

Fidelity Safety & Training LLC
Certified Food Safety Manager Course Handout & Presentation

FDA Food Code

- Food & Drug Administration (FDA), is responsible for protecting and promoting public health through the control and supervision of food safety and other products such as prescription and over-the-counter pharmaceutical drugs, tobacco, medical devices, etc.
- The food code is a model policy for state and local governments to use to form laws and policies.
- Today's exam is based on the FDA Food Code.
- CA Retail Food Code (CA Law, part of CA Health and Safety Code)
- Employer's policies (must meet or exceed)

Other Government Agencies

- Other government agencies that are also involved with food safety include.
- USDA – Inspects food products (e.g., meat & poultry) and facilities
- CDC – Foodborne illness prevention, monitoring, and research
- EPA – Pesticide safety standards on food
- OSHA – employee safety/hazardous materials/chemical safety
- Health Dept. – Local agency responsible for detecting hazards (inspections), enforcement, and disease control.
- NSF – (Non-govt) Product testing, inspection and certification of sanitization and safety standards.

Enforcement – Health Dept.

- Permits – Need a permit from the city or county health department before selling food.
- Inspection – Check I.D. Cooperate with the inspector. Inspections are typically done during regular business hours or other reasonable times. Inspection frequency may be based on the type of food or people (high risk?), the number of meals served, and the size of the establishment.
- Public documents – Must be made available by request of inspector, public, customers, or employees.
- Permit
- Inspection report
- Investigations – These are done by the health dept in case of a complaint or foodborne outbreak.
- Notifications – The person in charge must notify the health dept if an employee has a reportable illness or if customers notify the establishment they got sick from the food.

Legal Issues

- The Food Code prohibits the handling of animals. Don't touch...they are not pets, and you do not want to contaminate your hands.
- The Americans with Disabilities Act (ADA) is a federal civil rights law that applies to people with disabilities and protects them from discrimination.
- Food facilities must provide reasonable accommodation.
- Report customer complaints to the supervisor immediately.

Person-In-Charge (P.I.C.)

- Present during hours of operation (someone must be present and in charge to ensure the safety of the food)
- Does not have to be a "manager/supervisor."
- Depends on the type of food being served, hours of operation, number of employees, the volume of food, and if food is being served to high-risk individuals.
- Demonstration of knowledge (PIC must demonstrate knowledge to the inspector.)
- Training such as a certified food manager? Provide certificate upon request
- No violations observed by the inspector during the inspection
- Correct responses to the inspector's questions (be prepared to answer questions about the operation and food safety)
- Duties of the PIC
- Supervise food prep activities, conduct training, supervision, enforce of policies and procedures, report employee illness and foodborne outbreaks to the health department
- Ensure employees are complying with duties (food temperatures, hygienic practices, not working when sick, wearing clean aprons and clothing, performing proper cleaning and sanitizing, etc.)
- Conduct self-inspections

Foodborne Illness (FBI)

- Foodborne illness (FBI) is caused by consuming contaminated foods or beverages.
- Foodborne contaminants consist of:
 - Biological Hazards (microbes, germs, pathogens, toxins, etc., which are too small for human visual detection)
 - Chemical Hazards (man-made, naturally occurring chemicals or improper cookware)
 - Physical Hazards (objects in the food may cause injury)
- A foodborne illness outbreak is when two or more people become ill from eating the same food.

Biological - Biological causes most foodborne illnesses.

- Microbes (microorganisms, pathogens, bacteria, viruses, and some parasites and mold)
- There are more than 250 different foodborne diseases, but 31 cause most foodborne illness
- Microbes are classified as either intoxications or infections. Food intoxications are illnesses that result from the consumption of food containing toxins (poisons) that are produced by microbes. Food infections are illnesses due to organisms that are consumed and continue to multiply within the body.

Bacteria (Infections)

- Bacteria is the most common cause of foodborne illness
- Multiplies in food (rapidly in the temperature danger zone (TDZ) and very rapidly in the middle of the TDZ.
- Can survive freezing, but usually not cooking. (Freezing “slows down” bacteria growth and spoilage.)
- Listeria – Infection – multiplies under 41°F, lunch meat, ice cream, raw foods, ready-to-eat foods
- Salmonella – Infection – poultry, eggs, meats, sliced melons, sprouts (symptoms within 6 – 72 hours)
- E. coli – infection – raw or undercooked meat and poor employee hygiene (from mammals)

Bacteria (Intoxications – Poisons)

- Poisons from pathogenic bacteria
- Multiplies in food (rapidly in the temperature danger zone (TDZ) and very rapidly in the middle of the TDZ and creates toxins in the food.
- Can survive freezing and cooking (can't be destroyed by heat)
- Botulism – Intoxication – does not need air (anaerobic) found in canned or vacuum-packed foods, low acid foods
- Bacillus cereus – Intoxication – cooked rice, starchy foods, casseroles, and from soil, dust, and crops.
- Staphylococcal – Intoxication – poor hygiene, employee's hair, nose, throat, mouth, touching sores or burns
- Scrombrotoxin – Intoxication – spoiled, temperature-abused fish
- Aflatoxin – Mycotoxins – mold spores in crops such as field corn and peanuts

Viruses

- Usually from people or contaminated water or poor employee hygiene
- Hepatitis A – Virus – poor hygiene - feces on hands
- Norwalk (Norovirus) – Virus – poor hygiene – (foodborne, stomach flu, etc.)

