The **"Serving Safe Food"** Workbook is adapted from Serving it Safe, 2nd Edition, National Food Service Management Institute and United States Department of Agriculture, Food and Nutrition Service, and the National Restaurant Association Education Foundation. Modifications have been made to be consistent with the policy and procedures of the Wisconsin Senior Dining Program.

SECTION 1 – FOOD SAFETY IS TOP PRIORITY

Why is food safety a top priority?

Food safety is the responsibility of every person who is involved in foodservice. Serving safe food to Senior Dining participants is a top priority for every foodservice employee regardless of the job assignment. Every action in foodservice has the potential to impact the safety of the food, either during purchasing, storage, preparation, holding, service, or cleanup.

The Centers for Disease Control and Prevention (CDC) estimates that 76 million cases of foodborne illness occur each year in the United States. Foodborne illness is considered a major public health problem. For certain highly susceptible groups, such as seniors, young children, pregnant women, and the immune-compromised, foodborne illnesses can be fatal. In fact, the CDC estimates that there are 325,000 hospitalizations and 5,000 – 10,000 deaths related to foodborne illnesses each year, 70% of which come from foodservice establishments. However, for most people, a foodborne illness results in discomfort lasting a few days or longer.

Foodservice employees and volunteers should know that a foodborne illness could occur in any operation. Just because a foodborne illness has not occurred in a foodservice operation does not mean it will never occur. To prevent foodborne illness, all employees must practice good food safety habits on a routine basis. In addition to human suffering, an outbreak of foodborne illness can result in a damaged reputation, financial loss and closed doors.

Foodservice employees have many opportunities throughout the day to ensure that the food served is safe to eat. In order to serve safe food, every foodservice employee must follow guidelines to maintain a safe foodservice environment.

What is a foodborne illness and foodborne outbreak?

Foodborne Illness

A foodborne illness, commonly referred to as food "poisoning," is a disease carried to people by food or water. Although a person may become ill and show symptoms that go with a specific kind of foodborne illness, a foodborne illness can only be confirmed with a laboratory analysis that identifies the source of the illness.

Foodborne Outbreak

A foodborne outbreak is an incident in which two or more people experience the same illness symptoms after eating a common food. A foodborne illness is confirmed when a laboratory analysis shows the source of illness to be a specific

food. For example, it would be a foodborne outbreak if two or more participants who ate undercooked hamburger patties became sick and their symptoms were confirmed by the State public health department to be caused by *E. coli* 0157:H7. If a foodborne outbreak is suspected, the program director must notify the local Health Department who will initiate an investigation.

What must be done to keep food safe?

Americans have a fairly safe food supply. However, food can become contaminated at any stage in the foodservice process, from the field to the customer's plate. Foodborne illness is caused by eating a contaminated food or drinking a contaminated beverage. The first step in preventing a foodborne illness is to prevent the food or beverage from becoming contaminated and thus unsafe. Any food or beverage can be contaminated (made unsafe). There are three types of hazards (or contaminants) that can cause a food to be unsafe:

1. ■ Biological (microorganisms, pathogens)
2. ■ Chemical
3. ■ Physical

Know about Biological Hazards

Understand What Causes Biological Contamination

Bacteria or other microorganisms (viruses, parasites) that have contaminated food cause most foodborne illnesses. These microorganisms are more likely to grow in the temperature danger zone. The temperature danger zone is between 41 ºF to 140 ºF and refers to the internal temperature of food. The harmful microorganisms, called pathogens, can come from a variety of sources.

■ People spread organisms from their bodies to food by unclean hands, coughing, or sneezing. Food can be contaminated before or during processing, in the kitchen during preparation, or during service. In fact, most foodborne illnesses are caused by bacteria or other microorganisms spread by people who handle food.

■ Unsanitary facilities and equipment may spread harmful organisms to people or food.

■ Disease-spreading pests, such as cockroaches, flies, or mice, which are attracted to food preparation areas, may contaminate food, equipment, or service areas.

Prevent Contamination from Microorganisms

More information about the causes and prevention of foodborne illnesses from microorganisms is provided in upcoming sections of this booklet.

Know about Chemical Hazards

Understand What Causes Chemical Contamination

A foodborne illness can result from a harmful chemical getting into a food that is then eaten by a person. Foodservice establishments use a variety of chemicals to clean and sanitize and for pest control.

If handled inappropriately, the chemicals necessary to maintain a sanitary facility can contaminate food and make people sick. Employees who handle hazardous chemicals incorrectly also risk injury due to exposure.

Hazardous chemicals include

- sanitizers
- pesticides
- whitening agents
- detergents
- polishes
- glass cleaners
- equipment lubricants
- cleaning and drying agents

Prevent Chemical Contamination

Chemical contamination of food and personal injury can be prevented if chemicals are handled and stored properly. Use the guidelines below to help prevent chemical contamination.

- Teach employees and volunteers how to use chemicals.
- Store chemicals in original containers away from food to prevent accidental misuse as well as leakage into food.
- Make sure labels clearly identify chemical contents of containers.
- Use Materials Safety Data Sheets (MSDS) to ensure that all chemicals are stored and used correctly. MSDS should be readily accessible to all employees.
- Always measure chemicals in accordance with manufacturer's recommendations – more is NOT necessarily better.
- Allow only authorized personnel to have access to cleaning chemicals.
- Always test sanitizing solutions.
- Wash hands thoroughly after working with chemicals.
- Wash fresh produce that will be served whole, peeled, or cooked in cold, running water. Scrub thick-skinned produce with a brush designed for food preparation.

■ Monitor procedures used by pest control operators to be sure pesticides do not contaminate food. Only professional operators should apply pesticides.

Metals are another potential source of contamination. Highly acidic foods, such as tomatoes or lemons, can react with metals during cooking or storage, causing the metal to leach out into the food. To prevent this problem:

■ Use metal containers and metallic items only for their intended uses.

■ Do not use galvanized containers to prepare or cook acidic foods like lemonade, tomato products, and salad dressing.

■ Avoid enamelware, which can chip and expose underlying metal.

■ Do not use metal mixing bowls for holding hot foods.

■ Never store food in an open can; transfer to an appropriate, covered storage container and label.

■ Use only commercial foodservice equipment and storage containers. Look for the National Sanitation Foundation (NSF) International mark or the Underwriters Laboratories' (UL) sanitation classification listings of commercial foodservice equipment that comply with those of NSF International.

Know about Physical Hazards

Understand What Causes Physical Contamination

A food can be contaminated by a foreign object getting into the food accidentally. Physical contaminants include dirt, hair, finger nails, insects, broken glass and crockery, nails, staples, metal shavings or plastic fragments, and bits of packaging materials. Bits of bone in ground beef would be considered a physical contaminant because it is a non-edible object that should not be in the food. Some physical contaminants may get into the food during processing and some may accidentally get into the food during final preparation. Either way, physical contaminants can be harmful to the customer, and every effort should be made to avoid any foreign object in the food.

Because physical hazards are easily seen, customers commonly report them. Most physical food contamination can be prevented when foodservice personnel wear proper clothes and shoes, use hair restraints, avoid wearing artificial nails, and use other common sense precautions. Teach employees to be aware of potential physical contaminants.

Prevent Physical Contamination

Use the guidelines below to help prevent physical contamination.

■ Wear a hair restraint when working with food.

■ Use a commercial scoop for ice – NEVER use a glass for portioning ice.

■ Designate a source of ice for use in beverages and foods. Do not chill food items in the same ice that will be consumed.

■ Ensure there are covers over lights that are clean and in good repair.

■ Clean can openers regularly and keep the blades sharp and in good repair.

■ Remove staples, nails, etc. from boxes in the receiving area when food is received.

■ Avoid repairing equipment temporarily with items that could potentially fall into food.

■ Clean and sanitize equipment on a regular basis.

■ For best practice, do not wear nail polish, and absolutely NO artificial nails when working with food.

■ In a food preparation area, store toothpicks and non-edible garnishes on lower shelves so they cannot fall into food.

■ Do not wear jewelry or medical information jewelry other than a plain ring, such as a wedding band, when preparing or serving food.

■ Do not carry a pencil or pen behind the ear since it could fall into food.

■ Avoid wearing earrings other than plain studs.

■ Use only food-grade containers or bags that are approved for food storage.

■ Never reuse a single-use container.

■ Have routine pest control maintenance administered by licensed personnel.

THE LAW: Federal and WI Food:

2-402.11: <u>FOOD EMPLOYEES shall wear hair restraints</u> such as hats, hair coverings or nets, beard restraints, and clothing that covers body hair, that are designed and worn to effectively keep their hair from contacting food, equipment and utensils

SECTION 1 SUMMARY

"Food Safety is Top Priority," provides an explanation of three types of hazards that can contaminate food: biological (microorganisms), chemical, and physical. The first line of defense against a foodborne illness is to **prevent contamination of food**, which can happen at any step along the food service process. Bacteria and other microorganisms that have contaminated food cause the most foodborne illnesses. These microorganisms grow fast in the temperature danger zone. The temperature danger zone is between 41º F to 140º F and refers to the internal temperature of food.

A foodborne illness can also result from a harmful chemical getting into a food that is then eaten by a person. Foodservice establishments use a variety of chemicals to clean and sanitize, and for pest control. Because physical hazards are easily seen, customers commonly report them. Most physical food contamination can be prevented when foodservice personnel wear proper clothes and shoes, use hair restraints, avoid wearing nail polish and artificial nails, and use other common sense precautions. Teach employees to be aware of potential physical contaminants. Every foodservice employee is responsible for following all sanitation guidelines to prevent a foodborne illness.

SECTION 2 - PREVENT FOODBORNE ILLNESS: UNDERSTANDING MICROORGANISMS

In Section 1, the three main types of contaminants were described: harmful microorganisms in food, harmful chemicals in foods, and harmful physical objects in food. This chapter will provide a closer look at foodborne illness caused by harmful microorganisms.

Bacteria and other microorganisms are everywhere—in the soil, in saliva, under fingernails, on a doorknob, and on a towel. Some bacteria protect from infection, help digest food inside the body, and break down organic materials in the environment. Penicillin, a powerful antibiotic, was originally developed from mold. However, some microorganisms are dangerous to humans when consumed and are the primary causes of foodborne illness. Harmful bacteria and viruses cause most of the foodborne illness.

