, and tribal agencies. These agencies regulate food service for the following groups:

- Restaurants and retail food stores
- Vending operations
- Schools and day care centers
- Hospitals and nursing homes

Although the FDA recommends that states adopt the *Food Code*, it cannot require it.

## Chapter 2 Forms of Contamination

Contamination comes from a variety of places.

Contaminants are found in the animals we use for food and in air, water, and dirt. They can occur naturally in food, such as bones in fish.

Food can be contaminated on purpose.

Most food is contaminated accidentally.

Examples of accidental contamination include: (1) food handlers who don't wash their hands after using the restroom and then contaminate food and surfaces with feces from their fingers, and (2) food handlers who pass contaminants through illness.

Contamination can occur through the fecal–oral route of contamination. For example, food handlers who do not wash their hands after using the restroom may contaminate food and surfaces with feces from their fingers. Once the food that the food handler touched is eaten, a foodborne illness may result. This is called the fecal–oral route of contamination.

According to the Food and Drug Administration (FDA), there are over 40 kinds of bacteria, viruses, parasites, and molds that can occur in food and cause a foodborne illness. Of these, six have been singled out by the FDA. These have been dubbed the Big Six because they are highly contagious and can cause severe illness.

The symptoms of a foodborne illness vary depending on which illness a person has. But most victims of foodborne illness share some common symptoms.

Not every person who is sick from a foodborne illness will have all of these symptoms. Nor are the symptoms of a foodborne illness limited to this list.

How quickly foodborne-illness symptoms appear in a person is known as the onset time of the illness. Onset times depend on the type of foodborne illness a person has. They can range from 30 minutes to as long as six weeks. How severe the illness is can also vary, from mild diarrhea to death.

Bacteria need six conditions to grow. You can remember these conditions by thinking of the words FAT TOM.

Bacteria grow well in food with high levels of moisture. The amount of moisture available in food for this growth is called water activity ( $a_w$ ). The  $a_w$  scale ranges from 0 to 1.0. The higher the value, the more available moisture in the food. For example, water has a water activity of 1.0.

The FDA has identified four types of bacteria that cause severe illness and are highly contagious:

*Salmonella* Typhi

*Salmonella* Typhi lives only in humans.

People with typhoid fever carry the bacteria in their bloodstream and intestinal tract.

Eating only a small amount of these bacteria can make a person sick.

The severity of symptoms depends on the health of the person and the amount of bacteria eaten.

The bacteria are often in a person's feces for weeks after symptoms have ended.

### Nontyphoidal *Salmonella*

Many farm animals carry nontyphoidal *Salmonella* naturally.

Eating only a small amount of these bacteria can make a person sick.

The severity of symptoms depends on the health of the person and the amount of bacteria eaten.

The bacteria are often in a person's feces for weeks after symptoms have ended.

### ***Shigella* spp.**

*Shigella* spp. is found in the feces of humans with the illness.

Most illnesses occur when people eat or drink contaminated food or water.

Flies can also transfer the bacteria from feces to food.

Eating only a small amount of these bacteria can make a person sick.

High levels of the bacteria are often in a person's feces for weeks after symptoms have ended.

### **Shiga toxin-producing *Escherichia coli* (*E. coli*) (STEC)**

Shiga toxin-producing *E. coli* can be found in the intestines of cattle. It is also found in infected people.

The bacteria can contaminate meat during slaughtering.

Eating only a small amount of the bacteria can make a person sick.

Once eaten, it produces toxins in the intestines, which cause the illness.

The bacteria are often in a person's feces for weeks after symptoms have ended.

Food handlers with illnesses from these bacteria can NEVER work in a foodservice operation while they are sick.

These four bacteria are included in the FDA's Big Six pathogens.

Food handlers diagnosed with an illness from Hepatitis A or Norovirus must not work in an operation while they are sick

Hepatitis A is mainly found in the feces of people infected with it.

The virus can contaminate water and many types of food.

It is commonly linked with ready-to-eat food. However, it has also been linked with shellfish from contaminated water.

The virus is often transferred to food when infected food handlers touch food or equipment with fingers that have feces on them.

Eating only a small amount of the virus can make a person sick.

An infected person may not show symptoms for weeks but can be very infectious.

Some viruses, such as hepatitis A, are not destroyed by normal cooking temperatures. That is why it is especially important to practice good personal hygiene when handling food and food-contact surfaces. The quick removal and cleanup of vomit is also important.

### **Norovirus**

Like hepatitis A, Norovirus is commonly linked with ready-to-eat food.

It has also been linked with contaminated water.

Norovirus is often transferred to food when infected food handlers touch food or equipment with fingers that have feces on them.

Eating only a small amount of Norovirus can make a person sick. It is also very contagious.

People become contagious within a few hours after eating it.

The virus is often in a person's feces for days after symptoms have ended.

### **Seafood Toxins**

Some toxins are naturally associated with certain plants, mushrooms, and seafood. Toxins are a natural part of some fish.

Other toxins, such as histamine, are made by pathogens on the fish when it is time-temperature abused. This can occur in tuna, bonito, mackerel, and mahi-mahi.

Some fish become contaminated when they eat smaller fish that have eaten a toxin. One of these toxins is the ciguatera toxin. It can be found in barracuda, snapper, grouper, and amberjack.

Shellfish, such as oysters, can be contaminated when they eat marine algae that have a toxin.

Toxins cannot be destroyed by cooking or freezing. The most important way to prevent a foodborne illness is to purchase plants, mushrooms, and seafood from approved, reputable suppliers. It is also important to control time and temperature when handling raw fish.

### **Chemical Contaminates**

The chemicals you use must be approved for use in a foodservice operation. They must also be necessary for the maintenance of the facility.

### **Physical Contaminates**

Mild to fatal injuries are possible. This could include cuts, dental damage, and choking.

Bleeding and pain may be the most outward symptoms.

Purchase food from approved, reputable suppliers to prevent physical contamination. Closely inspect the food you receive. Take steps to make sure no physical contaminants can get into it.

This includes making sure that food handlers practice good personal hygiene.

### **Deliberate Contamination**

So far, you have learned about methods to prevent the accidental contamination of food. But you also must take steps to stop people who are actually trying to contaminate it. These people may try to tamper with your food using biological, chemical, or physical contaminants. They may even use radioactive materials. Attacks might occur anywhere in the food supply chain. But they are usually focused on a specific food item, process, or business.

The best way to protect food is to make it as difficult as possible for someone to tamper with it. For this reason, a food defense program should deal with the points in your operation where food is at risk.