Parasites

- Usually killed from cooking or freezing
- Trichinosis – Parasite – eating undercooked meats (pork and wild game animals) Cook to 145 °F.
- Anisakiasis – Parasite – eating raw or undercooked fish (freeze for 72 hours before preparation or cook to 145 °F)

Chemical Hazards

- Chemical hazards (poisons, detergents, sanitizers, pesticides, and improper cookware)
- Don't use copper, galvanized metal, or other non-food grade items, especially with acidic foods.
- Only use cast iron for cooking (griddles, skillets, grills, etc.)
- Natural chemical toxins can make you sick including mushrooms, nuts/grains, shellfish, and temperature abused fish.

Chemical Safety

- Pesticides should only be applied by a trained, licensed, and certified Pest Control Operator (PCO).
- Don't spray when food is out.
- All chemicals must be properly labeled in a closed container and stored away or below food, clean dishware, linens, paper goods, etc.
- All chemicals must be approved for food establishments.
- Safety Data Sheets (SDS) - Part of the OSHA Hazard Communication Program) which will inform employees about the chemicals they use in the workplace and their dangers and provide emergency information about the chemicals. Use to train employees on chemical safety. Store SDS's in an area where all employees have access.
- Keep chemicals in original containers if possible. Discard chemicals with no labels or that are unknown.

Physical Hazards

-Physical hazards or objects (hair, earring, band-aid, metal shavings, bone, glass, fingernail, toothpicks, etc.)
 -If you suspect contamination, discard the food

FBI in the US: -Annually: 48 million reported cases of FBI | -128,000 hospitalized cases | -3,000 deaths

High-Risk Populations

-Infants 0-4 years of age | -Elderly | -Pregnant & nursing | -Weakened immune systems | - Other illnesses

Major Food Allergens

-FDA Top 8 Food allergens – Peanuts, tree nuts, milk, eggs, wheat, soy, fish, and shellfish. (Plants and animals.)
 ---Shellfish are exoskeleton-bearing (shell), aquatic animals such as clams, mussels, oysters, and scallops.
 ---Crustaceans are shrimp, lobsters, crayfish, and crabs.

Food Allergens (Purple is code for food allergens.)

-All major food allergens must be accurately declared on the package, container, label, or menu.
 -Working containers and bulk foods removed from their original packaging shall be placed in a container labeled with the food's common name.
 -Be aware of cross-contamination issues with cutting boards, slicers, mixers, knives, cookware, etc.
 -Food contact surfaces must be cleaned and sanitized after use with any of the eight major allergens.
 -Always clean and sanitize and wash your hands/change your gloves when changing to a different type of food or after working with an allergen.
 -Train employees on what to do if a customer discloses they have a food allergy and allergy symptoms.

Major Causes of Foodborne Illness

1. Improper food temperatures through the flow of food (receiving, storage, cooking, holding, cooling, and reheating)
2. Poor employee hygiene (dirty hands, improper glove use, working when ill, contaminated clothing, and unrestrained hair)
3. Improper cleaning and sanitizing and lack of pest controls
4. Unsafe food preparation (cross-contamination, poor hygiene, and maintaining food temperatures)

Temperature Danger Zone (TDZ)

-Hot = keep hot food hot, 135 or above. (Heat prevents bacteria and other pathogens from multiplying.)
 -Cold = keep cold foods cold, 41 or below. (Cold/freezing - Slows down bacteria/pathogenic growth.)
 -Time = if you believe food has been in the temperature danger zone longer than four hours, you must discard it.
 -The Middle of the TDZ = 70-125 is the most dangerous temperature range for food.
 -Improper food temperature is the (#1) leading cause of most foodborne illness (FBI), followed by (#2) poor hygiene.

Temperature Danger Zone (TDZ)

-The TDZ is the range where harmful bacteria and/or toxin production and growth can occur.
 -Minimize the amount of time food spends in the TDZ.
 -If you believe food has been in TDZ longer than four hours, discard it.
 -If you don't know how long food has been in TDZ, discard it.