FAT TOM

Most microbes we encounter in foodservice require specific conditions to grow, and a kitchen is the PERFECT place for bacteria and viruses to grow. Microbes are living organisms and need nourishment and hydration just like us. Remember these conditions with the acronym FAT TOM:

Food: Microbes require a food source. They prefer proteins and carbohydrates, especially carbs that are cooked – including cooked vegetables

Acidity: Foodborne microorganisms prefer a neutral environment. Most foods we serve are neutral, and therefore perfect for bacteria growth.

Temp: Microbes grow best in the Temperature Danger Zone of 41°-140° F

Time: Microbes need time to grow. Most DOUBLE every 20 minutes!

Oxygen: Most microorganisms require oxygen to grow – some do not.

Moisture: Microbes require hydration to grow. Most food is moist enough.

TCS / Potentially Hazardous Foods

A **TCS** food is a potentially hazardous food. It is a food that must be **T**ime and **T**emperature **C**ontrolled for **S**afety. Microbes need nourishment to survive and multiply, and they especially like proteins and carbohydrates. This means not just raw meats, but cooked meats too, and many grains and starches have protein that bacteria can use once it's cooked. And when vegetables are cooked, they become

a potentially hazardous food, and perfect for bacteria. The proteins and carbohydrates are released and become perfect food for bacteria.

Fruits can also be TCS foods if they are cooked, or when they are cut into. Once the skin of a fruit is cut it allows bacteria to enter, thus become a potentially hazardous food. Microbes also require hydration, so they like moist foods. Therefore, dry bread is not considered potentially hazardous, and can safely sit out at room temperature. But if you take that bread and make stuffing out of it with broth and vegetables, once it becomes moist it is a perfect breeding ground for microorganisms.

What happens in the body after a contaminated food has been eaten?

When a food with harmful microorganisms is ingested, there is a period of time before symptoms of the foodborne illness begin. The amount of time varies with the microorganism, how many were in the food, and the individual's physical condition. Many different harmful microorganisms produce the same symptoms including diarrhea, stomach cramping, nausea, and vomiting. Because symptoms are similar, a laboratory test and a trained health department official are necessary to identify the specific microorganism.

How do harmful microorganisms contaminate foods?

Harmful microorganisms may contaminate food

- During receiving
- During preparation and serving
- During preparation techniques such as cooking and cooling
- By cross-contamination of raw meat, poultry, seafood, or eggs with other foods
- From employees to food by unwashed hands, coughing, or sneezing
- From unsanitary facilities and equipment to people or food
- From disease-spreading pests, such as cockroaches, flies, and mice

How food is handled after it has been contaminated can make a big difference in whether the food will cause a foodborne illness. To control the growth of harmful microorganisms foodservice employees must control the conditions necessary for growth. All foodservice employees are responsible for handling every food according to guidelines

■ To prevent contamination, and

■ To prevent growth of microorganisms if the food should become contaminated.

Bacteria and other microorganisms in foodservice

Campylobacter: Most common foodborne illness in US. Most commonly associated with poultry (chicken, turkey, etc)**.** #1 cause of infectious diarrhea.

Cryptosporidium: Parasite. Fecal – oral route. Diarrhea – can last up to 7 days.

Salmonella: Associated with poultry, eggs, beef, dairy products and increasingly found in produce. Abdominal cramps, diarrhea, fever, vomiting. Can be deadly.

Shigella: Contaminated hands and water sources – fecal/oral transmission. Bloody diarrhea, abdominal cramps and severe pain. Can be deadly.

Clostridium: Associated with poultry and meat; mixed dishes like stews and those with meat gravies. Causes diarrhea and severe abdominal cramping. Grows VERY rapidly in temperature danger zone.

E. Coli: Raw or undercooked ground beef; contaminated produce. Diarrhea -> blood diarrhea, abdominal cramps. Only need a small amount to get sick from this.

Listeria: Grows well in cool, moist environments (like coolers!!). Associated with raw meats and ready-to-eat foods like soft cheeses, hot dogs and deli meats. #1 symptom is miscarriage. Can also cause sepsis, meningitis, and pneumonia.

Bacillis: Associated with cooked rice and other starches like potatoes and corn. Watery diarrhea, abdominal cramps, nausea and vomiting.

Botulism: Improperly canned foods / dented cans. Weakness, double vision, loss of consciousness. Death is likely without medical attention.

What are the main causes of a foodborne illness?

Knowing what can cause foodborne illness is the first step in preventing it. Foodborne illnesses are caused by one or more of the factors described below:

■ Poor personal hygiene

■ Abuse of the time-temperature relationship

■ Cross-contamination

Poor Personal Hygiene

To prevent foodborne illness, foodservice personnel must follow procedures for good personal hygiene. Everyone has bacteria on skin, hair, eyes, nose, mouth, and hands. Some bacteria cause foodborne illness. Foodservice personnel can contaminate food and food-contact surfaces and cause foodborne illness.

Poor personal hygiene can result in food contamination when

- An employee does not wash hands after using the restroom. Failure to wash hands properly after using the restroom presents a serious risk of contamination.
- An employee coughs or sneezes on food.
- An employee prepares food with an open sore or cut, touches the wound, and then touches food.

  Example: An employee burned her forearm and it became infected. While preparing sandwiches, she touches her open wound and then continues preparation of the sandwiches.

Abuse of the Time-Temperature Relationship

To prevent foodborne illness, it is important to control the time that food is in the temperature danger zone. The temperature danger zone is between 41° F and 140°F and refers to the internal temperature of food. Check with State or local public health departments for additional information on time and temperature abuse.

Time-temperature relationship problems occur because:

- Food is not stored, prepared, or held at required temperatures.

  Example: The holding cabinet in a cafeteria is not set to hold hot foods at 140 °F or above.
- Food is not cooked or reheated to temperatures high enough to kill harmful microorganisms.

  Example: Chili is not reheated to 165 °F or above for 15 seconds.
- Food is not cooled to low enough temperatures fast enough.

  Example: Hot turkey gravy is stored in a deep, one-gallon storage container and is not cooled properly, so the internal temperature of the gravy remains in the temperature danger zone too long for food safety.
- Food is prepared in advance of service and proper temperature control is not maintained.

Example: Spaghetti sauce is prepared for the next day and when it is removed from the refrigerator to be heated for service, the internal temperature is 60 °F.

IMPORTANT: Cooking food to a minimum temperature of 165° F may kill the microorganisms, but it will NOT kill the toxins they leave behind!

Cross-Contamination

To prevent foodborne illness, avoid transferring harmful microorganisms from a surface to food or from one food to another food. This is known as cross-contamination.

Cross-contamination can occur when:

■ An undercooked food is added to another food that is not cooked further.

Example: Undercooked scrambled eggs are added to an existing pan of scrambled eggs on a steam table.

■ A food-contact surface is not cleaned and sanitized as necessary for food safety.

Example: Before each use with a different type of raw animal food.

Example: Each time there is a change from working with raw foods to working with ready-to-eat (RTE) foods.

Example: Between uses with raw fruits and vegetables and with potentially hazardous foods.

■ Raw meat touches or drips fluids onto a prepared food.

Example: Storing raw meats in a refrigerator on a shelf above cooked or ready-to-eat foods.

■ A food employee's hands touch a food and then touch a prepared food that is ready-to-eat and will not be cooked.

Example: Washing potatoes and then immediately preparing lettuce salad without washing hands.

How can foodborne illness caused by microorganisms be prevented?

The three primary ways of preventing foodborne illness are listed below.

1. Practice good personal hygiene.
2. Control time and temperature of foods.
3. Prevent cross-contamination.

Practice Good Personal Hygiene

Every person who works in or around food has the potential of contaminating a food with bacteria and viruses that are present on our bodies. Not only are bacteria on our bodies, they are present on common items that we handle regularly, such as money, pens, phone handles, and doorknobs. These bacteria can easily spread to food. The personal hygiene, dress, and general good health habits of foodservice employees play a crucial role in keeping these bacteria away from the food they prepare and serve. Wearing gloves does not protect food from contamination unless the gloves are kept clean. If you wear gloves and touch the phone and then go right back to washing lettuce, you may have contaminated the lettuce because the gloves are dirty from the phone handle.

Good personal hygiene includes certain practices.

■ Bathe daily.

■ Shampoo hair frequently.

■ Wear freshly laundered work clothes or uniforms daily and change aprons after they become soiled.

■ Keep fingernails clean, trimmed, and unpolished. Best practice is not to wear fingernail polish, and NEVER wear artificial fingernails.

■ Treat and bandage wounds and sores. When hands are bandaged, clean single-use gloves should be worn at all times to protect the bandage and keep it from falling into food.

■ Wash hands correctly and often.

■ Wash hands before putting on gloves or changing into a new pair.

■ Change gloves each time a new task is begun.

Control Time and Temperature of Foods

Know the rules of time-temperature control.

The relationship between time and temperature is critical in the prevention of foodborne illness and the assurance of food quality.

Harmful microorganisms grow and multiply at temperatures between 41 °F and 140 °F, the temperature range referred to as ***the temperature danger zone****.*

Whenever a food is in the temperature danger zone too long, it can become unsafe. Food should not remain in the Temperature Danger Zone for more than four hours.

Best practice is to keep food at or below 41 °F or at 140 °F or above.

Temperature Danger Zone

■ The temperature danger zone is between 41 °F and 140 °F. Follow State and local public health department requirements.

■ During any point of the food production process when food could be in the temperature danger zone, the internal temperature must be documented. Follow State and local public health department recommendations to control time and temperature at each stage of food production.

It is the manager's responsibility to establish procedures for good personal hygiene and make sure that everyone follows them.

■ The time period when the food could be in the temperature danger zone includes the receiving process, storage, cooking, preparation, holding, serving, reheating, and cooling.

■ When heating or cooling foods, use procedures to pass them through the temperature danger zone as quickly as possible.

Chilling Food

For best practice, chill foods quickly to take them through the temperature danger zone rapidly.

Chill cooked hot food from 140 °F to 70 °F within 2 hours and from 70 °F to 41°F in an additional 4 hours for no more than a total cooling time of 6 hours. If the food has not reached 70 °F within 2 hours, it must be reheated immediately to 165 °F for 15 seconds.

Use the right tools to monitor and document the internal temperature of foods.

EXAMPLE:

Cold sandwiches are made and planned for service at a special Saturday meeting with parents and teachers. The sandwiches will be removed from cold temperature control at 11:30 a.m. and chilled on ice until all are consumed or until 1:30 p.m., whichever comes first. Temperatures are monitored and documented every 30 minutes. A foodservice employee will be on hand to serve the food and assure that the written procedures are followed.