The FDA has created a tool that can be used to develop a food defense program. It is based on the acronym A.L.E.R.T. It can be used to help you identify the points in your operation where food is at risk.

**Assure.**

Make sure that products you receive are from safe sources. Supervise product deliveries. Use only approved suppliers who practice food defense. Request that delivery vehicles are locked or sealed.

**Look.**

Monitor the security of products in the facility. Limit access to prep and storage areas. Locking storage areas is one way to do this. Create a system for handling damaged products. Store chemicals in a secure location. Train staff to spot food defense threats.

**Employees.**

Know who is in your facility. Limit access to prep and storage areas. Identify all visitors, and verify credentials. Conduct background checks on staff.

**Reports.**

Keep information related to food defense accessible: receiving logs, office files and documents, staff files, and random food defense self-inspections.

**Threat.**

Identify what you will do and whom you will contact if there is suspicious activity or a threat at your operation. Hold any product you suspect to be contaminated. Contact your regulatory authority immediately. Maintain an emergency contact list.

### **Responding to a Food Bourne-Illness Outbreak**

Ask the person making the complaint for general contact information and to identify the food that was eaten. Also ask for a description of symptoms and when the person first got sick. Contact the local regulatory authority if you suspect an outbreak.

Set the suspected product aside if any remains. Include a label with “Do Not Use” and “Do Not Discard” on it.

Log information about the suspected product. This might include a product description, production date, and lot number. The sell-by date and pack size should also be recorded.

Maintain a list of food handlers scheduled at the time of the suspected contamination. These staff members may be subject to an interview and sampling by investigators. They should also be interviewed immediately by management about their health status.

Cooperate with regulatory authorities in the investigation. Provide appropriate documentation. You may be asked to provide temperature logs, HACCP documents, staff files, etc.

Review food-handling procedures to identify if standards are not being met or procedures are not working.

To protect your customers, both you and your staff should know:

The signs of an allergic reaction and what to do when one occurs.

The types of food that most often cause allergic reactions.

A food allergen is a protein in a food or ingredient.

When enough of an allergen is eaten, it can cause an allergic reaction in some people. This happens because their immune system mistakenly considers the food protein, which is normally harmless, to be a threat and attacks it.

Tens of millions of Americans have food allergies. Allergic reactions result in tens of thousands of emergency room visits every year—about once every three minutes.

An allergic reaction could include some or all the symptoms:

- Wheezing
- Difficulty breathing
- Hives, rashes, itching
- Tingling in the mouth
- Swelling, including the tongue and throat
- Abdominal cramps
- Diarrhea
- A drop in blood pressure
- Loss of consciousness

Reactions can vary widely. In some cases, a person could suffer anaphylaxis—a severe, life-threatening allergic reaction that can lead to death.

If you or your staff see a customer having severe symptoms, or the customer tells you they are having a severe allergic reaction, act immediately. Let other staff know that assistance is needed and instruct them to call emergency medical services. Do not leave the person alone.

You and your staff must be aware of the most common food allergens and the menu items that contain them.

While nearly any food can cause an allergic reaction, in the United States there are nine foods that are responsible for most. They are called the Big Nine.

- Peanuts
- Tree nuts, such as almonds and pine nuts
- Sesame
- Milk
- Soybeans (soy)
- Eggs
- Wheat
- Fish, such as tuna and cod
- Crustacean shellfish, such as crab, lobster, and shrimp

Food labels are an important tool used to identify allergens in the products that you purchase.



Federal law requires that major allergens be clearly identified in labels on packaged foods. The allergen must be found within the ingredient listing or directly after the listing on the label. The information must use the Big Nine allergen common names. As an alternative, allergens can be listed in one spot using a “contains” label.

Both front of house and back of house staff need to do their part to avoid serving food containing allergens to people with food allergies. These precautions also apply to any food sensitivities that a customer might mention, such as a gluten intolerance.

Your front of house staff is critical when it comes to preventing allergic reactions. They have the first opportunity to find out about your guests’ food allergies. This information must be communicated to staff in the back of the house to prevent allergic reactions.

The way that you inform guests about allergens will depend on your menu and service style.

Keep in mind that some guests may not inform you that they have a food allergy.

The first person that a guest speaks with, the “first point of contact,” should have some knowledge of food allergies.

Staff must make sure that allergens are not transferred from food or food-contact surfaces containing an allergen to the food served to the customer. This is called cross-contact.

Cross-contact can happen when different types of food are cooked in the same fryer oil. It can also happen when food touches surfaces, equipment, or utensils that have touched allergens. For example, putting chocolate chip cookies on the same parchment paper that was used for peanut butter cookies can transfer some of the peanut allergen.

Check recipes and ingredient labels.

Any ingredient substitutions should be identified, tested in advance, and noted in recipes.

Managers, chefs, and purchasers should stay in regular communication with vendors. If there are any questions about uncertain or new ingredients, check with the vendor.

## Chapter 3 Safe Food Handler

Food handlers can contaminate food in any of the following situations:

- When they have a foodborne illness
- When they have wounds or boils that contain a pathogen
- When sneezing or coughing
- When they have contact with a person who is ill
- When they use the restroom and do not wash their hands. These food handlers may contaminate food and surfaces with feces from their fingers. Once someone eats food contaminated in this way, a foodborne illness may result. This is called the fecal-oral route of contamination.
- When they have symptoms such as diarrhea, vomiting, or jaundice—a yellowing of the eyes or skin

Don't underestimate your role in a personal hygiene program. You have many responsibilities to help make the program work. Some of these are highlighted in the slide.

To wash hands or prosthetic devices correctly, the whole process should take at least 20 seconds.

If you see food handlers who are not following proper handwashing procedures correct the situation immediately. If they have touched food or food-contact surfaces with unclean hands,

- Dispose of the contaminated food
- Clean potentially contaminated equipment and utensils

Infected wounds, cuts, and boils must be covered if they are open or draining to prevent pathogens from contaminating food and food-contact surfaces.

How an infected wound or boil is covered depends on where it is located. If the wound or boil is located on the hand, finger, or wrist, cover it with an impermeable cover like a finger cot or bandage. Impermeable means that liquid from the wound cannot pass through the cover. Then place a single-use glove over the cover.

A wound on the arm must be completely covered.

### **How to Use Your Gloves.**

Wash your hands before putting on gloves for a new task. You do not need to rewash your hands each time you change gloves as long as you are performing the same task and your hands have not become contaminated.

Select the correct glove size. Gloves that are too big will not stay on. Those that are too small will tear or rip easily.