Potentially Hazardous Foods

Are now called: **Time & Temperature Control for Safety (TCS)** – Food that requires time & temperature control for safety to limit pathogenic microbe growth or toxin formation.
 ---Contains moisture - usually regarded as a water activity greater than 0.85
 ---Contains protein
 ---Is neutral to slightly acidic - typically having a pH between 4.6 and 7.5
 - TCS food must be kept cold or hot

What bacteria need to grow and multiply

-Food = Contains protein (meat, for example)
 -Acidity = Neutral to slightly acidic
 -Time* = 4-hours
 -Temp* = 41-135 TDZ and especially 70-125 °F the middle of the temperature danger zone
 ---*Monitoring the time and food temperature is the most important factor in controlling microbe/bacteria growth.
 -Oxygen = Some need oxygen, and some don't, such as botulism, which is called anaerobic, meaning it does not require oxygen for growth.
 -Moisture = Water activity (aw) .85 or greater (pure water is 1.00 aw)

Potentially Hazardous Foods | Foods that Require Time & Temperature Control for Safety (TCS)

- Most animal foods (ex: beef, pork, ham (cured), poultry, fish, shellfish, crustaceans, eggs, and dairy)
- Heated (cooked) plant foods (heated vegetables, rice, beans, baked potato, etc.)
- Sprouts | -Sliced melons, such as cantaloupe and watermelon | -Tofu
- Scratch-made items that contain a hazardous ingredient such as any mix, dressing, batter, pie, custard, or *garlic and oil *Garlic may have *Clostridium botulinum* (botulism) from the soil. The oil displaces oxygen, and the toxins are produced when exposed to low oxygen levels and certain temperatures.
- Keep cold: Leafy greens and most sliced, chopped, or shredded produce (i.e., sliced tomatoes, shredded lettuce)

Ready-to-Eat Foods (RTE)

- Ready-to-eat (RTE) foods are “ready to eat” without cooking or are already cooked and require no further cooking or preparation.
- Raw fruits and vegetables are to be washed before their preparation or offered as RTE food to customers.
- Always store ready-to-eat foods above raw meat.
- Do not use bare hands as ice or food scoops or to mix foods.
- Do not touch ready-to-eat foods with bare hands (or wrists or arms).
- Use suitable utensils (tongs), gloves, or other types of barriers (deli/tissue paper) to prevent bare hand contact.

Cross Contamination

- The process by which bacteria or other microbes are unintentionally transferred from one substance or object to another.
- Three main ways cross-contamination can occur:
 1. Food to food (Direct Contact)
 - Raw food touches cooked food or drips on cooked or ready-to-eat foods in a refrigerator. Keep separated.
 2. People to food (Indirect Contact)
 - Handling foods before properly washing hands or changing gloves.
 - Touching anything that might contaminate their hands, such as raw meats, and then preparing vegetables without washing hands between tasks.
 - Using an apron to wipe hands between handling different foods or wiping a counter with a towel and then using it to dry hands.
 3. Equipment to Food (Indirect Contact)
 - This occurs because the equipment or utensils were not properly cleaned and sanitized between each use. Some examples are:
 - Using unclean equipment, such as slicers, can openers, and utensils, to prepare food
 - Using a cutting board and the same knife when cutting different types of foods, such as cutting raw chicken followed by salad preparation
 - Storing a cooked product, such as a sauce, in an unsanitized container that previously stored raw meat
 - Changing species of meat, slicing pork and then beef on the same cutting board without cleaning and sanitizing

Preventing Cross-Contamination

- Wash hands/avoid bare hand contact with food
- Wear gloves
- Don't touch ready to eat foods with bare hands
- Clean and sanitize all equipment between uses that come in contact with food.
- Don't touch face, body, hair, clothes, or apron
- If you touch an unsanitized surface, always wash your hands/change your gloves before returning to work or touching food
- Store foods properly (Keep separated!)
- Raw meats and other hazardous foods are stored near the bottom to prevent dripping on ready-to-eat foods
- Label foods
- Keep foods at the correct temperature to limit bacterial growth
- Prepare foods separately
- Prepare foods at different times, on different surfaces, or with different people
- Prepare cooked or ready-to-eat foods before raw foods
- Use different colored cutting boards for different foods
- Assign specific equipment and containers for foods to keep hazardous foods away from ready-to-eat foods

Employee Injury

- Person-in-charge is responsible for making sure all employees with injuries or illnesses do not contaminate food.
- Open wounds on fingers, hands, or wrist – wash hands, cover with a water-resistant bandage and wear gloves.
- Open wounds on other parts of the body need to be covered.
- If necessary, send home or exclude workers from working with or near food. (Cleaning, greeter, cashier, etc.)

Employee Illness

- Employees shall report their condition to the supervisor before beginning work.
- Employees shall not work with symptoms of jaundice, vomiting, diarrhea (gastrointestinal illness), or sore throat WITH a fever.
- Non-food-related illnesses such as HIV, Hep B & C do not need to be reported, and the worker may continue to work.

Employee Illness

- Employees must report food-related illnesses such as (salmonella, E. coli, etc.) or foodborne virus' (hepatitis A, norovirus, etc.) Employee report to PIC and PIC report to the county health department.
- Employees are required to bring in a doctor's note before returning to work (if diagnosed with FBI, Hep A, or jaundice)
- Vomiting and diarrhea are symptoms of foodborne illness (exclude employee for 24 hours asymptomatic)
- Jaundice is a symptom of Hepatitis A (need doctor's note before returning)
- PIC should keep good documentation, records, and doctor notes.