It is easy for time in the temperature danger zone to add up quickly. For best practice, a foodservice operation should document temperatures and maintain written procedures. Follow State and local public health department recommendations to control time and temperature at each stage of food production.

Food Thermometers

Accurate food thermometers are the only tools that can judge the internal temperature of a food product. The length of time a food has been cooked or the appearance of a food is not a good indicator of safety and doneness.

The two most common types of food thermometers used to determine the internal temperature of foods are:

■ a bi-metallic stemmed thermometer with an instant-read dial that measures temperatures from 0 °F to 220 °F.

This type of thermometer is most commonly used in foodservice operations and is referred to as a food thermometer in this document. It should have an adjustable calibration nut and an easy-to-read temperature marking. A dimple marks the end of the sensing area.

> Every foodservice employee who is responsible for preparing or serving food should have easy access to a clean food thermometer and be taught to calibrate it and use it correctly.

■ a digital thermometer that measures temperature with a metal probe and displays the temperature on a digital readout.

This type of thermometer is available in various styles from a pocket-size up to a panel mounted display. Some digital thermometers have interchangeable temperature probes used to measure temperature of different items.

Determine the safe internal temperature when food is:

- Received (milk, produce, frozen food, etc.)
- In hot-holding cabinets
- Being cooked
- On the service line
- Cooled for later cold storage
- Leftover
- Reheated

Proper use of a food thermometer

■ Clean and sanitize the stem of the thermometer before and after every use.

■ After washing the stem, sanitize the stem with a sanitizing solution or a sanitizing wipe. Allow to air dry.

■ Store in a clean and sanitized case.

■ The clean case should be sanitized by immersing in a sanitizing solution.

■ For digital thermometers, remember to check and change batteries on a routine basis.

■ Measure the internal temperature of a food by inserting the stem of the thermometer into the center and thickest part of the food.

■ Insert the thermometer into the center of the food enough to cover the sensor.

■ Avoid pockets of fat in meat and don't touch bone.

■ Wait for the dial or digital indicator to stop (minimum 15 seconds) and then read the temperature.

■ Insert the thermometer again in a different part of the food for a second reading and a third time to confirm the internal temperature meets requirements.

■ Clean and sanitize the thermometer before inserting it into the next food.

■ Use the food thermometer to check the temperature of refrigerated foods during the receiving process. Refrigerated foods should be delivered at or below 41 °F

■ Packaged foods—Insert the thermometer in between two packages without puncturing the packages.

■ Milk—Open a carton and insert the thermometer at least two inches into the milk. If the milk meets temperature requirements, the milk can be used

■ Use a food thermometer to check the temperature of frozen foods if necessary. Insert the stem of the food thermometer between frozen packages. Frozen foods should be delivered frozen solid.

■ Calibrate the food thermometer on a routine basis. Teach employees how to calibrate a food thermometer and establish a routine of having each thermometer calibrated at the beginning of the workday. If a food thermometer is dropped, calibrate prior to using it to be sure the temperature reading is accurate.

How to calibrate a food thermometer

Use these methods to calibrate food thermometers.

Ice-Point Method

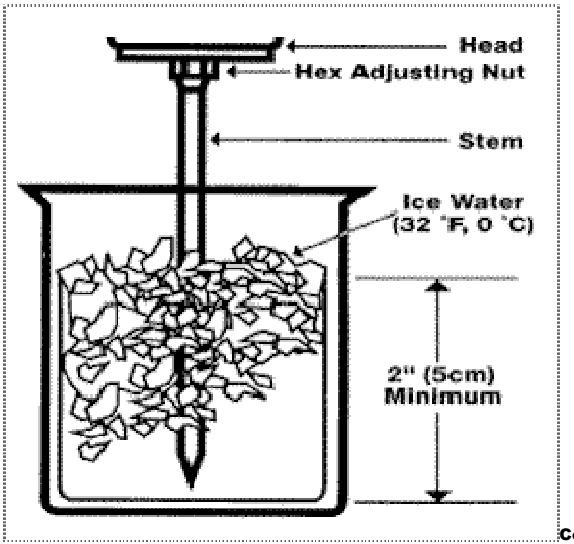
The ice-point method is used most often unless a thermometer cannot register a temperature of 32 °F (0 °C).

1. Fill a glass with crushed ice. Add water until the glass is full.

2. Place the thermometer in the center of the glass of ice water, not touching the bottom or sides of the glass.

3. Agitate the glass of ice water to assure even temperature distribution throughout. Wait until the indicator stops.

4. The temperature should register 32 °F. If it does not, adjust the calibration nut by holding it with pliers or a wrench and turning the face of the thermometer to read 32 °F. If using a digital thermometer replace the battery, or hit the reset button if available.



Courtesy of USDA Food Safety and Inspection Service

Boiling-Point Method

This method may be less reliable than the ice-point method because of variation due to high altitude. And it can be hazardous, so it is not as recommended as the ice-point method.

Use this method to calibrate food thermometers that do not go as low as 32 °F.

1. Using a deep pan, bring water to a boil.

2. Place the thermometer in the center of the boiling water, not touching the bottom or sides of the pan. Wait until the indicator stops.

3. The temperature should register 212 °F. If it does not, adjust the calibration nut by holding it with pliers or a wrench and turning the face of the thermometer to read 212 °F.

4. The boiling point of water is lower at high altitudes. For each 550 feet above sea level, the boiling point of water is 1 °F lower than the standard of 212 °F. For example, a kitchen located at 5,500 feet above sea level water would boil at 202 °F. The pointer on a dial food thermometer inserted into boiling water would need to be adjusted to the temperature 202 °F at the higher altitude of 5,500 feet.

Daily Temperature Form – Internal Food Temperatures

Before food is placed on the service line, it is recommended that the internal temperature be measured and documented to be sure that hot food is at or above the required internal temperature for the type of food product. Hot food placed in a holding cabinet or on the service line should be held at or above 140° F and cold food should be held at or below 41° F.

If food is held in a holding cabinet or on the service line more than 30 minutes, it is best practice to check and document the internal temperature every 30 minutes to be sure it is at the safe level. Some foodservice operations record the internal temperatures of food in holding cabinets or on the service lines on a temperature form that includes the name of food, time, and internal temperature.

Prevent Cross-Contamination

One of the most common causes of foodborne illness is cross-contamination, the transfer of bacteria from

- Hand to food,
- Food to food, or
- Equipment to food.

Microorganisms live throughout the kitchen and can easily move around by attaching themselves to people, food, and equipment. Cross-contamination can occur anywhere in a foodservice operation but can be prevented by physical barriers or by food safety procedures.

Hand-to-Food Cross-Contamination

Hand-to-food cross-contamination occurs when contaminated hands handle cooked or ready-to-eat foods. Bacteria are found throughout the body – on hair, skin, and clothing; in the mouth, nose, and throat; in the intestinal tract; and on open wounds, sores or scabs or scars. These bacteria often end up on the hands where they can easily spread to food.

People can also pick up bacteria by touching raw food and then handling cooked or ready-to-eat food.

How to Prevent Hand-to-Food Cross-contamination

Follow these guidelines to prevent hand-to-food cross-contamination:

- Wash hands properly, frequently, and at appropriate times.

■ Wash hands before putting on single-use gloves and change gloves frequently.

■ Cover cuts, sores, and wounds.

■ Keep fingernails short, unpolished and clean (absolutely no artificial nails).

■ Avoid wearing jewelry except for a plain ring, such as a wedding band.

■ Use prosthetic devices safely.

Wash hands properly, frequently, and at appropriate times.

Handwashing is one of the most critical aspects of good personal hygiene in foodservice.

Clean hands are necessary to prevent contamination of food during preparation and service.

When to Wash Hands

Wash hands whenever hands are soiled and before

- beginning food preparation,
- putting on disposable gloves, and
- serving customers.

Wash hands after

- arriving at work and after breaks;
- using the restroom and then again at the kitchen handwashing sink;
- eating, drinking, smoking, or chewing tobacco or gum;
- using the telephone;
- using a handkerchief or a tissue;
- handling inventory;
- handling raw food;
- touching or scratching areas of the body, such as ears, mouth, nose, or hair;
- coughing or sneezing;
- clearing or cleaning tables;
- clearing, scraping, or washing dirty plates or utensils;

- handling garbage;
- handling money on the cafeteria line;
- after touching dirty aprons, clothing, or dirty surfaces; and
- using cleaning chemicals.

Remember to post appropriate handwashing signs as required by State and local public health departments.

How to Wash Hands

- Use the handwashing sink with running water at a minimum 100 °F and liquid soap.
- Lather hands and exposed arms.
- Rub hands together for at least 15 seconds.
- Wash hands thoroughly, paying close attention to fingernails.
- Rinse in clean, running water. Turn off the faucet with the paper towels in your hands.
- Dry hands using a paper towel or air dryer, not a cloth or apron.

An easy way to determine if hands are rubbed and lathered for 20 seconds is to sing one verse of "Old McDonald."

Wash hands before putting on single-use gloves and change gloves frequently.

By using single-use gloves on clean hands, a barrier is placed between the food employee and the food. Gloves are only one kind of barrier; others include tongs and deli paper. Follow the regulations of the State and local public health department.

THE LAW: Federal and WI Food:
3-301.11: FOOD EMPLOYEES may not contact exposed, READY-TO-EAT FOOD with their bare hands and shall use suitable utensils such as deli tissue, spatulas, tongs, single-use gloves or dispensing equipment

How to use single-use gloves correctly

■ Wash and dry hands.

■ Put on clean gloves.

■ Use the gloves as if they were a serving utensil.

■ Change gloves if they become torn or soiled or if you begin working with a different food.

■ Never wash and re-use gloves.

Cover cuts, sores, and wounds.

Cuts, burns, or any kind of break in the skin could harbor harmful microorganisms that can contaminate food and cause a foodborne illness. Cover the wound with a clean impermeable bandage, and then place a clean single-use glove over the bandage. Some foodservice operations have a policy that anyone with an open wound cannot work with food until the injury completely heals.

Avoid wearing nail polish and artificial nails.

Fingernails should be kept short, unpolished, and clean. Both nail polish and artificial nails pose considerable danger around food and should not be worn by anyone handling food. The nail polish can harbor microorganisms between the nail and the polish and can also flake off in food. Nail polish can also mask dirty fingernails. Food employees should not wear any type of nail polish or nail ornament.