Hold gloves by the edge when putting them on. Avoid touching the glove as much as possible. Once you have put them on, check the gloves for rips or tears.

### **Bare Hand Contact**

Food can become contaminated when it has been handled with bare hands. This is especially true when hands have not been washed correctly or have infected cuts or wounds. For this reason, do not handle ready-to-eat food with bare hands.

Never handle ready-to-eat food with bare hands if you primarily serve a high-risk population. Some regulatory authorities allow bare-hand contact with ready-to-eat food. If your jurisdiction allows this, you must have specific policies in place about staff health. You must also train staff in handwashing and personal hygiene practices.

It may be acceptable to handle ready-to-eat food with bare hands if the food will be added as an ingredient to a dish that does not contain raw meat, seafood, or poultry, but will be cooked to at least 145°F (63°C). For example, adding cheese to pizza dough.

It may be acceptable to handle ready-to-eat food with bare hands if the food will be added as an ingredient to a dish containing raw meat, seafood, or poultry, and the dish will be cooked to the required minimum internal temperature of the raw items. For example, adding salt and pepper to raw duck breasts.

### **Personal Hygiene**

Do NOT wear hair accessories that could become physical contaminants.

Hair accessories should be limited to items that keep hands out of hair and hair out of food.

Do not wear false eyelashes. They can become physical contaminants.

Change into work clothes at work if possible

Store street clothing and personal belongings in designated areas.

Store dirty clothing away from food and prep areas

In nonabsorbent containers In washable laundry bags

### **Sickness**

You must tell your staff to let you know when they are sick. This includes newly hired staff who have not started working yet. Your regulatory authority may ask for proof that you have done this, which can be provided in the following ways:

- Presenting signed statements in which staff have agreed to report illness
- Providing documentation showing staff have completed training, which includes information on the importance of reporting illness
- Posting signs or providing pocket cards that remind staff to notify managers when they are sick

Staff must tell you if they live with someone who has been diagnosed with an illness from the big six pathogens.

They must also tell you if they live with someone who has been diagnosed with an illness from any of these pathogens, with the exception of nontyphoidal *Salmonella*.

If a food handler is diagnosed with an illness from any of these pathogens, you must report the illness to the regulatory authority.

**As a manager, you should be watching food handlers for signs of illness.**

## Chapter 4 Flow of Food Introduction

The flow of food is the path that food takes through your operation. It begins when you buy the food and ends when you serve it. Detailed practices for each phase are covered in later chapters. You are responsible for the safety of the food at every point in this flow—and many things can happen to it.

Cross-contamination can happen at almost any point in the flow of food. When you know how and where it can happen, it is fairly easy to prevent. The most basic way is to keep raw and ready-to-eat food away from each other.

Each type of food should have separate equipment. For example, use one set of cutting boards, utensils, and containers for raw poultry. Use another set for raw meat. Use a third set for produce.

Colored cutting boards and utensil handles can help keep equipment separate. The color tells food handlers which equipment to use with each food item. You might use yellow for raw chicken, red for raw meat, and green for produce.

Clean and sanitize all work surfaces, equipment, and utensils before and after each task. When you cut up raw chicken, for example, you cannot get by with just rinsing the equipment. Pathogens such as nontyphoidal *Salmonella* can contaminate food through cross-contamination. To prevent this, you must wash, rinse, and sanitize equipment.

If you need to use the same table to prep different types of food, prep raw meat, fish, and poultry and prep ready-to-eat food at different times. You must clean and sanitize work surfaces and utensils between each type of food.

Also, by prepping ready-to-eat food before raw food, you can reduce the chance for cross-contamination.

Separate raw meat, poultry, and seafood from unwashed and ready-to-eat fruits and vegetables. Do this during storage, preparation, holding, and display to prevent cross-contamination. Buy food that doesn't require much prepping or handling. For example, you could buy precooked chicken breasts or chopped lettuce.

Time-temperature abuse is another major hazard in the flow of food. Remember, TCS food has been time-temperature abused any time it remains between 41°F and 135°F (5°C and 57°C).

This is called the temperature danger zone, because pathogens grow in this range.

Most pathogens grow much faster between 70°F and 125°F (21°C and 52°C).

Food is being temperature abused whenever it is handled in the following ways: cooked to the wrong internal temperature, held at the wrong temperature, or cooled or reheated incorrectly.

The longer food stays in the temperature danger zone, the more time pathogens have to grow.

To keep food safe, you must reduce the time it spends in this temperature range. If food is held in this range for four or more hours, you must throw it out.

Learn which food items should be checked, how often, and by whom. Make sure food handlers understand what to do, how to do it, and why it is important.

Give food handlers their own thermometers. Have them use timers in prep areas to check how long food is in the temperature danger zone.

Print simple forms for recording temperatures and when they were taken. Post the forms on clipboards outside of coolers and freezers, near prep areas, and next to cooking and holding equipment.

Have procedures to limit the time TCS food spends in the temperature danger zone. This might include limiting the amount of food that can be removed from a cooler when prepping the food. Make sure food handlers know what to do when time and temperature standards are not met. For example, if you hold soup on a steam table and its temperature falls below 135°F (57°C) after two hours, you might reheat it to the correct temperature or throw it out.

## **Thermometers**

A bimetallic stemmed thermometer can check temperatures from 0°F to 220°F (-18°C to 104°C). This thermometer measures temperature through its metal stem. When checking temperatures, insert the stem into the food up to the dimple. You must do this because the sensing area of the thermometer goes from the tip of the stem to the dimple. This trait makes this thermometer useful for checking the temperature of large or thick food. It is usually not practical for thin food, such as hamburger patties.

The calibration nut is used to adjust the thermometer to make it accurate.

The indicator head should have easy-to-read markings. Clear markings reduce the chance that someone will misread the thermometer. The thermometer must be scaled in at least two-degree increments.

The sensing area on thermocouples and thermistors is on the tip of their probe. This means you don't have to insert them into the food as far as bimetallic stemmed thermometers to get a correct reading. Thermocouples and thermistors are good for checking the temperature of both thick and thin food.

Thermocouples and thermistors come in several styles and sizes. Many come with different types of probes.

Immersion probes are used to check the temperature of liquids such as soups, sauces, and frying oil.

Surface probes are used to check the temperature of flat cooking equipment such as griddles.

Penetration probes are used to check the internal temperature of food. Small-diameter probes should be used to check the internal temperature of thin food such as meat patties and fish fillets.

Air probes are used to check the temperature inside coolers and ovens.

Infrared thermometers do not need to touch a surface to check its temperature. This means there is less chance for cross-contamination and damage to food.