Hand Washing - Wash hands after:

- Using the restroom. Wash hands in the restroom and then again when you return to the kitchen or back to work.
- Handling raw foods
- Touching hair or body.
- Sneezing, coughing, or after using a tissue or handkerchief.
- Smoking, eating, drinking, chewing tobacco or gum, returning from break (potential for hand to mouth contact).
- Using chemicals.
- Handling garbage.
- Clearing tables or busing dirty dishes.
- Touching aprons, uniforms, or clothing.
- Touching other un-sanitized surfaces.
- Wash hands BEFORE putting on gloves, touching food, or applying a hand sanitizer.
- Hand washing - the best practice to prevent the spread of disease.

Hand Washing – Items needed at handwashing sink:

- Signage to remind employees to wash their hands and remind them that it's the law
- Running water (hot & cold) under pressure
- Soap, dispensed soap preferred
- Disposable paper towels or a hand dryer (no cloths)
- Gloves (optional) store near the handwashing sink in a dispenser/box, but not in the restroom
- Hand sanitizer (optional) store near handwashing sinks away from food
- Waste container for paper towels

Hand Washing Stations

- Must be conveniently located near areas such as restrooms, food preparation, equipment washing, etc.
- Do not block access to the handwashing sink
- Handwashing sink may only be used for handwashing
- Don't wash hands in a three-compartment sink or produce washing sink.

Hand Washing Procedure

- Wet hands with warm/hot running water, at least 100-108 °F.
- Apply soap (dispensed soap preferred)
- Wash hands for 20 seconds while rubbing hands together for at least 10-15 seconds, including the lower portions of the arms.
- Clean under fingernails and between fingers (use a nail brush if needed).
- Rinse hands under running water.
- Dry hands on only disposable paper towels or a hand dryer, but not on cloth, clothes, or an apron.
- Rewash hands when returning to the kitchen after using the restroom.

Hand Care - Jewelry

- Food employees (when preparing food) may not wear jewelry including rings, bracelets, watches and medical information jewelry on their arms and hands.
- A plain wedding band/ring may be worn, but gloves still recommended.

Hand Care – Fingernails

- Fingernails must be kept trimmed, filed, and clean so the edges and surfaces are cleanable and not rough.
- Painted fingernails or artificial nails, gloves must be worn when preparing food or working with exposed food.

Hand Care – Hand Sanitizers

- Hand sanitizers are not required but may be used after proper handwashing.
- Must be FDA-approved hand sanitizer and designed for food operations.
- Do not touch food with bare hands after using a hand sanitizer.

Gloves (Wear gloves whenever possible!)

- Gloves help protect the food by providing a barrier between your hands/skin.
- Never use gloves in place of handwashing.
- Always wash hands before putting on gloves to avoid contaminating the outside of the gloves.
- Always wear gloves if you have an injury or open wound on your hand or wrist.
- Only use for one task. If you change foods or species of meat, wash your hands and change gloves.

Gloves

- Use disposable gloves. Never wash or reuse gloves.
- Cut- or slash-resistant gloves may be used on foods that will be cooked after preparation.
- Wear a plastic glove over a slash-resistant glove when working with ready-to-eat foods.
- Wear gloves whenever possible.
- Use latex-free gloves

When to Change Gloves

- As soon as they become soiled, contaminated, or damaged.
- Before beginning a different task or handling different types of food or raw animal foods.
- At least every four hours during continual use.
- After handling raw meat and before handling cooked or ready-to-eat foods.
- Change gloves whenever it would be necessary to wash hands to prevent cross-contamination.
- Remove, throw away, wash hands, replace

Proper Attire - Uniforms

- Wear clean outer clothing (uniforms/aprons) to prevent contamination of food, utensils, and linens.
- Change clothing and apron daily or if it becomes contaminated or dirty.
- Do not dry hands or wipe hands or other contaminated objects on clothing or an apron.
- To prevent contamination of the apron, remove it before using the restroom, going on break, taking out the trash, etc.

Proper Attire - Uniforms

- Lockers or other suitable facilities shall be provided for the orderly storage of employees' clothing and other possessions such as purses, backpacks, coats, medicine, etc.
- Dirty clothing may harbor diseases that are transmissible through food. Food employees who inadvertently touch their dirty clothing may contaminate their hands. This could result in contamination of the food being prepared. Food may also be contaminated through direct contact with dirty clothing. In addition, employees wearing dirty clothes send a negative message to consumers about sanitation in the establishment.

Proper Attire - Hair

- Hair restraints keep dislodged hair from contacting exposed food and may deter employees from touching their hair.
- A headcover, such as a baseball cap, hair net, beard net, or equivalent, should be required in food prep areas.
- Does not apply to employees such as counter staff who only serve beverages and wrapped or packaged foods, hosts, cashiers, etc.

Ice is Food

- Never leave scoops in ice. Never stack ice buckets. Do not place ice buckets on the floor or on food contact surfaces.
- Do not handle ice with bare hands. Do not store cleaners or other non-food items on top of the ice machine.
- Clean ice machines as needed. There should be no visible mold. Discard ice after using it for holding or cooling foods.
- Use potable water to make ice.