Artificial fingernails (fake nails, acrylic nails, press-on nails) **should not be worn** by anyone handling food. The artificial nail harbors bacteria and other microorganisms between the real nail and artificial nail. Furthermore, the nail can break off in food.

A kitchen is no place to wear jewelry. Follow State and local public health department or State Agency regulations for what jewelry can be worn when working with food. The Food Code states that food employees may not wear jewelry including medical information jewelry on their arms and hands. The only jewelry permitted is a plain ring, such as a wedding band. It is difficult to maintain clean hands when wearing rings because bacteria can hide on the finger underneath the ring and also in a ring setting. Foodservice is not the place to wear costume jewelry. Costume jewelry such as a ring, bracelet, or earrings can get caught in equipment and cause injury to the wearer.

Use prosthetic devices safely.

A food employee who wears a prosthetic arm or other device should follow the guidance of State and local public health office regulations to ensure that the device is used in a safe and sanitary manner.

Food-to-Food Cross-Contamination

Food-to-food cross-contamination happens when harmful microorganisms from one food, such as unwashed produce, contaminate other foods. Bacteria in raw meat and poultry can be spread to other foods, utensils, and surfaces. A common mistake is to leave thawing meat on a top shelf in the refrigerator where it can drip onto foods stored below.

How to Prevent Food-to-Food Cross-Contamination

■ Store cooked and ready-to-eat foods in the refrigerator on a higher shelf than raw foods.

Example: Store cooked spaghetti on a higher shelf than raw ground beef.

■ While the FDA Food Code does not prohibit mixing leftover food with fresh food in controlled situations, it is strongly recommended and best practice not to mix leftover food and fresh food to protect the quality, appearance, and potential safety of a food.

Example: Do not mix leftover tuna salad with a fresh batch of tuna salad.

■ Wash fresh fruits and vegetables in cold running water before peeling.

Example: Wash cantaloupes before removing the rind.

■ Wash all fresh produce that will be served whole, peeled, or cooked in cold, running water.

Example: Apples.

■ Do not let raw meat and raw fruits or vegetables be prepared on the same surface at the same time. The two foods should not contact each other.

Example: Do not clean or portion raw chicken on the same surface as lettuce.

Equipment-to-Food Cross-Contamination

Bacteria may pass from equipment to food when the equipment that has touched food has not been properly cleaned and sanitized before being used to prepare another food. For example, cross-contamination can occur when a meat slicer used for slicing deli meats is then used for slicing fresh tomatoes.

How to Prevent Equipment-to-Food Cross-contamination

■ Use separate cutting boards for different foods, such as meats and fresh fruits and vegetables. Cutting boards should be cleaned and sanitized after each use.

■ If possible, prepare raw foods in a separate area from fresh foods that will not be cooked. For example, designate a special work surface for raw meat preparation away from the work surface used for salads and desserts.

■ Clean and sanitize equipment, work surfaces, and utensils after preparing each food.

■ Use specific containers for various types of food products. Clearly label the containers with contents and date. For example, designate specific containers for thawing raw chicken, meat salad, and grated cheese.

■ If cleaning cloths are permitted for use by the State sanitation code, follow guidelines for use and maintenance in a sanitizing solution. Make sure cloths or towels used for wiping spills are not used for any other purpose. Cleaning cloths should be rinsed after each use and stored in a clean sanitizing solution.

■ Wash and sanitize the can opener on a regular schedule every day.

■ Clean and sanitize food preparation equipment such as the food slicer after each use.

For example, clean and sanitize the slicer after slicing ham for sandwiches.

■ Never re-use single-use containers, such as old mayonnaise jars or single-use plastic containers (such as large yogurt or frozen whipped topping containers).

■ Never re-use plastic wrap or aluminum foil; throw it away after one use.

■ Touch dishes, trays, flatware, glasses, or serving utensils by contacting only the outside surface; never touch the surface where food will be placed or where a person's mouth will touch.

■ When a new pan of food is added to the steam table, use a clean, sanitized utensil, not the utensil used in the previous pan.

Sanitize wiping cloths during and in-between use so they will not be a source of cross-contamination.

A wiping cloth that has been used to clean a surface where raw food has been prepared can easily carry bacteria to other areas, including to cooked food. A good rule is to store wiping cloths in a clean, sanitizing solution when not in use. Remember to check sanitizing solution concentration at different intervals during the day. Follow State and local public health department regulations for use and concentration levels of sanitizing solutions. Follow manufacturer's label directions for correct mixing procedures, storage, and specific first aid information.

This section answered the question, "How can foodborne illness caused by microorganisms be prevented?" Prevent foodborne illness by

- practicing good personal hygiene,
- controlling time and temperature of foods, and
- preventing cross-contamination.

What are the responsibilities of the foodservice manager, employees, and volunteers?

Everyone in the foodservice operation plays an important role in the prevention of foodborne illness. Like any other aspect of a job, more knowledge helps prevent problems.

Responsibilities of the Foodservice Manager

The foodservice manager is responsible for

■ knowing and implementing the State and local public health department regulations regarding food sanitation and safety;

■ solving problems of noncompliance cited on sanitation inspections;

■ maintaining up-to-date knowledge regarding food safety and sanitation;

■ training and coaching employees regarding food safety; and

■ holding employees responsible for following food safety requirements and guidelines.

The foodservice manager should use available resources to learn more about preventing foodborne illness. There are many excellent resources in addition to this book.

Responsibilities of Foodservice Employees and Volunteers

Foodservice employees and volunteers are responsible for

■ learning about food safety, and

■ following food safety requirements and guidelines.

Food safety is everyone's responsibility. A foodborne illness can occur in any foodservice facility when food safety requirements and guidelines are not followed.

How should the foodservice manager respond if symptoms of foodborne illness are reported to the foodservice?

The manager is responsible for responding correctly and demonstrating leadership in this emergency situation. It is important to know and follow State and local public health department and agency guidelines. General guidelines are described below.

General Guidelines for the Foodservice Manager When Foodborne Illness is Suspected

Follow your agency guidelines and cooperate with State and local officials. The general guidelines described below will be helpful in handling any emergency.

1. Keep your cool and cooperate with the health department. Keep a level head; do not panic. There are many reasons that participants may not be feeling well other than eating food from the foodservice operation. Remaining calm will help you respond rationally and systematically to the situation and may help keep everyone involved from overreacting.

2. Talk with your supervisor immediately for additional guidance. To honor confidentiality, avoid panic and "sympathy symptoms," ask other staff not to discuss the problem with other participants.

3. Stop serving the suspect food. If you have an idea which food may have caused a foodborne illness, stop serving it or using it as an ingredient.

4. Keep samples of suspect foods in the original containers, in clean containers that have been boiled, or in unused plastic bags. Store the samples of suspect foods in the refrigerator until the health agency evaluates the epidemiological evidence and, if necessary, makes further arrangements to get samples. At least a cup, or whatever food is remaining must be kept. Having samples of food could help determine the cause of a foodborne illness and could also help determine that the illness was not caused by food from your operation.

Securely wrap samples of the suspect foods in containers using a heavy plastic bag. Label the bag with contents and date, mark "DO NOT USE AND DO NOT DISCARD," and, store where it will not be mistaken for edible food.

If possible, save the container, box or case, wrapping, and metal clips used on the original packaging. Save the food label and invoice to help locate the vendor who supplied the suspect foods.

5. Cooperate with the health department to gather information. Follow directions from the local health department. Health professionals may ask you to gather information about the foods that were served and how they were handled.

Gather information from your own kitchen. Determine the foods on the menu and any other foods that were served but were not on the written menu. Have available the daily production record and the temperature forms.

Determine how the foods were handled before and during preparation. Have available the Storage Temperature Forms from the freezer and refrigerator to document storage temperatures.

Ask employees how long the foods were in the preparation process. Have documentation available. Were the suspect foods prepared and then refrigerated or heated quickly as necessary to keep foods out of the temperature danger zone? How were internal temperatures monitored?

6. Report the information you were asked to assemble. Report all the information you have gathered to your supervisor or other person in charge, regardless of whether or not it is a good report.

If you have found a particular area that could have caused a foodborne illness, alert your supervisor to the potential problem.

If a problem has been identified, you or your supervisor should report this to the local health department. If more than two persons (non-related) who ate a common food report being ill at the same time, it should be reported to the health authorities (local health department).

7. Only health professionals should give medical advice. If a foodborne outbreak is suspected, cooperate with the health department and health professionals. Take every report of possible foodborne illness seriously, and follow the appropriate steps. Be careful not to diagnose, interpret symptoms, or suggest treatments.

8. Direct all media inquiries to the appropriate designated agency representative.

SECTION 2 SUMMARY

"Prevent Foodborne Illness -Understanding Microorganisms," describes how consuming a food or beverage contaminated with harmful microorganisms causes foodborne illness. The main causes of foodborne illness include poor personal hygiene, allowing food to remain in the temperature danger zone too long, and cross-contamination. To prevent foodborne illness every foodservice operation should establish procedures to ensure safe food and make sure everyone follows them. Foodservice employees should wash hands properly, frequently, and at the appropriate times. Understanding the time and temperature relationship helps to implement procedures to reduce microorganism growth. Chill hot foods rapidly. Use a food thermometer to determine the internal temperature of food at every stage of the foodservice process: receiving, storage, preparation, cooking, holding, serving, reheating, and chilling.

Document internal temperatures of cold and hot foods and calibrate thermometers often. Remember to check sanitizing solution concentration at different intervals during the day. Follow State and local public health department regulations for the concentration level and use of sanitizing solutions. Follow the manufacturer's label directions for correct mixing procedures, storage, and specific first aid information.

SECTION 3: A Clean and Sanitary Foodservice

How can food safety be promoted through personal hygiene and work attire?

Every person who works in the foodservice facility is responsible for having good personal hygiene and clean work attire. This is important for the manager, cooks, servers, dishwashers, and volunteers. Full-time and part-time employees are equally responsible for food safety. In fact, food safety begins with each person.

Know Why Personal Hygiene and Work Attire Are Important

Bacteria are present on and in human bodies—hands, hair, throat, and intestines. They are also on clothing and on common items that are handled regularly, such as money, pens, and pencils. The simple act of patting one's hair or rubbing one's ear can contaminate hands with staphylococci bacteria and, if not washed, hands can contaminate a food and cause foodborne illness. Anyone can contaminate food with a harmful microorganism and not even know it! The personal hygiene, attire, and general health habits of foodservice employees play a crucial role in keeping harmful microorganisms away from the food.