However, these thermometers cannot measure air temperature or the internal temperature of food.

Hold the thermometer as close as possible to the food, food package, or equipment without touching it. Do NOT take readings through glass or metal, such as stainless steel or aluminum. Always follow the manufacturers' guidelines. This should give you the most accurate readings.

Other tools are available that can help you monitor temperature. A maximum registering thermometer is one type. This thermometer indicates the highest temperature reached during use and is used where temperature readings cannot be continuously observed. It works well for checking final rinse temperatures of dishwashing machines.

Some devices monitor both time and temperature. The time-temperature indicator (TTI) is an example. These tags are attached to packaging by the supplier. A color change appears in the window if the food has been time-temperature abused during shipment or storage. This color change is not reversible, so you know if the food has been abused.

Some suppliers place temperature-recording devices inside their delivery trucks. These devices constantly check and record temperatures. You can check the device during receiving to make sure food was at safe temperatures while it was being shipped.

Thermometers should be washed, rinsed, sanitized, and air-dried before and after each use to prevent cross-contamination. Keep storage cases clean, too. Be sure the sanitizing solution you use is for food-contact surfaces.

Always have plenty of clean and sanitized thermometers on hand.

Thermometers can lose their accuracy. When this happens, the thermometer must be calibrated, or adjusted, to give a correct reading.

Some thermometers cannot be calibrated and must be replaced. Others will need to be sent back to the manufacturer for calibration. Follow the manufacturer's directions regarding calibration.

Glass thermometers, such as candy thermometers, can be a physical contaminant if they break. They can only be used when enclosed in a shatterproof casing.

When checking the temperature of food, insert the probe into the thickest part of the food. This is usually in the center. Also take another reading in a different spot. The temperature may vary in different areas.

Before recording a temperature, wait for the thermometer reading to steady. Wait at least 15 seconds after you insert the stem or the probe into the food.

## **Calibration**

Thermometers can lose their accuracy.

When this happens, the thermometer needs calibration, or an adjustment, to give a correct reading.

Thermometers that cannot be calibrated should be replaced. Others might need to be sent back to the manufacturer for calibration. Always follow the manufacturer's directions.

There are two ways to calibrate a thermometer. One is to adjust it based on the temperature at which water freezes. This is called the ice-point method.

The other way is to adjust it based on the temperature at which water boils. This is called the boiling-point method. While either way works, the ice-point method is more common.

Put the thermometer stem or probe into the boiling water. Make sure the sensing area is submerged. Wait 30 seconds or until the indicator stops moving.

Do not let the stem or probe touch the container.

The temperature to which you calibrate will vary depending on the boiling point for your elevation. Water's boiling point is about 1°F (about 0.5°C) lower for every 550 feet (168 meters) above sea level.

How you complete step 3 depends on the type of thermometer being used.

- If you are using a bimetallic stemmed thermometer, adjust it by holding the calibration nut with a wrench or other tool.
- If you are using a thermocouple or thermistor, some devices will let you press a reset button. Always follow the manufacturer's directions.

Use crushed ice if you have it. Add tap water until the container is full. Stir the mixture well. Make sure the sensing area is submerged. Do not let the stem or probe touch the container. Wait 30 seconds or until the indicator stops moving.

To calibrate a bimetallic stemmed thermometer, adjust it by holding the calibration nut with a wrench or other tool. To calibrate a thermocouple or thermistor, follow the manufacturer's directions.

## Chapter 5 Flow of Food Receiving and Inspecting

Consider reviewing suppliers' most recent inspection reports. These reports can be from the U.S. Department of Agriculture (USDA), the Food and Drug Administration (FDA), or a third-party inspector. They should be based on Good Manufacturing Practices (GMP) or Good Agricultural Practices (GAP).

GMPs are the FDA's minimum sanitation and processing requirements for producing safe food. They describe the methods, equipment, facilities, and controls used to process food. Both suppliers and their sources are subject to GMP inspections.

Suppliers should deliver food when staff have enough time to inspect it. Schedule deliveries at a time when they can be received correctly.

Make specific staff responsible for receiving. Train them to follow food safety procedures, including checking items for correct temperatures, expired code dates, signs of thawing and refreezing, and pest damage.

Provide staff with the tools they need, including purchase orders, thermometers, and scales. Then make sure enough trained staff are available to receive and inspect food items promptly. Plan ahead for deliveries. Have clean hand trucks, carts, dollies, and containers ready. Also, make sure there is enough space in dry-storage and walk-in areas for deliveries.

The process starts with a visual inspection of the delivery truck. Check it for signs of contamination. Inspect the overall condition of the vehicle. Look for signs of pests. If there are signs of problems, reject the delivery.

Continue with a visual inspection of food items. Look at each delivery right away to count quantities, check for damaged food, and look for items that might have been repacked or mishandled. Spot-check weights and take sample temperatures of all TCS food.

Inspect and store each delivery before accepting another one. This will prevent temperature abuse in the receiving area.

Some foodservice operations receive food after-hours when they are closed for business. This is often referred to as a key drop delivery.

The supplier is given a key or other access to the operation to make the delivery. Products are then placed in coolers, freezers, and dry-storage areas. The delivery must be inspected once you arrive at the operation.

Occasionally, you may be able to recondition and use items that would have been rejected. For example, a shipment of cans with contaminated surfaces may be cleaned and sanitized, allowing them to be used. However, the same cans may not be reconditioned if they are damaged.

Food items you have received may sometimes be recalled by the manufacturer. This may happen when food contamination is confirmed or suspected. It can also occur when items have been mislabeled or misbranded. Often food is recalled when food allergens have not been identified on the label. Most vendors will notify you of the recall. However, you should also



monitor recall notifications made by the FDA and the USDA. Follow the guidelines in the slide when notified of a recall.

Identify the recalled food items by matching information from the recall notice to the item. This may include the manufacturer's ID, the time the item was manufactured, and the item's use-by date.

Remove the item from inventory, and place it in a secure and appropriate location. That may be a cooler or dry-storage area.

Store the recalled item separately from food, utensils, equipment, linens, and single-use items. Label the item in a way that will prevent it from being placed back in inventory. Some operations do this by including a "Do Not Use" and "Do Not Discard" label on recalled food items. Inform staff not to use the product.

Refer to the vendor's notification or recall notice for what to do with the item. For example, you might be instructed to throw it out or return it to the vendor.

ROP stands for reduced-oxygen packaging. It includes modified atmosphere packaging (MAP), vacuum-packed, and *sous vide* food.