Thermometers 101 - The thermometer may be the single most important tool you have to protect food!

- Wash and sanitize or use probe wipes before and after use to prevent cross-contamination.
- Measure internal temperatures in two different locations.
- Place the probe into the thickest part of the food for 15 seconds until the proper temperature is met.
- New thermometers must be accurate within +/- 2 °F, and they must have a temperature range from 0 – 220°F.
- The thermometer should have a stainless-steel/bimetallic probe or stem.

Checking Temperatures

- Follow the manufacturer's instructions
- Meat, poultry, fish = Insert stem/probe into the thickest portion
- Packaged food = Insert between two packages of food or wrap around the food. Avoid damaging packaging.
- Milk and other liquids = Submerge stem/probe into the liquid or between cartons or bags
- Eggs = Measure the air temperature inside or between the cartons

Thermometer Calibration

- Food thermometers must be calibrated at a frequency to ensure accuracy.
- Calibrate before initial use (new), if dropped and regularly.
- Ice Point Method = Step 1) Fill the container with crushed ice and water. Step 2) Submerge the sensing area of the stem in ice water for 30-seconds. Step 3) Adjust calibration nut until thermometer reads 32°F (0°C)
- Boiling Point Method = Step 1) Bring a pan of water to a boil. Step 2) Submerge the sensing area of the stem in boiling water for 30-seconds. Step 3) Adjust calibration nut until the thermometer reads 212°F.

Suppliers & Receiving

- Foods shall come from an approved source.
- Suppliers should be authorized and reputable, foods shall be obtained from sources that comply with laws
- Never accept or prepare food at a non-permitted facility (home) or seafood from a recreational source
- Train employees on proper receiving techniques (checking temps., looking for pests/contamination, damage, etc.)
- Correct mistakes immediately – reject deliveries if you suspect contamination or incorrect temperatures.

Receiving

- Inspect, take temperatures (don't reply on the delivery person), and store deliveries IMMEDIATELY.
- Inspect foods to check for contamination and pests such as insects and rodents.
- Keep shellstock identification tags for 90 days after the last shellfish is used. Don't mix tags or the "lots."
- Temperature abused frozen foods may have large ice crystals or liquid in the packaging.

Receiving Guidelines

- Produce should not be wilted or have signs of pest infestation.
- Dried foods should be received dry with packaging intact.
- Bulging packaging may indicate bacteria (botulism toxins) growth.
- When receiving fresh meats/fish, check temperature, appearance, odor, and texture. Meat should be firm and moist.
- Keep food in its original packaging or container, if possible, to lessen the chance of contamination.

Receiving Cans

- Reject and notify supplier if cans are swollen, leaking, rusty, dented, or missing a label.
- A swollen can be an indication of bacterial (botulism toxin) growth.

Receiving & Storage Temperatures

- Dry Foods - 50-70 °F | Frozen - 0°F (-18°C) | Fresh/Dairy/Cold Foods - 41°F | Packaged - 41°F | Fresh Fish-41°F
- Meat - 41°F | Shellfish/Crustaceans/Shelled Eggs - 45°F | Whole Produce – varies, but shredded or sliced - 41°F

Food Storage

- A room or area designated for the storage of packaged or bulk foods that are not potentially hazardous (TCS foods) such as dry foods or single-use items such as napkins, paper cups, etc.
- Properly rotate foods during storage by using FIFO (first-in, first-out). Use the oldest/latest items first.
- Store food in food-grade containers such as stainless steel, glass, plastic, etc.
- Store food containers right side up and labels facing outward.
- Tightly cover/wrap foods with a lid, aluminum foil, plastic wrap, waxed paper, etc., to protect from contamination.
- Label (product name) and date (use by date or date prepared) all foods and containers containing food.
- Discard potentially hazardous foods without expiration dates within seven days. Day one is the day it was prepared.
- Do not store food, food containers, or equipment on the floor. Store at least six inches off the floor.
- Store food in a clean, cool, and dry place away from moisture

Refrigerator Storage

- Do not line shelving, store food on the floor or against the walls, or overload the unit to allow for proper circulation of cold air to keep foods at safe temperatures.
- Do not place hot foods to cool in the refrigerator. Follow proper cooling guidelines.
- Store raw meat below cooked or ready-to-eat foods. *From the bottom-up; poultry, ground meat, roast, fish, ham, and ready-to-eat foods at the top. *Two different species of meat may be stored together if combined and cooked together.
- Air temperature should be approximately two degrees colder than the food temperature (39/41°F).
- Must have a thermometer. Thermometer should be in the warmest part of the unit (up high, near the door).
- Check food temperatures periodically. Food temperature is more important than air temperature.
- All equipment required to keep food hot or cold is required to have a thermometer.