A foodservice employee can contaminate food by hands

- after touching anything that could contaminate hands.
- by being sick with a stomach or intestinal "bug" that includes vomiting and/or diarrhea or other symptoms.
- after caring for a person with a stomach or intestinal "bug."
- by having an infected burn, wound, or other injury, and not covering it properly.
- when taking prescribed or over-the-counter medicines (the medicine can get into the food or on hands).

A person who feels completely healthy may be the host of a harmful microorganism and not know it. Some foodborne illnesses do not cause symptoms until the most infectious stage has passed (Hepatitis A), and some harmful organisms remain in a person's body after the symptoms have disappeared (Salmonella bacteria).

Dress for Food Safety Success

An important part of good personal hygiene is clean and appropriate dress. Every foodservice employee should wear a uniform made of a material that can withstand hot water during laundering.

It is important to

■ wear a clean, appropriate uniform every day. Change uniforms as often as necessary to prevent bacteria on soiled clothing from spreading to the hands and then to food.

■ wear a clean apron when preparing food and take it off when leaving the food preparation area. An apron should be removed to go on break, eat lunch, smoke, or use the restroom.

■ change an apron if it becomes soiled.

■ avoid wearing jewelry other than a plain ring, such as a wedding band, when preparing or serving food. For the use of medical information jewelry follow the recommendations from the State or local public health department.

■ wear a hair restraint to keep hair and particles in the hair from falling into food.

■ wear comfortable, low-heeled, closed-toe shoes with soles that prevent slipping.

Use Common Sense As A Guide When Working With Food

Guidelines for Foodservice Employees Working With or Near Food

■ Know when and how to wash hands; avoid using a food preparation sink or a three-compartment sink to wash hands.

■ Taste food the correct way. Place a small amount of food from the food container into a small cup or bowl, step away from the original food container, and taste the food with a teaspoon.

Remove the used bowl and teaspoon to the dish room. Never reuse a bowl or spoon already used for tasting. Wash hands immediately after tasting.

■ Never taste a food that includes a raw ingredient of animal origin. For example, never taste cookie dough that includes raw eggs.

■ Follow the foodservice rules for when to eat, smoke, and chew gum. Do not eat, smoke, chew gum, or use tobacco when preparing foods.

■ When feeling ill, alert the foodservice manager and avoid working with food.

■ Do not work with food when experiencing nausea, vomiting, diarrhea, fever, a sore throat, or jaundice (yellow skin and eyes), or after caring for someone at home with those symptoms.

■ Do not work with food after being diagnosed with a foodborne illness.

Washing hands correctly and frequently is one of the most important ways that foodservice employees can promote food safety.

The manager should not allow foodservice employees to work with or around food if they have any of the following symptoms: fever; diarrhea; vomiting; sore throat; jaundice (yellow skin and eyes); and persistent sneezing, coughing, or runny nose. The Food Code explains that the foodservice manager must exclude from the establishment any food employee who has been diagnosed with illness due to Salmonella Typhi, Shigella spp., Shiga toxin-producing E. coli, or Hepatitis A virus, and must notify the local regulatory agency.

How can a food-safe facility be operated?

A food-safe foodservice begins with a facility that is clean and in good repair. The entire facility – including both work areas and equipment – should be designed for easy cleaning and maintenance.

It is important to eliminate hard-to-clean work areas as well as faulty or overloaded refrigerators or other equipment. Also, get rid of dirty surroundings and any conditions that will attract bugs or other pests. Remember – the easier the workplace is to clean, the more likely it will stay that way.

Know the Characteristics of a Food-safe Facility

■ It is designed for easy cleaning and maintenance. The workflow prevents clean and soiled items from crossing paths during food production and service.

■ The floors, walls, and ceilings are free of dirt, litter, and moisture.

■ The service line and serving stations are clean and neat.

■ The exhaust fans and hoods are clean and operating properly.

■ All types of storage areas – the dry storage room, the refrigerators, and the freezers – are in excellent condition. There is NO damage or spoilage, NO broken or torn packages, and NO bulging or leaking cans. Floors are clean, dry, and uncluttered.

■ Cleaning supplies and chemicals are stored AWAY from food supply areas. Measuring utensils used for chemicals are stored with the chemical and are never used with or near food.

■ Restrooms are convenient, clean, adequately stocked with soap and paper towels, and have warm running water.

■ Garbage is kept away from food preparation areas.

■ Garbage containers are leak-proof, waterproof, pest-proof, durable, easy to clean and sanitize, and have tight-fitting lids.

■ Spills are cleaned immediately.

■ Garbage is disposed of properly and promptly.

■ There is no evidence of infestation from bugs or other pests.

A food-safe facility has scheduled procedures for cleaning and maintaining

- floors, walls, and ceilings;
- service lines and dispensers;
- ventilation;
- restrooms;
- trash collection areas; and
- pest control.

Maintain Clean Floors, Walls, and Ceilings

Establish routine cleaning procedures for walls, floors, and ceilings. The facility should be free of dirt, litter, and moisture. Corners and hard-to-reach places should also have routine cleaning.

■ Clean walls around food preparation and cooking areas daily with a cleaning solution or by spraying with a pressure nozzle.

■ Sweep and mop floors daily, use a grease cutting mop water solution – not just regular detergent. Mark the area being cleaned with signs or safety cones to prevent an accident. Avoid creating dust or water splashes during food preparation times. Set aside a routine cleaning time after the main hours of food preparation. Spills should be cleaned immediately.

■ Swab ceilings – instead of spraying them – to avoid soaking lights and ceiling fans, and to avoid dripping onto food or surfaces. Clean light fixtures with a sponge or cloth. Establish a routine cleaning schedule based on the needs of the foodservice.

Maintain a Clean and Sanitary Service Line and Serving Stations

Establish a routine daily cleaning schedule for the service lines and serving stations.

■ Assign an employee to set up and maintain each service line or serving station for each meal service.

■ Clean and sanitize the hot and cold wells of the service line after every meal.

■ Clean and sanitize dispensers, such as beverage dispensers or coffee machines after every use. Follow equipment cleaning guidelines.

■ Clean and sanitize milk coolers. Follow equipment cleaning guidelines.

■ Clean up spills immediately.

Maintain Good Ventilation

Good ventilation is a critical factor in maintaining a clean foodservice environment. Ventilation removes steam, smoke, grease, and heat from food

preparation areas and equipment, helps maintain indoor air quality, and reduces the possibility of fires from accumulated grease.

Good ventilation eliminates condensation and other airborne contaminants. It also

- reduces the accumulation of dirt in the food preparation area;
- reduces odors, gases, and fumes; and
- reduces mold growth by reducing humidity.

To promote good ventilation, be sure to

- use exhaust fans to remove odors and smoke.
- use hoods over cooking areas and dishwashing equipment.
- check exhaust fans and hoods regularly to make sure they are clean and operating properly.
- clean hood filters routinely according to the instructions provided by the hood manufacturer.

Maintain Clean Employee Restrooms

Restrooms should be convenient, sanitary, and adequately stocked with the following:

- warm water at 100 °F for hand washing;
- liquid soap;
- nail brush (Follow State and local public health department recommendations);
- disposable paper towels and/or air blowers;
- toilet paper; and
- covered trash container that opens with a foot pedal.

Clean restrooms daily and keep the doors closed. Remove trash daily.

Maintain Clean and Neat Trash Collection Areas

- Garbage must be kept away from food preparation areas. It should not be allowed to accumulate anywhere except in designated garbage storage areas.
- Garbage containers must be leak-proof, waterproof, pest-proof, durable, and easy to clean and sanitize.
- Garbage containers should be cleaned and sanitized frequently and thoroughly, inside and out.
- Trash receptacles should be emptied often so garbage does not overflow from containers.

Maintain an Effective Pest Control Program

Cleanliness and good maintenance are keys to preventing pest infestation. By its nature, the foodservice environment is prone to problems with bugs and other pests. Pests may be brought in when food and other supplies are delivered, or they may enter the building through gaps in floors or walls. Prevention is critical in pest control.

■ Have an ongoing pest prevention program and regular pest control by a licensed pest control operator. This is best practice for every institutional foodservice operation.

■ Keep pests out by doing the following:

1. Fill openings or cracks in walls and floors with cement patch, putty, spackle or a similar product.
2. Fill openings around pipes or equipment fittings.
3. Screen all windows, doors, and outer openings, and keep them in good repair.
4. Use self-closing doors that open outward.
5. Inspect food supplies before storing or using them.
6. Keep food only in labeled containers approved for food storage. These containers should have tight-fitting lids.
7. Do not store food or containers directly on the floor.
8. Remove and destroy any food that is infested.
9. Maintain proper temperatures in storage areas.
10. Clean grease traps regularly to prevent a grease build-up that could cause a drain blockage. Drain blockage could lead to overflow which causes an unpleasant odor, contamination, and attracts pests.
11. Install an air door at food service entrances to prevent bugs from flying in.

In the event of infestation, the foodservice manager should alert the licensed pest control operator so immediate steps can be taken to eliminate the pests.

What kinds of pests are seen most often in a foodservice facility?

In a foodservice environment, the three most common pests are cockroaches, flies, and rodents.

Cockroaches live and breed in holes, damp places, behind boxes, in seams of bags, and in folds of paper. They like any place that is dark, warm, moist, and hard to clean.

Cockroaches' hairy legs are full of debris and disease-causing organisms such as bacteria, fungi, parasite eggs, and viruses. One female cockroach produces millions of offspring in her lifetime.

Since cockroaches generally search for food at night, seeing one in the daytime is a sign of a major infestation. Other signs of infestation include

- a strong, oily odor,
- feces that look like large grains of pepper, and
- brown, dark brown, dark red, or black capsule-shaped egg cases.

Flies feed on human and animal wastes and garbage and can transport a wide range of foodborne illnesses. They can enter a building through holes the size of a pinhead and can contaminate food with their mouth, footpads, hair, or feces. One female can produce thousands of offspring in one breeding season.

Flies are attracted to places protected from the wind and to edges such as garbage can rims. They lay their eggs in warm decaying material protected from sunlight and are fond of human waste areas. In warm summer weather, flies can mature from larvae to adults in only 6 days.