It may be possible to check the temperature of bulk food by folding the packaging around the thermometer stem or probe. Be careful not to puncture the packaging when using this method.

When checking the temperature of food by this method, make sure the sensing area of the thermometer stem or probe is fully immersed in the food. The stem or probe must not touch the package.

Food received at 45 degrees or lower, you have to cool it to 41 degrees or lower in four hours or less.

Eggs do not need to be cooled down, they may remain at 45 degrees.

Reject cans if they have any of these problems:

- Severe dents in the can seams
- Deep dents in the can body
- Missing labels
- Swollen or bulging ends
- Holes and visible signs of leaking
- Rust

All food packaged in a reduced-oxygen environment, such as vacuum-packed meat, must be rejected if the packaging is bloated or leaking. Items with broken cartons or seals or with dirty and discolored packaging should also be rejected. Do **NOT** accept cases or packages that appear to have been tampered with.

Food items must be correctly labeled. Do NOT accept food that is missing a use-by date or expiration date from the manufacturer.

Food items must be delivered with the correct documents.

For example, molluscan shellfish must be received with a shellstock identification tag or label. These indicate when and where the shellfish were harvested. They also ensure that the shellfish are from an approved source.

Store molluscan shellfish (live, shucked, or in-shell product) in their original container. Do NOT remove the shellstock tag or label from the container until the last shellfish was used. When the last shellfish is removed from the container, write the date on the tag, label, or invoice. Then, keep it on file, in chronological order, for 90 days from that date.

Shellfish should remain in the container they were received in until sold or prepared for service. Shellfish from one container should not be mixed with shellfish from another container unless they have the same certification number or harvest date or are from the same growing area.

## **Storage**

Labeling food is important for many reasons. Illnesses have occurred when unlabeled chemicals were mistaken for food such as flour, sugar, and baking powder. Customers have also suffered allergic reactions when food was unknowingly prepped with a food allergen that was not labeled.

It is not necessary to label food if it clearly will not be mistaken for another item. The food must be easily identified by sight.

These labeling requirements do not apply to customers' leftover food items placed in carry-out containers.

Refrigeration slows the growth of most bacteria, but some types grow well at refrigeration temperatures. When food is refrigerated for long periods of time, these bacteria can grow enough to cause illness.

For this reason, ready-to-eat TCS food must be marked if held for longer than 24 hours.

Air temperature measuring devices must be located in the warmest part of refrigeration units and the coldest part of hot-holding units.

If food is not at the correct temperature, throw it out.

Food must be rotated in storage to maintain quality and limit the growth of pathogens. Food items must be rotated so that those with the earliest use-by or expiration dates are used before items with later dates.

Many operations use the first-in, first-out (FIFO) method to rotate their refrigerated, frozen, and dry food during storage. The slide shows one way to use the FIFO method.

Food, equipment, utensils, linens, and single-use items must be stored in ways that prevent cross-contamination.

Food must be stored in ways that prevent cross-contamination.

Safe food storage starts with wrapping or covering food.

Food should be stored in a clean, dry location away from dust and other contaminants, to prevent contamination.

If you find expired, damaged, spoiled, or incorrectly stored food that has become unsafe, you should discard it.

If the food must be stored until it can be returned to the vendor, there is a risk of contaminating the food stored near it.

## Chapter 6 Flow of Food Preparation

Food must be offered to customers in a way that does not mislead or misinform them. Customers must be able to judge the true appearance, color, and quality of food.

Food that has become unsafe must be thrown out unless it can be safely reconditioned.

Sometimes food can be restored to a safe condition. This is called reconditioning. For example, a hot food that has not been held at the correct temperature may be reheated if it has not been in the temperature danger zone for more than two hours.

When frozen food is thawed and exposed to the temperature danger zone, pathogens in the food will begin to grow. To reduce growth, **NEVER** thaw food at room temperature.

When thawing food under running water, the flow of the water must be strong enough to wash loose food bits into the drain. Always use a clean and sanitized food-prep sink when thawing food this way. Never let the temperature of the food go above 41°F (5°C) for longer than four hours. This includes the time it takes to thaw the food plus the time it takes to prep or cool it. The photo shows the correct way to thaw food under running water.

Because of concerns about the potential for botulism, frozen fish in ROP packaging has special handling practices.

Refrigerate and hold cut melons, cut tomatoes, and cut leafy greens at 41°F (5°C) or lower. They are TCS foods.

Certain chemicals may be used to wash fruits and vegetables. Also, produce can be treated by washing it in water containing ozone. This treatment helps control pathogens. Your local regulatory authority can tell what is acceptable to use for this.

Pooled eggs are eggs that are cracked open and combined in a container.

Check with your local regulatory authority to see if pooling eggs is allowed.

Egg dishes requiring little or no cooking include Caesar salad dressing, Hollandaise sauce, tiramisu, and mousse.

Use pasteurized eggs or egg products when serving raw or undercooked dishes to high-risk populations.

Make ice from water that is safe to drink.

Never use ice as an ingredient if it was used to keep food cold. For example, if ice is used to cool food on a salad bar, it cannot then be used in drinks.

### Variance

You will need a variance when prepping food in certain ways. A variance is a document issued by your regulatory authority that allows a regulatory requirement to be waived or changed.

Reduced-oxygen packaging (ROP) includes MAP, vacuum-packed, and *sous vide* food.

When applying for a variance, your regulatory authority may require you to submit a HACCP plan.

The HACCP plan must account for any food safety risks related to the way you plan to prep the food item.

You must comply with the HACCP plan and procedures submitted.

Finally, you have to maintain the HACCP plan and any other associated documents—including the variance—at the operation. And you have to provide them to the regulatory authority, if requested.

Some operations partially cook food during prep and then finish cooking it just before service. Partial cooking is also called parcooking.

Your local regulatory authority will require you to have written procedures that explain how the food cooked by this process will be prepped and stored. These procedures must be approved by the regulatory authority and describe the items on the slide.

Some packaged foods contain manufacturer's instructions for cooking. These instructions must be followed before using the product, especially before adding them to a ready-to-eat (RTE) food. Frozen vegetables are an example. They frequently contain cooking instructions from the manufacturer and are often intended for use only after cooking.

It is especially important to follow these instructions when using the frozen vegetables to make RTE foods, such as salads. If the vegetables contain a pathogen and the food is not cooked, the pathogen could multiply and cause foodborne illness.

## **Consumer Advisories**

TCS food must be cooked to the required minimum internal temperatures unless a customer requests otherwise.

You can remind customers of the risks by posting a notice in your menu. You can also provide this information using brochures, table tents, signs, or other written methods.