Food Preparation - Food preparation is the most dangerous time for food because:

- Employee contact, employees handling food
- Potential cross-contamination from food preparation surfaces, utensils, cutting boards, and from the workers' handling the food.
- Food is sitting in the Temperature Danger Zone during food preparation. Minimum the time food spends in TDZ. Prepare food in small batches.
- When tasting recipes, don't put fingers in the food. Use a clean, sanitized utensil, and only use it once.

Thawing Frozen Foods

- There are only four safe ways to thaw frozen foods:
 1. As part of the cooking process, ensure minimum safe internal cooking temperature.
 2. Under refrigeration at 41°F or below. This is the safest method because food never enters the danger zone!
 3. During submersion in running potable water at 70°F or below ("cool" water) for no more than two hours and food should never rise above 41°F.
 4. In the microwave, if it is part of the continuous cooking process after thawing.
- Do not re-freeze thawed foods until after they are cooked to correct internal temperature.
- Do not thaw frozen foods at room temperature or on a countertop.
- Slacking: the process of moderating the temperature of food, such as allowing food to gradually increase from a temperature of -10 to 25°F in preparation for deep-fat frying or to facilitate even heat penetration during the cooking of previously block-frozen food such as shrimp.

Cooking Potentially Hazardous Foods (TCS Foods)

- Cooking food to the required minimum internal temperatures can destroy microorganisms or reduce them to safe levels.
- Cooking will not destroy toxins.
- Using a thermometer will determine that food has been properly cooked.
- If food has not reached the required cooking temperature, return to continue cooking.
- Advise customers consuming raw or undercooked meats, seafood, or eggs (over-easy or pouched) may increase their chances of a foodborne illness.

Cooking Temperatures

- Raw eggs, most fish, meat (pork, ham, beef, lamb, roasts) 145°F for 15 seconds.
- Ground meats (all meats except poultry) 155°F for 17 seconds.
- Poultry, ground poultry (chicken/turkey), sausage, stuffed meats, stuffed pasta, casseroles, stuffing in meat 165°F for less than 1 second. Cooking to 165 is the best way to salmonella.
- Cooking can kill microbes by using high heat or a lower temperature for a longer period.
- Roasts of pork, beef, veal, lamb may be cooked to alternative temperatures based on the type of roast and oven
- Rare would be 130°F hold for 112 minutes.

Microwave Cooking

- Potentially hazardous foods (TCS) must be cooked to 165°F degrees for 15 seconds
- Cover during cooking
- Rotate or stir halfway through the cooking process
- Let food stand/rest covered for 2 minutes after cooking
- Check the temperature in two different places
- Same procedure for reheating TCS foods but must be done within two hours.

Cooling Foods – Cool as fast as possible to reduce biological contamination and growth.

- Use one or more of the following methods based on the type of food
- In a blast chiller (quick chill/rapid cooling equipment)
- In shallow containers/stainless steel pans, but food should be no more than two inches in depth
- In an ice water bath
- Reduce portion size, separating into smaller or thinner portions
- Other effective methods (ice paddles or wands, adding ice as an ingredient)
- Never cool food at room temperature and never put hot foods into the refrigerator or freezer.

Cooling Method – two-stage cooling method (up to 6-hours)

- Cool food from 135°F to 70 °F within two hours, known as the rapid cooling stage
- And then to 41°F or lower in an additional four hours.
- Cool foods quickly through the middle of the danger zone (70-125 °F).

Reheating Previously Cooked Potentially Hazardous Foods (TCS Foods)

- Rapidly reheat food to an internal temperature of 165°F for fifteen seconds within two hours.
- Discard food if it has not reached 165°F within two hours.
- Do not use hot holding or warming equipment to reheat foods. No crockpots, hot water, steam tables, etc.
- Reheat food quickly through the middle of the temperature danger zone (70-125°F).

Holding Hot and Cold Foods for Service

- Measure the internal temperature of the food being held at least every two hours.
- Reheat hot foods to 165°F if they drop below 135°F.
- Discard foods if not held at the correct temperature for an unknown length of time or after 4 hours.
- Stir foods regularly and keep containers covered when not in use.
- Use time as a public health control. In other words, if food is held for over four hours, discard it. This requires a written procedure, and foods must be identified by labeling when the four hours is expired.
- Monitor and maintain water and ice levels.
- Do not use hot holding equipment for cooking or reheating.
- Keep cold foods cold (41°F or below) and hot foods hot (135°F and above).
- The maximum temperature for colds food is 41°F.
- The minimum temperature for hot food is 135°F.

Serving

- Never touch where food goes or where a customer’s mouth goes
- Do not reuse or re-serve unpackaged foods
- Do not reuse or re-serve hazardous (TCS) foods.

Utensils/Tableware

- Clean utensils must be stored with handles up unless individually wrapped or at a place setting or clean tray.
- Eating surface faces downward.
- Use appropriate utensils for removing dry stored food or ice, such as a scoop with a handle made from food-grade plastic or metal such as stainless steel.
- Store the scoop in a clean and sanitized container.
- Do not store the scoop in the food or ice.
- Dry and store glassware bottoms up on a clean and dry surface.