Rodents carry many disease-causing organisms and parasites. In fact, one fecal dropping from a rat can contain several million bacteria. When rodents leave feces, urine, and other filth on food products and around the facility, these organisms can be easily transmitted to people.

Rodents are prolific breeders, producing as many as 50 offspring in a span of 1 year. They tend to hide during the day, but can be spotted by telltale signs. These signs include the following:

- droppings;
- gnawing;
- tracks on dusty surfaces;
- nesting materials; and
- holes in baseboards, wall board, and in other wood.

How should smallware be cleaned and sanitized?

Smallware is a collective term used to include dishes, flatware, preparation and serving utensils, measuring devices, cooking pots and pans, and small equipment that can be moved to the three - compartment sink or dishwasher for cleaning and sanitizing. Follow State public health department regulations on how to clean and sanitize smallware. The information below is general guidance.

All surfaces that come in contact with food must be clean and sanitized. To clean a surface means to remove visible food particles—what can be seen on the surface. To sanitize a surface means to use either a chemical or heat to reduce the number of microorganisms or other contaminants to a level that is not harmful. The first step is cleaning; the second step is sanitizing.

Select from Two Methods of Sanitizing

1. **Chemical sanitizing** can be accomplished by immersing an object in, or wiping it down with, a sanitizing solution and allowing the solution to remain in contact with the surface for a specified amount of time. Use only EPA-approved (Environmental Protection Agency) chemical sanitizers for food-contact surfaces. Household bleach can be used as a sanitizer only if the label indicates it is EPA registered. Mix, test, and use the sanitizing solution as recommended by the State and local public health department. Refer to the manufacturer's directions for specific mixing, storing, and first aid instructions.

USE A SANITIZER TEST KIT

A test kit designed for a specific sanitizer should be used to check the concentration of the sanitizing solution. A foodservice supplier who sells sanitizers will likely have the test kits for each type of sanitizer. Mix, use, and test the sanitizing solution as recommended by the State and local public health department. Refer to the manufacturer's directions for specific mixing, storing, and first aid instructions. When a sanitizing solution is exposed to air, detergent, and food particles, the solution becomes less effective. Sanitizing solutions should be tested frequently.

The three most common chemical sanitizers are:

■ Chlorine – This sanitizer is the most commonly used and is the cheapest. It is effective in hard water, but is inactivated by hot water above 120 °F. Chlorine bleach solutions must be tested regularly and changed as necessary to ensure that the solution is working to sanitize. Using too much chlorine in a solution can pit stainless steel and aluminum surfaces, while using too little will not sanitize the surface.

Chlorine Sanitizing Solution for Equipment,

Food-Contact Surfaces, and Utensils

Rule-of-thumb mixtures for chlorine sanitizing solutions

50 PPM solution for immersion: 1 tablespoon (1/2 fluid ounce) 5% chlorine commercial bleach mixed with *four gallons* of water. The solution should be in contact with the surface to be sanitized for seven seconds at temperatures between 75 °F and 115 °F. Be aware that very hot water may prevent chlorine bleach from sanitizing. This sanitizing solution can be used to sanitize a food thermometer after every use.

100 PPM solution: 1 tablespoon (1/2 fluid ounce) 5% chlorine commercial bleach mixed with *two gallons* of water

200 PPM solution: 1 tablespoon (1/2 fluid ounce) 5% chlorine commercial bleach mixed with *one gallon* of water

■ Iodine – Iodine is more expensive and less effective than chlorine. However, an iodine sanitizing solution is not as quickly inactivated by food particles as a chlorine solution.

■ Quaternary ammonium compounds (Quats) – The sanitizer is not as quickly inactivated by food particles as a chlorine solution, is non-corrosive to metal surfaces, and nonirritating to skin. It leaves a film on surfaces and does not kill certain types of microorganisms.

2. **Heat sanitizing** involves exposing equipment to high heat for an adequate length of time.

This may be done manually by immersing equipment into water maintained at a temperature of 171 °F to 195 °F for at least 30 seconds. In a dishwashing machine,

a good rule of thumb is to wash at 165 °F and rinse at 180 °F. But remember, temperature may vary depending on the type of machine used and requirements of the State and local public health department.

Thermometers and heat-sensitive tapes and labels are available for determining whether adequate sanitation temperatures have been achieved.

Sanitize Smallware in a Three-Compartment Sink

■ To properly clean and sanitize smallware, the kitchen must have a sink with at least three separate compartments for manually cleaning, rinsing, and sanitizing, or a mechanical dishwasher that functions properly.

■ There should be a separate area for scraping and rinsing food and debris into a garbage container or disposal before washing and a separate drain board for clean and soiled items.

Manually Sanitize Smallware in a Three-Compartment Sink

STEP 1: Clean and sanitize sinks that will be used for washing and sanitizing smallware.

STEP 2: Scrape and rinse food into garbage container or disposal. Pre-soak items, such as flatware, as necessary. Then…

In the first sink, immerse and Wash the smallware in a clean detergent solution at 110 ºF or the temperature specified on the cleaning agent manufacturer's label instructions. Use a brush or a cloth to loosen and remove any remaining visible food particles.

In the second sink, Rinse using clear, clean hot water (110 °F) to remove all traces of food, debris, and detergent.

In the third sink, Sanitize.

CHEMICAL: Immerse the clean items in a chemical sanitizing solution at the appropriate temperature for the correct amount of time. Be sure all surfaces of the clean items are covered with hot water or the sanitizing solution. Follow manufacturer's label directions for mixing the sanitizing solution and using the required contact time for sanitizing. Check the concentration of the chemical sanitizer at regular intervals using a test kit.

Be aware that hot water inactivates some chemical sanitizers, so read and correctly follow the manufacturer's directions for using the chemical. Always read the Material Safety Data Sheet before using a chemical.

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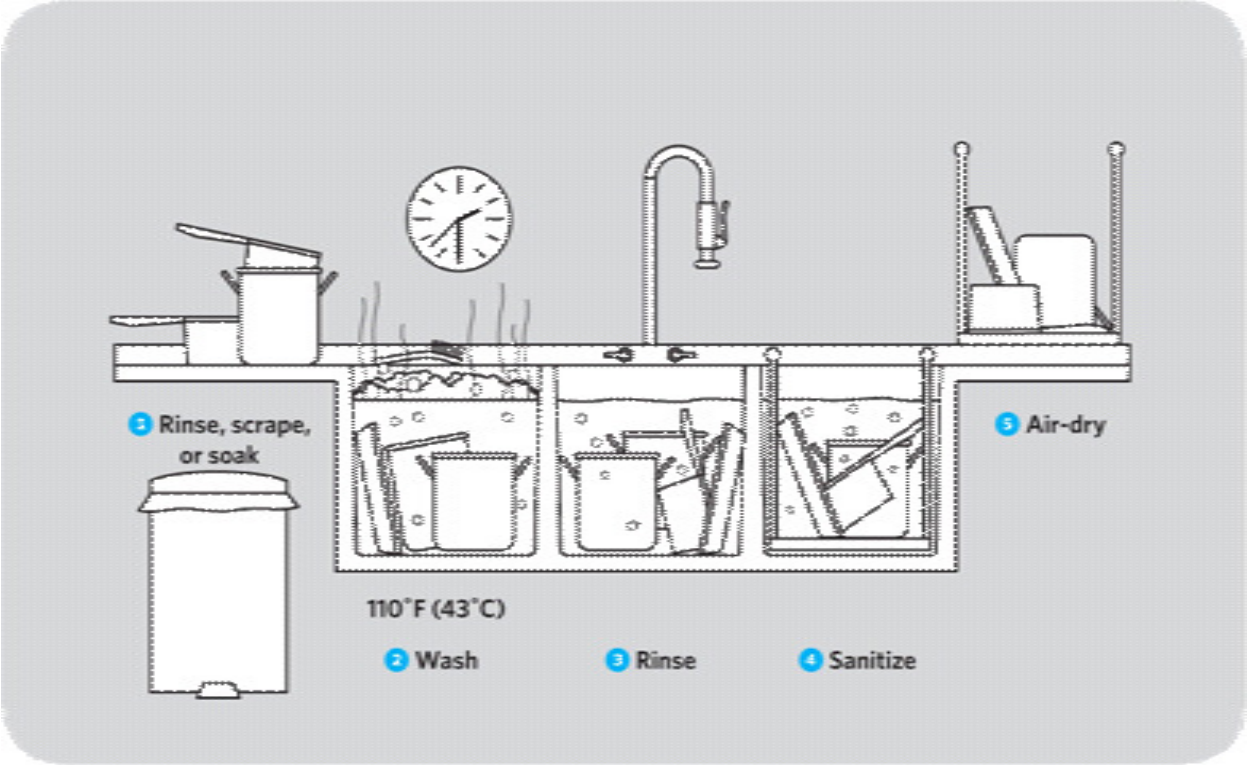
or

HEAT: Immerse clean items in hot water at 171 °F to 195 °F for at least 30 seconds. Some State public health department codes require a temperature of 180 °F.

While you wash, rinse, and sanitize . . . If soapsuds disappear in the first compartment or remain in the second, the water temperature cools, or water in any compartment becomes dirty with food particles or cloudy from grease, empty the compartment and refill it.

STEP 3: Air dry all items on a drain board. Wiping can re-contaminate equipment and can remove the sanitizing solution from the surfaces before it has finished working.

STEP 4: Store. Make certain all smallware is dry in order to avoid retaining moisture that fosters bacterial growth.



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Sanitize Smallware in a Mechanical Dishwasher

When sanitizing smallware (dishes, trays, flatware, glasses) in a dishwasher, follow the manufacturer's procedures. Check the temperature of the water in the wash and rinse cycle.

Wash at 165 °F

Rinse at 180 °F

The temperature may very depending on the type of dishwashing machine used and requirements of the State and local public health department.

Check Dishwasher Temperatures

Although dishwashers have temperature gauges for each compartment, it is useful to confirm that the gauge is accurate using another type of thermometer. There are two types of thermometers that can be used to confirm the accuracy of dishwasher thermometer gauges.

- Waterproof maximum/minimum-registering thermometer
- Self-adhering temperature-sensitive label

A waterproof maximum/minimum-registering thermometer is a type of thermometer that is placed in a dish rack to go through the dishwasher cycle with soiled trays and flatware. It is set to capture and record the highest temperature of the cycle to confirm that the required temperature is reached in a sanitizing rinse cycle.