The Food and Drug Administration (FDA) advises against offering raw or undercooked meat, poultry, seafood, or eggs on a children's menu. This is especially true for undercooked ground beef, which may be contaminated with Shiga toxin-producing *E. coli* O157:H7.

Examples of operations that mainly serve high-risk populations include nursing homes and daycare centers.

The denser the food, the more slowly it will cool.

Large food items cool more slowly than smaller items. To let food cool faster, you should reduce its size. Cut large food items into smaller pieces. Divide large containers of food into smaller containers or shallow pans.

Stainless steel transfers heat away from food faster than plastic. Shallow pans let the heat from food disperse faster than deep pans.

It's critical to ensure food handlers are using the correct method to cool TCS food, cooling it quickly, and regularly monitoring temperatures during cooling.

In addition to the acceptable cooling methods, food can also be cooled by adding ice or cold water as an ingredient.

## Chapter 7 Flow of Food Service

Create policies about how long the operation will hold food. Also, create policies about when to throw away held food. For example, your policy may let you refill a pan of veal in a buffet all day as long as you throw it out at the end of the day.

Your operation may want to display or hold ready-to-eat TCS food without temperature control. However, if you primarily serve a high-risk population, you cannot do so.

If your operation displays or holds ready-to-eat TCS food without temperature control, it must do so under certain conditions. Also note that the conditions for holding cold food are different from those for holding hot food. Before using time as a method of control, check with your local regulatory authority for specific requirements.

The discard time on the label must be six hours from the time you removed the food from refrigeration. For example, if you remove potato salad from refrigeration at 3:00 p.m. to serve at a picnic, the discard time on the label should be 9:00 p.m. This is six hours from the time you removed it from refrigeration.

There are some alternatives to holding cold ready-to-eat TCS food without temperature control. If the food is discarded within four hours, it can be allowed to reach any temperature during service. However, the food must be held at 41°F (5°C) or lower before removing it from temperature control. The discard time on the label must also be four hours from the time you removed the food from temperature control. And the food must be sold, served, or thrown out within four hours.

Here is another alternative. As previously stated, cold ready-to-eat TCS food must be held at 41°F (5°C) or lower before being removed from refrigeration if it will be held without temperature control. However, there is an exception to that temperature for certain products. That includes ready-to-eat fruit or vegetables that become a TCS food when they're cut, chopped, or sliced—like sliced tomatoes, cut leafy greens, or cut melons. The same is true for hermetically sealed containers of food that become a TCS food when opened, like a can of tuna. These items can actually start with an initial temperature of 70°F (21°C) or lower. However, the product has to be discarded within four hours. And it can't exceed 70°F (21°C) within the four-hour period. Finally, the discard time on the label must be four hours from the time the product became a TCS food.

For Hot food being held without temperature control, label the food with the time you must throw it out. The discard time on the label must be four hours from the time you removed the food from temperature control.

Before using time as a method of control, check with your local regulatory authority for specific requirements. The regulatory authority may require you to prepare written procedures and get written approval in advance. You will also need to maintain those procedures in the operation, and make sure they are made available to the regulatory authority upon request.

The biggest threat to food that is ready to be served is contamination.

Train your kitchen staff to follow food safety guidelines when serving food to avoid contamination.

Spoons or scoops used to serve food such as ice cream or mashed potatoes can be stored under running water. They can also be stored in a container of water that is maintained at a temperature of at least 135°F (57°C).

Some jurisdictions allow food handlers to refill take-home containers brought back by a guest with food and beverages.

Take-home containers can be refilled after they have been Washed rinsed and sanitized in the operation.

Service staff must be as careful as kitchen staff. They can contaminate food simply by handling the food-contact areas of glasses, dishes, and utensils.

- Carry glasses in a rack or on a tray to avoid touching the food-contact surfaces.
- Do **NOT** stack glasses when carrying them.

Table settings do not need to be wrapped or covered if extra settings meet these requirements:

- They are removed when guests are seated.
- If they remain on the table, they are cleaned and sanitized after guests have left.

You must protect condiments from contamination. Serve them in their original containers or in containers designed to prevent contamination. Offering condiments in individual packets or portions can also help keep them safe.

Never re-serve uncovered condiments. Do not combine leftover condiments with fresh ones. Throw away opened portions or dishes of condiments after serving them to customers. Salsa, butter, mayonnaise, and ketchup are examples.

Change linens used in bread baskets after each customer.

In general, only unopened prepackaged food can be re-served. That includes condiment packets, wrapped crackers or breadsticks, and bottles of ketchup and mustard.

## **Self Service**

Food on display can be protected from contamination using sneeze guards. Food can also be protected by placing it in display cases or by packaging it in a way that will protect it from contamination.

Whole, raw fruits and vegetables and nuts in the shell that require peeling or hulling before eating do not require these protection measures.

Label food located in self-service areas. For example, place the name of the food, such as types of salad dressing, on ladle handles or signs.



Typically, raw, unpackaged meat, poultry, and seafood cannot be offered for self-service. However, the following items are exceptions to this rule:

- Ready-to-eat food at buffets or salad bars that serve food such as sushi or raw shellfish
- Ready-to-cook portions that will be cooked and eaten immediately on the premises, such as at Mongolian barbecues
- Raw, frozen, shell-on shrimp or lobster

Assign a staff member to monitor guests. Post signs reminding guests not to reuse plates and utensils.

Stock food displays with the correct utensils for dispensing food. This might include tongs, ladles, or deli sheets.

Bulk unpackaged food, such as bakery products and unpackaged food portioned for customers, does not need to be labeled.

## **Off Site Food**

Delays from the point of preparation to the point of service increase the risk that food will be exposed to contamination or time-temperature abuse.

At the service site, use appropriate containers or equipment to hold food at the correct temperature.

Check internal food temperatures. If containers or delivery vehicles are not holding food at the correct temperature, reevaluate the length of the delivery route or the efficiency of the equipment being used.

## **Vending Machines**

Handle food prepped and packaged for vending machines with the same care as any other food served to customers. Vending operators should protect food from contamination and time-temperature abuse during transport, delivery, and service.

Check product shelf life daily. Products often have a code date, such as an expiration or a use-by date. If the date has expired, throw out the food immediately. Throw out refrigerated food prepped on-site if not sold within seven days of preparation.

Keep TCS food at the correct temperature. It should be held at 41°F (5°C) or lower, or at 135°F (57°C) or higher. These machines must have controls that prevent TCS food from being dispensed if the temperature stays in the danger zone for a specified amount of time. This food must be thrown out.