Service & Utensils

- Keep utensils in the food with handles extending out for customers to grab.
- Utensils should have long handles.
- Each food should have its own utensil.

Self-Service

- Monitor/supervise the food bar with employees that have been trained in safe operating procedures.
- Install sneeze guards or food shields on all sides that the customer has access to.
- Label food items, especially if allergens, and prevent tasting.
- Maintain proper food temperatures. Hot foods 135°F or above or cold foods at 41°F or below.
- Never mix fresh foods (new foods) with food being held (old foods) to prevent cross-contamination.
- Separate raw foods from cooked and ready-to-eat foods.
- Customers must use a clean plate on return trips to prevent contamination.

Catering and Delivery

- Pre-chill or pre-heat the food before leaving the kitchen.
- Transport hot foods at 135°F or above or cold foods at 41°F or below.
- Containers used for transport should be insulated, covered to prevent spilling, and prevent outside contamination.
- Check temperatures before food leaves the kitchen and again upon delivery.

Pest Management

- The best pest-prevention technique is good garbage control, housekeeping, cleanliness, and sanitation to eliminate food, water, and shelter for pests.
- Inspect deliveries for pests.
- If pests are observed, increase cleaning frequency.
- Pests are a hazard because they spread disease.
- Cover or dispose of garbage quickly, including boxes or other items with food residue.
- “Approved” pesticides should only be used as a last resort and only applied by a pest control operator (PCO).
- Cover, remove and store food before using pesticides. Never apply when food is exposed.
- If storing insecticides, pesticides, or other toxic chemicals, they should be stored separately and away from food.

Pest Management

- Pests can be any type of animal or insect. Ants are less likely to spread disease than other insects.
- Prevent pests from entering the facility by sealing all outside openings.
- Screen sizes should be no larger than “16 mesh.”
- Inspect deliveries for contamination, including pests, before they enter the facility.
- Keep doors and windows closed and install air curtains when necessary or required.
- Bait stations must be tamper-resistant, and traps must be cleaned frequently to prevent the accumulation of dead pests.

Garbage/Waste

- Outside containers/dumpsters should be stored away from doors to prevent pests from entering the building.
- Containers shall be easy to clean, durable, insect and rodent-resistant, leakproof, nonabsorbent, have tight-fitting lids, and covered when not in use. Do not store trash on the floor/ground or in bags or boxes.
- Waste shall be removed from the premises at a frequency (as needed, each shift, each night, etc.) that will minimize odors and other conditions that attract or harbor insects and rodents.
- Provide waste containers as needed, locate them in each area where waste is generated or commonly discarded.

Cleaning vs. Sanitizing

- Cleaning is removing food, grease, and other types of soil from a surface.
- Detergents or cleaners are commonly used to help by removing soil and grease.
- Sanitizing reduces the number of microbes (bacteria/virus) on a surface to safe levels.
- Sanitizing is done with heat (hot water or steam) or a chemical sanitizer.
- When using a chemical sanitizer, always follow the label or manufacturer instructions.

Cleaning vs. Sanitizing

- Sanitizing is reducing the number of microbes on a food-contact surface to safe levels. (Kills most bacteria.)
- Sanitizing is done with heat (hot water or steam) or a chemical sanitizer.
- When using a chemical sanitizer, always follow the label or manufacturer instructions.

Cleaning and Sanitizing – Non-Food Contact Surfaces

- Non-food contact surfaces need to be cleaned “as needed.”
- Non-food contact surfaces are floors, walls, cashier area, ovens, stoves, refrigerator shelves, customer tables, etc.

Cleaning and Sanitizing – Food Contact Surfaces

- Food contact surfaces need to be cleaned and sanitized.
- A food contact surface would be any surface that directly touches food, such as food prep tables, cookware, cutting boards, equipment, utensils, food containers, etc.

Food Contact Surfaces – must be cleaned and sanitized:

- After each use
- When beginning to work with another type of food (change foods)
- After a task has been interrupted
- At four-hour intervals if the items are in constant use
- Anytime when contamination may have occurred

Linens and Cloths

- Linens that do not come in direct contact with food shall be laundered between operations if they become wet, sticky, or visibly soiled.
- Cloth table napkins shall be laundered in hot water between each use/customer.
- Wet wiping cloths shall be laundered daily.
- Dry wiping cloths shall be laundered as necessary to prevent contamination of food and clean serving utensils
- Do not use sponges on food contact surfaces or equipment.

Sanitizing Cloths

- Cloths used for wiping food contact surfaces and other equipment surfaces shall be:
 - Held between uses in a chemical sanitizer solution
 - Laundered daily
- Cloths used for wiping surfaces in contact with raw animal foods, kept separate from cloths used for other purposes. (Two different buckets and cloths.)