Another tool for checking the temperature is a self-adhering temperature-sensitive label. This type of sensor attaches to the surface of a clean dish/tray and changes color to record the dishware surface temperature during dishwashing. Labels are available for various temperatures. For example, to determine whether the temperature in the final sanitizing rinse of a dishwasher reaches 180 °F, a single temperature 180 °F label could be attached to a clean tray to go through the cycle. When the temperature has been reached, the label changes color. The label can be removed from the tray at the end of the dishwasher cycle and placed in a log to document temperature.

Before using or purchasing either of these types of thermometers to confirm the temperature in a dishwasher, check with the State and local public health department on what is recommended. Be knowledgeable about the correct use of each thermometer to decide which one best meets the needs of the foodservice operation.

How should large equipment be cleaned and sanitized?

To keep large or in-place equipment free of harmful levels of bacteria or other contaminants, it is necessary to clean and sanitize all surfaces that will come into contact with food. This is especially important after any possible contamination such as slicing a deli meat on a slicer or mixing a meat salad in a mixer.

Wash, rinse, and sanitize tables, stoves, sinks, slicers, choppers, mixers, and large cooking utensils after each use. This rule also applies to equipment used to clean other food-contact surfaces.

Scrub surfaces, such as cutting boards, with a detergent solution and a stiff-bristled nylon brush. Then rinse in clear, clean water, and sanitize solution after every use. For the use and care of wooden cutting boards, surfaces, or utensils, follow State and local public health department recommendations. Synthetic cutting boards can be sanitized in a three-compartment sink or in a dishwasher, depending on their size. Follow State and local public health department recommendations.

Use the Chemical Method to Sanitize Equipment

Using Sanitizer—Immerse wares or wipe surfaces down with commercial sanitizer. Follow manufacturer's label instructions for mixing and using the sanitizer. Use a test kit to test for correct concentration. Always read the Material Safety Data Sheet before using a chemical.

Follow the Steps to Sanitize In-Place Equipment

Read and follow the manufacturer's directions for cleaning and sanitizing the piece of equipment. Follow the general steps described below.

STEP 1: Unplug electrically powered equipment, such as meat slicers and mixers.

STEP 2: Remove loose food particles and scraps.

STEP 3: Wash, rinse, and sanitize any removable parts using the manual immersion method.

STEP 4: Wash the remaining food-contact surfaces and rinse with clean water. Wipe down with a chemical sanitizing solution mixed according to the manufacturer's directions and let air dry.

STEP 5: Clean surfaces that do not come in contact with food using a clean wiping cloth. Allow all parts to air dry before reassembling. Clean the wiping cloth before and during use by rinsing it in a sanitizing solution.

STEP 6: Re-sanitize the external food-contact surfaces of the parts that were handled when the equipment was reassembled.

CAUTION: All equipment should be kept clean and sanitized. Although some equipment is not used for food preparation, all equipment that has any contact with food should be cleaned and sanitized on a routine basis. Follow manufacturer's directions to clean and sanitize proof cabinets, shelf racks, dish dollies, dish and tray dispensers, pan racks, bakery racks, food holding equipment, equipment used to transport foods, and ice machines.

Who is responsible for food safety?

Food safety is everybody's business. This chapter has presented guidelines for maintaining a safe environment for food preparation and service. To have a safe environment for food preparation and service, every person in foodservice must be committed to high standards of sanitation.

Manager's Responsibilities

■ Know requirements for maintaining a sanitary foodservice.

■ Use a daily, weekly and monthly cleaning schedule to assign routine cleaning tasks.

■ Establish standard procedures for cleaning specific areas of the

foodservice facility such as the restroom, storeroom, refrigerators and freezers, preparation area, dining area, and service line.

■ Teach and coach employees on how to maintain a sanitary foodservice.

■ Hold employees responsible for cleaning and sanitizing assigned areas using the procedures that have been established.

■ Have routine inspections to ensure that sanitation standards are met. Use an inspection form developed specifically for the foodservice organization.

■ Take pride in operating a clean and food-safe foodservice.

Employee and Volunteer Responsibilities

■ Follow standard procedures for cleaning and sanitizing specific areas of the foodservice facility.

■ Ask the manager for help as needed to know how to clean and sanitize assigned areas.

■ Take pride in operating a clean and sanitary foodservice.

SECTION 3 SUMMARY

"A Clean and Sanitary Foodservice," describes how to operate a food-safe operation. Food safety begins with the foodservice personnel who demonstrate good personal hygiene habits. A food-safe operation has procedures for cleaning and maintaining floors, walls, and ceilings; service lines and dispensers; ventilation; restrooms; and trash collection areas. An effective pest control program is necessary for cleanliness and maintenance of a safe operation. The foodservice must have procedures for cleaning and sanitizing smallware and large equipment. A test kit designed for a specific sanitizer should be used to check the concentration of the sanitizing solution. A foodservice supplier who sells sanitizers will likely have the test kits for each type of sanitizer. Mix, use, and test the sanitizing solution as recommended by the State and local public health department. Refer to the manufacturer's directions for specific mixing, storing, and first aid instructions. When a sanitizing solution is exposed to air, detergent, and food particles, the solution becomes less effective. Sanitizing solutions should be tested frequently. The manager and employees share responsibilities for knowing and using standard procedures for a clean and sanitary foodservice.

SECTION 4: A Process for Preventing Foodborne Illness

How can foodborne illness be prevented in the eight steps of the foodservice process?

The foodservice manager and employees should understand what needs be done at each step of the foodservice process to keep food safe. This chapter explains how each step of the foodservice process affects food safety and provides guidelines for insuring food safety in that step. The guidelines can be used to implement a food safety program in each step of the process. Always follow State and local public health department regulations and the policies and procedures of the State and local agency.

Eight steps of the foodservice process

1. Purchasing
2. Receiving
3. Storing
4. Preparing
5. Cooking
6. Holding and serving
7. Cooling
8. Reheating

STEP 1: PURCHASING

Know How Purchasing Affects Food Safety

The goal of purchasing is to obtain wholesome, safe foods to meet menu requirements. Safety in this step is primarily the responsibility of the food vendors. It is the job of the person responsible for purchasing to choose the vendors wisely.

Follow Food Safety Guidelines for Purchasing

<u>Guidelines for the Vendor</u>

- Meet Federal and State health standards.
- Use a standardized procedure for food sanitation in the operations.
- Train employees in sanitation.
- Have clean delivery trucks with adequate refrigeration and freezer units.
- Deliver foods packaged in protective, leak-proof, durable packaging.
- Deliver foods at the correct temperatures.
- Organize deliveries to separate raw products from processed foods and produce.

■ Provide a written policy/procedure on handling returns/recalls related to food safety upon request.

Guidelines for the Purchaser

■ Work with the vendor to establish a food delivery schedule for each site.

■ Tell the vendor what is expected.

■ Request the vendor to provide a print copy of the standardized procedure for food sanitation to ensure the safety of the products they sell.

■ Include food safety standards in the purchase specification agreement.

■ Request a copy of the vendor's most recent health sanitation report.

■ Inform the vendor that the purchaser will conduct unannounced sanitation inspections of trucks. Good vendors will cooperate with inspections and should adjust their delivery schedules to avoid busy periods so that incoming foods can be received and inspected properly.

■ Visit the warehouse periodically, if possible, to see that it is clean and organized.

■ Reject all products that do not meet requirements.

STEP 2: RECEIVING

Know How Receiving Affects Food Safety

The goals of receiving are

■ to make sure foods are fresh and safe when they enter the foodservice operation.

■ to transfer foods to proper storage as quickly as possible.

Follow Food Safety Guidelines for Receiving

Train employees for receiving duties.

■ Train one or more employees to follow the established receiving procedures. The person who receives a food delivery is responsible for controlling the quality and the safety of the foods that are accepted. To insure food safety and food quality, employees who are responsible for receiving deliveries must be trained to accept only the products that meet specifications, quality standards, and sanitation requirements.

Organize the physical space used for receiving.

■ Have a pen and hard surface on which to write.

■ Have a food thermometer for documenting temperatures on delivery.

■ Have a clean cart or hand truck for transporting goods from the receiving area to storage.

■ Have the receiving ticket or market order ready when the delivery is scheduled.

■ Have the Product Specification List, if this is used by your organization.

■ Keep the receiving area well lighted and clean to discourage pests.

Inspect the delivery truck when it arrives.

■ Make sure the truck looks and smells clean.

■ Check the interior temperature to see if it is appropriate for the foods being delivered. Some suppliers have temperature-recording monitors in their delivery trucks.

Inspect foods immediately upon delivery.

■ Inspect food items to be sure they meet temperature requirements, food specifications, and food quality standards. Guidance for evaluating foods during receiving is provided in the next section.

■ Mark all items for storage with the date of arrival or the "use-by" date.

■ Check expiration dates of milk, eggs, and other perishable goods.

■ Check to be sure shelf dates have not expired.

■ Make sure frozen foods are in airtight, moisture-proof wrappings.

■ Reject foods that have been thawed and refrozen. Signs of thawing and refreezing include large ice crystals, solid areas of ice, or excessive ice in containers.

■ Reject cans that have any of the following signs of deterioration: swollen sides or ends, flawed seals or seams, dents, or rust.

■ Use a food thermometer to check the temperature of refrigerated and frozen foods including dairy products, fresh meat, fish, and poultry products. When eggs are delivered, the interior temperature of the truck should be 45 °F or lower.

■ Examine packaging for content damage and insect infestations.

■ Reject dairy, bakery, and other foods delivered in flats or crates that are dirty.

■ Remove empty containers and packing material immediately to a separate trash or recycling area.

STEP 3: STORING

Know How Storage Affects Food Safety

Food storage affects both quality and safety. Food stored improperly will lose its quality, spoil more rapidly, and can cause a foodborne illness when harmful microorganisms are allowed to grow.

Follow Food Safety Guidelines for Storing

- Dry storage—longer holding of less perishable items
- Refrigerator—short-term storage of perishable items
- Deep-chilling unit—specific foods for short periods
- Freezer—long-term storage of perishable foods

KEEP HOT FOODS HOT!

KEEP COLD FOODS COLD!

STEP 4: PREPARING

Know How Preparing Affects Food Safety

The preparation step of the foodservice process includes many opportunities for the safety of food to be compromised. Food handlers must be on alert to

- prevent contamination of food;
- avoid time in the temperature danger zone; and
- use safe food handling practices.