## Chapter 8 Food Management Systems

Having food safety programs already in place gives you the foundation for your system. The principles presented in ServSafe are the basis of these programs.

It is the manager's responsibility to actively control these and other risk factors for foodborne illness. This is called active managerial control.

It is important to note that active managerial control is proactive rather than reactive. You must anticipate risks and plan for them.

There are many ways to achieve active managerial control in the operation. According to the Food and Drug Administration (FDA), you can use simple tools such as training programs, manager supervision, and the incorporation of SOPs (STANDARD OPERATING PROCESSES), your company's rules and regulations.

Active managerial control can also be achieved through more complex solutions such as a HACCP program.

There are some important steps to take when implementing active managerial control in your operation.

1. Identify risks
2. Monitor
3. Corrective action
4. Management oversight
5. Training
6. Re-evaluation

The FDA provides specific recommendations for controlling the common risk factors for foodborne illness. These are known as public health interventions. They are designed to protect public health.

- **Demonstration of knowledge:** As a manager, you must be able to show that you know what to do to keep food safe. Becoming certified in food safety is one way to show this.
- **Staff health controls:** Procedures must be put in place to make sure staff are practicing personal hygiene. For example, staff must know that they must report illnesses and illness symptoms to management.
- **Controlling hands as a vehicle of contamination:** Controls must be put in place to prevent bare-hand contact with ready-to-eat food. This might include requiring the use of tongs to handle ready-to-eat food.
- **Time and temperature parameters for controlling pathogens:** Procedures must be put in place to limit the time food spends in the temperature danger zone. Requiring food handlers to check the temperature of food being hot-held every two hours is an example.

- **Consumers advisories:** Notices must be provided to customers if you serve raw or undercooked menu items. These notices must include a statement about the risks of eating these foods.

There are many systems you can implement to achieve active managerial control of foodborne-illness risk factors. Hazard Analysis Critical Control Point (HACCP) is one such system. HACCP (pronounced HASS-ip) is based on identifying significant biological, chemical, or physical hazards at specific points within a product's flow. Once identified, the hazards can be prevented, eliminated, or reduced to safe levels.

Each HACCP plan is unique. A plan that works for one operation may not work for another.

## Chapter 9 Safe Facilities and Pest Management

You may need to consult your local regulatory agency before making changes to your operation, including the facility or equipment.

Once installed, flooring, walls, and ceilings must be regularly maintained. Replace missing or broken ceiling tiles. Do the same for flooring. Repair all holes in walls.

Coving is a curved, sealed edge between a floor and a wall. It gets rid of sharp corners or gaps that are hard to clean. Coving should be glued tightly to the wall to get rid of hiding places for insects. This also protects the wall from moisture.

If standing water occurs due to spraying or when flushing the floors during cleaning, remove the water as quickly as possible.

Foodservice equipment must meet certain standards if it will come in contact with food. That includes being smooth, easy to clean, durable, and resistant to damage.

Organizations such as NSF have developed standards like these for the sanitary design and construction of foodservice equipment. They also certify equipment that meets these standards. Other organizations classify equipment—or evaluate it to ensure that it meets the standards developed by others. These organizations must be accredited by the ANSI National Accreditation Board (ANAB), which is a wholly owned subsidiary of the American National Standards Institute (ANSI), a nonprofit corporation.

When purchasing equipment, look for the NSF mark, the UL EPH classified mark, or the ETL sanitation mark. These indicate that the equipment has been certified or classified for sanitation under an ANAB-accredited program

Always follow the manufacturers' instructions when installing, operating, and maintaining dishwashers.

Handwashing stations should be put in areas that make it easy for staff to wash their hands often. Handwashing stations are required:

- In restrooms or directly next to them
- In areas used for food prep, service, and dishwashing

Handwashing sinks must be used only for handwashing and not for any other purpose.

And, to prevent cross-contamination, make sure adequate barriers are present on handwashing sinks, or that there is an adequate distance between handwashing sinks and food and food-contact surfaces so that water cannot splash on these items.

Make sure these stations work correctly and are well stocked and maintained. They must also be available at all times. This means that handwashing stations cannot be blocked by portable equipment or stacked full of dirty kitchenware.

Areas designated for employees to eat, drink, chew gum, and use tobacco products must be carefully located to protect food, equipment, linens, and single-use items from contamination.

An operation uses many utilities and building systems. Utilities include water, electricity, gas, sewage, and garbage disposal.

Building systems include plumbing, lighting, and ventilation. There must be enough utilities to meet the needs of the operation. In addition, the utilities and systems must work correctly. If they do not, the risk of contamination is greater.

There are national standards for water in the United States that are enforced by each regulatory authority. Only water that is drinkable can be used for the preparation of food and come in contact with food-contact surfaces. This is called potable water.

Plumbing that is not installed or maintained correctly can allow drinkable and unsafe water to be mixed. This can cause foodborne-illness outbreaks. Have only licensed plumbers work on the plumbing in your operation.

The greatest challenge to water safety comes from cross-connections. A cross-connection is a physical link between safe water and dirty water, which can come from drains, sewers, or other wastewater sources.

A cross-connection is dangerous because it can let backflow occur.

Backflow can be the result of pressure pushing contaminants back into the water supply. It can also happen when high water use in one area of an operation creates a vacuum in the plumbing system that sucks contaminants back into the water supply. This is called backsiphonage.

A running faucet below the flood rim of a sink is an example of a cross-connection that can lead to backsiphonage. A running hose in a mop bucket is another example.

The best way to prevent backflow is to avoid creating a cross-connection. A vacuum breaker is a mechanical device that prevents backsiphonage. It does this by closing a check valve and sealing the water supply line shut when water flow is stopped.

Other mechanical devices are used to prevent backflow. These include double check valves and reduced pressure zone backflow preventers. These devices include more than one check valve for sealing off the water supply. They also provide a way to determine if the check valves are operational.

A buildup of grease in pipes is another common problem in plumbing systems.

Grease traps are often installed to prevent grease buildup from blocking the drain. If used, they should be put in by a licensed plumber and be easy to access.

Also, make sure they are cleaned regularly following the manufacturer's recommendations. If the traps are not cleaned often enough or correctly, dirty water can back up. This backup could lead to odors and contamination.

Good lighting makes it easier to clean things in your operation. It also provides a safer environment.

Lighting intensity—how bright the lights are in the operation—is usually measured in units called foot-candles or lux. Local jurisdictions usually require prep areas to be brighter than other areas. This allows staff to recognize the condition of food. It also allows staff to identify items that need cleaning.