Chemical Sanitation

- Sanitizers shall be used in accordance with the EPA registered label instructions and be approved for food facilities.
- Concentration of the sanitizing solution shall be accurately determined by using a test kit or other device
- The three EPA approved chemical sanitizers solutions are chlorine, iodine, or quaternary ammonium compound (quats) solution

Chlorine Sanitation

- Very effective against all bacteria, and it's the most used sanitizer
- Must have EPA registration number on the label to be used in food operations
- Contact time (read the label, at least 7 seconds+)
- Use chlorine test paper to test concentrations
- Must be at least 100 ppm or mg/L
- Nevermore than 200 ppm
- Water 75-120°F
- Chlorine sanitizers can lose chlorine during storage. The killing rate of "bleach water" increases with temperature, but this increased rate is counteracted by increased corrosiveness and vaporization (loss of chlorine).

Sanitizing Methods – Hot Water or Steam

- Wash sink, 100-110 °F. Sanitize sink (manual wash hot water only) at 171°F, for 30 seconds
- Dishwasher final rinse 180 °F

Manual Warewashing

- Sanitize the sink before washing dishware.
- 1) Scrape 2) Wash 3) Rinse 4) Sanitize 5) Air Dry is the process for manual warewashing. Do not use any other sequence.
- Change water in sinks as necessary to keep water free from excess debris and organic materials.
- If using heat to sanitize, the water temperature must be at least 171 °F, and items need to remain submerged for at least 30 seconds. If using a chemical sanitizer, follow the directions on the label.
- Use chemical test strips to measure chemical concentrations
- Do not dry equipment, utensils or glassware with cloths or towels.
- Wash hands before touching clean dishware and equipment. Do not wash your hands in dish sink unless approved.

Warewashing Machines

- Follow the manufacturer's instructions or data plate about the proper operation, including wash, rinse, and sanitizing cycle times and temperatures that must be achieved.
- Heavily soiled items; scrape, soak, flush, and rinse if needed before washing in the machine.
- Rack items so that wash and rinse water sprays evenly and all surfaces are exposed to spray.
- Check detergent and/or sanitizer levels before use.
- Wash hands before handling clean dishware.

Kitchen Materials and Equipment

- Building materials (floors, walls, etc.) and equipment (cutting boards, mixers, etc.) should be smooth, durable, nonabsorbent, corrosion-resistant, and easy to clean and maintain. No carpet where moisture may be.
- Items shall be food grade; plastic, stainless steel, hardwood (maple or oak), and in some cases, glass.
- Clean in place (CIP) when needed. Items can't be moved or fit in sink or dishwasher. (Clean and sanitize.)

[CONTINUED FROM PREVIOUS PAGE]

-Remove/repair worn or damaged equipment or materials. Perform routine maintenance as required by owner's manual.

-Do not use contaminated or unsanitized equipment. Always clean and sanitize before use.

Water

-Potable water (tap/drinking water) must be used for handwashing, drinking, cooking, cleaning, etc.

-Non-potable (non-drinking) may be used for landscaping, fire protection, firefighting, etc.

--Label non-potable water tanks and pipes, non-drinking/non-potable.

-In the event of an interruption of water supply, the food facility must close for business unless potable water can be provided (tank, water truck, commercially bottled water, etc.).

-Ice used for cooling or holding must be discarded and not used for human consumption.

Plumbing

-Avoid cross-connections. A cross-connection is when a potable water supply pipe meets a source that could contaminate the water. Backflow or back-siphonage from the cross-connection is what contaminates the water. Use air gaps, vacuum-breakers, or other backflow or back-siphonage prevention devices.

-Never attach a hose to a faucet without a vacuum breaker or other back-siphonage prevention devices

-Do not prepare food or store food, clean dishware, linens, etc., under sewage lines.

-In the event of a continuous overflow of sewage into the establishment, it must close, notify county health and not re-open until authorization has been granted by county health.

Ventilation

-Ventilation is required to keep rooms free of excessive grease, fumes, steam, condensation, odors, heat & smoke.

-Intake and exhaust air ducts shall be cleaned and filters changed, so they are not a source of contamination by dust, dirt, grease, and other materials.

Lights

-Light bulbs shall be shielded, coated, or otherwise shatter-resistant in prep areas or other areas with exposed food.

-Lighting should be adequate for proper cleaning and sanitizing.

-Lighting intensity is measured in lux or foot candles.

---At least 10-foot candles in walk-in refrigeration units and dry food storage areas.

---Additional foot candles are needed in food preparation areas and when using knives, slicers, etc.

---Additional foot candles are needed to have enough light to be able to clean and sanitize properly.

Hazard Analysis Critical Control Point System (HACCP) and CCP – Used to prepare safe food.

-HACCP is primarily implemented and used in high-risk locations (schools, hospitals, food manufactures, etc.)

-A food safety mgmt. system, that assesses risks and is used to lessen the chance of FBI and reduce injury and illness

-A program to keep food safe, free of contaminants, and at the proper temperatures.

-A sound recordkeeping/documentation system is a key principle to HACCP.

Critical Control Point (CCP) – Essential step to prevent a food safety hazard.

-CCP is a point at which a food safety hazard must be prevented, eliminated, or reduced to acceptable levels

-COOKING is the FIRST CCP (by cooking, you are preventing, eliminating, or reducing)

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