STEP 5: COOKING

Know How Cooking Affects Food Safety

Even when foods are handled correctly up to this step in the food preparation process, bacteria and other contaminants may still be present. Cooking foods to the safe internal temperature will destroy any existing bacteria but may not kill toxins or bacterial spores.

STEP 6: HOLDING AND SERVING

Know How Holding and Serving Affect Food Safety

Foodborne outbreaks have occurred because improper procedures were used after cooking was completed. To handle food safely, it is necessary to hold and serve foods at safe temperatures, either above or below the temperature danger zone. Specifically this means

■ Always keep HOT foods in hot holding equipment at or above 140 °F; and

■ Always keep COLD foods in a refrigeration unit or surrounded by ice at or below 41 °F.

Best practice to ensure good food quality as well as safety is to prepare foods just-in-time for service. Just-in-time food preparation is also known as batch cooking or cooking to the line.

Follow Food Safety Guidelines for Holding and Serving

■ Use hot holding equipment, such as steam tables and hot food carts during service but never for cooking or reheating. Hot foods should be cooked to the required temperature and placed in holding cabinets or on a steam table to be held at or above 140 °F.

■ Keep COLD foods at or below 41 °F in a refrigeration unit or surrounded by ice.

■ Stir foods at reasonable intervals to ensure even heating or cooling.

■ Check internal food temperatures with a food thermometer every 30 minutes. Sanitize the food thermometer after each use.

■ During any point in the food production process when food could be in the temperature danger zone, the internal temperature must be documented. Follow State and local public health department recommendations to control time and temperature at each stage of food production.

■ Cover hot holding equipment to retain heat and to guard against contamination.

■ Monitor the temperature of hot holding equipment with each use.

■ Avoid cross-contamination that can occur when an undercooked food is added to another food that is not cooked further. Example: Freshly made scrambled eggs are added to an existing pan of scrambled eggs on a steam table.

Follow Food Safety Guidelines for Employees on the Service Line

■ Follow rules for good personal hygiene.

■ Always wash hands and arms up to the elbow with soap and warm water of at least 100 °F for at least 20 seconds before serving food.

■ Use cleaned and sanitized long-handled ladles and spoons so bare hands do not touch food.

■ Avoid touching the parts of plates, food trays, or flatware that will come into contact with food or the customer's mouth.

■ Wear single-use gloves when serving food by hand. Follow guidelines for single-use gloves (see Section 2).

■ When possible, use tongs to dispense rolls and bread, or wear single-use gloves.

■ Clean and sanitize equipment and utensils thoroughly after each use.

■ Use lids and sneeze guards to protect prepared food from contamination.

■ AVOID CROSS-CONTAMINATION . . . Always wash hands between food preparation tasks.

■ AVOID CROSS-CONTAMINATION . . . Always clean and sanitize food preparation areas and equipment between food preparation tasks. For example, do not reuse a serving pan used to hold raw chicken to serve the same chicken after it has been cooked unless the pan has been thoroughly cleaned and sanitized.

■ Throw away garnishes used on pans on the service line.

Follow Food Safety Guidelines for Sanitary Self-service

■ Monitor self-service lines. Customers – especially children – are generally not educated about food sanitation and can either unintentionally or intentionally contaminate food by

■ using the same plate or tray twice;

■ touching food with their hands;

■ sneezing or coughing into food;

■ picking up foods, such as rolls or carrot sticks, with their fingers;

■ not using serving utensils;

■ eating on the service line;

■ dipping their fingers into a container of food to taste it;

■ putting head under sneeze guard to reach items in the back; and

■ returning food items to avoid waste.

■ Observe customer behavior and remove any foods that may have been contaminated.

■ Package food to prevent contamination: serve sealed packages of crackers, breadsticks, and condiments; pre-wrap sandwiches.

■ Monitor and document the internal temperature of self-service items every 30 minutes as with other foods on the service lines.

Follow Food Safety Guidelines for Transporting and Receiving Food for Off-site Meal Service

Transporting prepared food from a central kitchen to remote sites must be monitored.

Special care must be taken to ensure that food is safe when it leaves the central kitchen and is still safe when it is served.

■ Transport food using proper food carriers

Use only food carriers approved by the National Sanitation Foundation International (NSF International) for transporting food. Follow State and local public health department recommendations.

■ Sanitize food carriers daily.

■ Make sure the insulating properties in carriers are adequate to maintain safe food temperature.

■ Equip trucks with equipment designed to keep hot foods hot (at or above 140°F) and cold foods cold (at or below 41 °F).

■ Clean and sanitize the interior of delivery trucks on a routine basis.

■ Use proper food containers

Food containers should be

■ rigid and sectioned so foods do not mix,

■ tightly closed to retain heat or cold,

■ non-porous to avoid leakage,

■ easy to clean or disposable, and

■ approved to hold food.

■ Monitor temperatures

■ Transport an extra sample of hot and cold foods in order to measure the internal temperature of the sample foods on arrival at the remote site. Hot food should be delivered at or above 140 °F and cold food should be delivered at or below 41 °F.

■ Store food immediately upon arrival in order to maintain safe internal temperatures.

STEP 7: COOLING

Know How Cooling Affects Food Safety

In any foodservice, it is often necessary to prepare foods in advance or use leftover foods.

This can easily lead to problems unless proper precautions are taken. In fact, problems at the cooling stage contribute to outbreaks of foodborne illness.

STEP 8: REHEATING

Know How Reheating Affects Food Safety

Reheating is used for previously cooked food, either pre-prepared or leftover. Like the original cooking process, reheating requires precautions to prevent contamination and keep food out of the temperature danger zone. Cooling a contaminated food does not kill harmful microorganisms; it only slows growth. Failure to reheat a previously cooked food to the required temperature within the time limit can result in a foodborne outbreak. Reheat food items to minimum internal temperature of 165° F for 15 seconds. And remember that heating and reheating may kill the bacteria but not the toxins they leave behind.

SECTION 4 SUMMARY

"A Process for Preventing Foodborne Illness," describes the eight steps of the foodservice process with ways to prevent foodborne illness in every step.

Eight steps of the foodservice process

1. Purchasing
2. Receiving
3. Storing
4. Preparing
5. Cooking
6. Holding and serving
7. Cooling
8. Reheating

Handling food safely through the foodservice process is the highest priority in any kitchen. It is everyone's responsibility to

- maintain a clean, sanitary environment;
- control potential sources of food contamination; and
- be vigilant with time and temperature control.

Food can become contaminated and harmful microorganisms can grow and cause a foodborne illness during every step of the foodservice process unless food safety guidelines are followed.

Glossary

Acidity A substance with a pH below 7.0.

Biological Hazard Contamination of food or water from harmful microorganisms including bacteria, viruses, parasites, and fungi.

Chemical Hazard Contamination of food or water from chemical substances such as pesticides, food additives, preservatives, cleaning supplies, and toxic metals that leach from cookware or equipment.

Clean No visible sign of soil.

Cross-contamination The transfer of harmful microorganisms from a surface (hand or food-contact) to food or from one food to another food.

Facultative Microorganisms Microorganisms that can grow with or without oxygen. Most bacteria that cause foodborne illness are in this group.

Food-contact Surface A surface of equipment or a utensil with which food normally comes into contact or a surface from which food may drain, drip, or splash into a food or onto a surface normally in contact with a food.

Foodborne Illness A disease carried to people by food or water.

Foodborne Outbreak An incidence in which two or more people experience the same illness after eating the same food. It must be confirmed by a laboratory analysis showing the source of the foodborne illness to be a specific food.

Hazard Analysis and Critical Control Point (HACCP) A written procedure that describes a process to reduce the risk of foodborne illness.

Hot-holding Equipment Foodservice equipment designed to hold hot foods at a temperature of 140 °F or above. Examples include steam tables and heated cabinets. Hot-holding equipment should never be used to heat or reheat foods.

Ice-water Bath A cooling method where food is placed in pans, and the pans are placed in ice water in a sink or another pan or pot.

Materials Safety Data Sheets (MSDS) A MSDS contains details of the hazards associated with a chemical, and gives information on its safe use.

Pathogen Disease-causing microorganisms, including bacteria.

Personal Hygiene Health habits that include clean hair, body, and teeth; clean clothes and shoes; correct handwashing; and maintaining good health.

pH The expression of the degree of acidity. On a scale from 1 to 14, 7 is neutral, 1 is most acid, and 14 is most alkaline or least acid.

Physical Hazard Contamination of food or water from foreign objects that accidentally get into food, such as bone fragments, dirt, nail polish, plastic fragments, or broken glass.

Potentially Hazardous Food A food that is natural or synthetic and requires temperature control because it is in a form capable of supporting: (1) the rapid and progressive growth of harmful microorganisms; (2) the growth of toxin production of Clostridium botulinum; or (3) in raw shell eggs, the growth of Salmonella enteriditis. Foods included are raw or cooked foods from animals; cooked plant foods; raw seed sprouts; cut melons; and garlic-in-oil mixtures that have not been treated so they do not support growth of harmful microorganisms. Examples are milk and milk products; meat—beef, pork, lamb; poultry; fish; shell eggs; shellfish and crustaceans; tofu or other soy-protein foods; sprouts and raw seeds; baked and boiled potatoes; cooked rice, beans, and other heat-treated products; cut melons; and garlic-and-oil mixtures.

Ready-to-eat Food Food that is in an edible form without washing, cooking, or additional preparation by the foodservice and is generally consumed in that form. Some examples include raw, washed, cut fruits and vegetables; deli meats and hot dogs; and cheeses.

Sanitize To use either a chemical or heat on a clean surface to reduce the number of microorganisms or other contaminants to a level that is not harmful.

Single-use Items Items that are designed to be used and then disposed. Examples include paper towels and napkins; disposable gloves; plastic eating utensils; paper or Styrofoam plates and trays; aluminum foil; and plastic wrap.

Smallware Dishes, trays, flatware, glasses, and small utensils.

Temperature Danger Zone The temperature danger zone is between 41°F and 140 °F and refers to the required, safe internal temperature of food. Whenever food is in the temperature danger zone too long, it can become unsafe. For best practice, a foodservice operation should document temperatures and maintain written procedures. Follow State and local public health department recommendations to control time and temperature at each stage of food production.

Food Safety Web Site: www.foodsafety.gov

This website is the Gateway to Government Food Safety Information. Links to the food safety pages of government Web sites are included.