Once the appropriate level of lighting has been installed in each area of the facility, you must monitor it. Replace any bulbs that have burned out. And, make sure they are the correct size. All lights should have shatter-resistant light bulbs or protective covers. These products prevent broken glass from contaminating food or food-contact surfaces.

Staff must be careful when removing garbage so they do not contaminate food or food-contact surfaces.

Clean the inside and outside of garbage containers frequently. This will help prevent the contamination of food and food-contact surfaces. It will also reduce odors and pests.

Garbage containers must be covered when not in constant use. Women's restrooms must include a covered receptacle for sanitary napkins.

Waste and recyclables must be stored separately from food and food-contact surfaces. The storage of these items must not create a nuisance or a public health hazard.

Place outdoor garbage containers on a surface that is smooth, durable, and nonabsorbent. Asphalt and concrete are good choices.

Poor building maintenance can cause food safety problems in your operation.

Certain crises can affect the safety of the food you serve. Common crises include electrical power outages, fire, flooding, and sewage backups.

Temperature control: Power failures and refrigeration breakdowns can threaten your ability to control the temperature of TCS food, which can result in the growth of pathogens.

Physical security: Unauthorized people inside a facility are a risk to food safety. This is especially true when they can access storage and processing areas. Also, acts of nature can weaken a facility's security.

Drinkable water supply: Threats to the drinkable water supply must also be considered. Broken water mains and breakdowns at water treatment facilities are a risk to the safety of food.

Terrorist contamination of the water supply could also be a threat.

## **Emergencies Effecting Your Building**

If closure of your operation is required, You will need approval from the local regulatory authority before continuing service.

The regulatory authority may allow an operation to continue operating in the event of a water or electrical interruption. To do this, however, there are certain conditions that you'll have to meet. That includes having a written emergency operating plan—that's approved in advance by the regulatory authority. You'll also have to make sure that you're taking immediate corrective action to prevent, eliminate, or control any food safety risks or imminent health hazards associated with the interruption. And finally, the regulatory authority has to be informed whenever you implement your emergency operating plan.

## Chapter 10 Cleaning and sanitizing

There are a variety of cleaners available, each with a different purpose. Ask your supplier to help you pick cleaners that meet your needs.

They must also be provided and available to employees during all hours of operation.

Follow manufacturers' instructions carefully.

If not used the correct way, cleaners may not work and can even be dangerous.

Chemical sanitizers are regulated by state and federal environmental protection agencies. They must be provided and available to employees during all hours of operation.

All surfaces must be cleaned and rinsed. This includes walls, storage shelves, and garbage containers. However, any surface that touches food, such as knives, stockpots, cutting boards, or prep tables, must be cleaned and sanitized.

**1. Scrape or remove food from the surface.** Use the correct cleaning tool, such as a nylon brush or pad or a cloth towel.

**2. Wash the surface.** Prepare the cleaning solution with an approved cleaner. Wash the surface with the correct cleaning tool, such as a cloth towel.

**3. Rinse the surface.** Use clean water. Rinse the surface with the correct cleaning tool, such as a cloth towel.

**4. Sanitize the surface.** Use the correct sanitizing solution. Prepare the concentration per manufacturer requirements. Use the correct tool, such as a cloth towel, to sanitize the surface. Make sure the entire surface has come in contact with the sanitizing solution.

**5. Allow the surface to air-dry.**

Some pieces of equipment, such as soft-serve yogurt machines, are designed to have cleaning and sanitizing solutions pumped through them.

Because they hold TCS food, they must be cleaned and sanitized on a daily basis unless otherwise indicated by the manufacturer.

Operate your dishwasher according to the manufacturer's recommendations, and keep it in good repair.

Scrape items before washing them. If necessary, items can be rinsed or presoaked. This may be necessary when handling items with dried-on food.

Check water temperature, pressure, and sanitizer levels. Take appropriate corrective action if necessary.

Operations using high-temperature dishwashing machines must provide staff with an easy and quick way to measure the surface temperatures of items being sanitized.

The water temperature for sanitizing must be 180 degrees,

The method used must provide an irreversible record of the highest temperature reached during the sanitizing rinse. This ensures that the dishwasher can reach correct sanitizing temperatures during operation. Maximum registering thermometers or heat-sensitive tape are good tools for checking temperatures.

Three-compartment sinks must be set up correctly before use.

Fill the first sink with detergent and water. The water temperature must be at least 110°F (43°C). Follow the manufacturer's recommendations.

Fill the second sink with clean water. This is not necessary if items will be spray-rinsed instead of being dipped.

Fill the third sink with water and sanitizer to the correct concentration. Hot water can be used as an alternative. Follow the guidelines previously discussed for sanitizers and the manufacturer's recommendations.

Provide a clock with a second hand, so food handlers can time how long items have been in the sanitizer.

Steps for dish washing in a three compartment sink.

- Step 1: Scrape items before washing them. If necessary, items can be rinsed or soaked.
- Step 2: Wash items in the first sink. Use a brush, cloth towel, or nylon scrub pad to loosen dirt. Change the water and detergent when the suds are gone or the water is dirty.
- Step 3: Rinse items in the second sink. Spray the items with water or dip them in it. Make sure you remove all traces of food and detergent from the items being rinsed. If dipping the items, change the rinse water when it becomes dirty or full of suds.
- Step 4: Sanitize items in the third sink. Change the sanitizing solution when the temperature of the water or the sanitizer concentration falls below requirements. Never rinse items after sanitizing them. This could contaminate their surfaces.
- Step 5: Air-dry items on a clean and sanitized surface. Place items upside down so they will drain. NEVER use a towel to dry items, as it could contaminate them.

Store glasses and cups upside down on a clean and sanitized shelf or rack.

Store flatware and utensils with handles up. Staff can then pick them up without touching food-contact surfaces, which will help prevent the transfer of pathogens such as Norovirus.

## **Wiping Clothes**

Store wet wiping cloths used for wiping counters and other equipment surfaces in a sanitizer solution between uses, as shown in the photo on the slide.

Change the solution when it no longer meets requirements for the sanitizer being used.

## **Cleaning up after a sick person**

To be effective, operations must have written procedures for cleaning up vomit and diarrhea.

These procedures must address specific actions that employees must take to minimize contamination and exposure to food, surfaces, and people.

It is critical that employees be trained on these procedures.

## **Chemicals**



If chemicals are transferred to a new working container, the label on that container must list the common name of the chemical.

### Cleaning Programs

When developing an effective program:

- Work with small groups or conduct training by area.