Food Safety Study Guide

This study guide is intended to help you know key facts and terms to understand food safety

A foodborne illness is a disease transmitted to people through food.

An illness is considered an outbreak when:

1. Two or more people have the same symptoms after eating the same food
2. An investigation is conducted by state and local regulatory authorities
3. The outbreak is confirmed by laboratory analysis.

Challenges to food safety include:

1. Time and Money
2. Language and culture
3. Literacy and education
4. Pathogens
5. Unapproved suppliers
6. High-risk customers
7. Staff turnover

Costs of a Foodborne illness

1. Loss of customers and sales
2. Loss of reputation
3. Negative work exposure
4. Lower staff morale
5. Lawsuits and legal fees
6. Staff missing work
7. Increased insurance premiums
8. Staff retraining

3 Types of Contaminants

1. Biological Contaminants
2. Chemical Contaminants
3. Physical Contaminants

How food becomes unsafe:

1. Purchasing from Unsafe sources
2. Time-Temperature abuse
3. Cross Contamination
4. Poor Personal Hygiene
5. Poor Cleaning and Sanitizing

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TCS Foods (Time-Temperature Control for safety) Foods most likely to become unsafe:

1. Dairy products
2. Eggs
3. Meats
4. Poultry
5. Fish
6. Shellfish
7. Cooked potatoes
8. Cooked rice
9. Soy and soy products
10. Sprouts
11. Cut tomatoes and melons
12. Untreated garlic and oil mixtures

Ready-to-Eat food is food that can be eaten without further preparation, washing or cooking. Which includes:

1. Cooked food
2. Plant foods cooked for hot holding
3. Washed fruits and vegetables (whole and cut)
4. Deli meat
5. Bakery items
6. Sugar, spices and seasonings

Populations at high risk for foodborne illnesses:

1. Elderly people
2. Preschool age children
3. People with a compromised immune system

Contaminants can come from:

1. Animals we use for food
2. Air, contaminated water and dirt
3. People, either deliberately or accidentally

Government Agencies for Food Safety:

- **FDA** – Food and Drug Administration – Writes the food cade and inspects all food except meat poultry and eggs
- **USDA** – U.S. Department of Agriculture – Inspects all meat, poultry and eggs.
- **CDC & PHS** – Centers for Disease control and Public Health Services – specialize in prevention and investigations in foodborne illness.
- **Local Agencies** – City, County, State, tribal or any other local municipality to govern food safety in their local communities

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Contamination

Ways that people can contaminate food:

1. Contact with a person who is sick
2. From person to person
3. Sneeze or vomit onto food or food contact surfaces
4. Touch dirty food-contact surfaces and equipment before touching food

The "Big Six" pathogens:

- Salmonella Typhi – Only occurs in human bloodstream and intestines
- Nontyphoidal Salmonella – Cook Poultry and Eggs to minimum internal temperatures
- Shigella spp.– Control flies inside and outside of the operation and washing hands
- Shiga toxin-producing E coli – Intestines of Cattle. Cooking ground beef to minimum internal temperatures.
- Hepatitis A – Cannot be killed by temperature control. Symptom is jaundice
- Norovirus - Cannot be killed by temperature control. Symptoms are vomiting and/or diarrhea

Symptoms of Foodborne Illness:

- Diarrhea, Vomiting, Nausea, Fever, Abdominal cramps, Jaundice

Conditions in which bacteria grows rapidly (also known as FATTOM)

- **F**- Food- Bacteria needs nutrients to survive
- **A**-Acidity-Bacteria grow best in food that contains little or no acid
- **T**-Temperature-Bacteria grows rapidly in the temperature danger zone 41 to 135 Degrees
- **T**-Time-Bacteria needs time to grow
- **O**-Oxygen-Some bacteria needs oxygen while other types grow faster in an environment with no oxygen
- **M**-Moisture-Bacteria grows where there are high levels of moisture

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Bacteria

Salmonella Typhi

- Sources
  - People diagnosed with Salmonella Typhi
  - Feces of infected people
- Foods linked with the bacteria
  - Ready to eat food
  - Beverages
- Prevention Measures
  - Exclude food handlers diagnosed with Salmonella Typhi from the operation
  - Wash Hands
  - Cook food to minimum internal temperatures

Nontyphoidal Salmonella

- Sources
  - Farm animals carrying the bacteria
  - Feces of infected people
- Foods linked with the bacteria
- Poultry and eggs, Meat, Milk and dairy products
- Produce, such as tomatoes, peppers, and cantaloupes
- Prevention Measures
  - Cook poultry and eggs to the correct minimum internal temperatures
  - Prevent cross contamination
  - Exclude food handlers diagnosed with Nontyphoidal Salmonella from the operation

Shigella

- Sources
  - Feces of infected people
- Foods linked with the bacteria
  - Food contaminated by hands such as salads containing ready to eat foods.
  - Food that has been in contact with contaminated water
- Prevention Measures
  - Exclude food handlers diagnosed with Shigella from the operation
  - Wash hands
  - Control flies inside and outside of the operation

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Shiga Toxin-producing Escherichia Coli, also known as E-Coli

- Sources
  - Intestines of Cattle
- Foods linked with the bacteria
  - Ground Beef
  - Contaminated produce
- Prevention Measures
  - Exclude food handlers diagnosed with E-Coli from the operation
  - Cook food to the correct minimum internal temperatures especially ground beef
  - Purchase food from approved suppliers
  - Prevent cross contamination

Four types of pathogens that can contaminate food and cause a foodborne illness

1. Bacteria
2. Viruses
3. Parasites
4. Fungi

Bacteria

Location: Found almost anywhere
Detection: Cannot be seen, smelled, or tasted
Growth: Will grow rapidly if conditions are correct
Prevention: Control time and temperature

Conditions that a food handler can control are:

- **Temperature**- Keep all TCS food out of the temperature danger zone
- **Time**-Control the amount of time that TCS foods stay in the temperature danger zone

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Viruses

Location: Requires a living host to grow, carried by animals and people, does not grow I food.
Sources: Food, water or any contaminated surface
Prevention: Good personal hygiene, not destroyed by normal cooking temperatures.

Major viruses that can cause a foodborne illness

Hepatitis A

- Sources
  - Human Feces
- Foods linked with the virus
  - Ready to eat food
  - Shellfish
- Prevention Measures
  - Exclude food handlers diagnosed with hepatitis A and jaundice from the operation
  - Wash Hands
  - Buy shellfish from reputable suppliers

Norovirus

- Sources
  - Human Feces
- Foods linked with the virus
  - Ready to eat food
  - Shellfish
- Prevention Measures
  - Exclude food handlers diagnosed with Norovirus and/ or vomiting or diarrhea from the operation
  - Wash hands
  - Buy shellfish from reputable supplier

Parasites

- Require a living host to reproduce
- Seafood, Wild Game and Produce
- Purchase from reputable supplier and make sure fish that will be eaten raw will be frozen correctly

Fungi

- Yeast, Molds and Mushrooms
- Only consume food with mold on it that has mold as a natural part (blue cheese)
- Purchase from reputable supplier

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Biological Toxins

- Origin
  - Plants, Mushrooms and Seafood
  - Histamine – Made by pathogens on fish when time temperature abused
  - Ciguatera Toxin – Predator fish become contaminated when the eat smaller fish that have consumed the toxin. **Scombroid Poisoning.**
- Symptoms
  - Experience illness with minutes
  - Diarrhea, vomiting, tingling in the extremities, hot/cold flashes, flushing the face, hard to breath, burning in the mouth, heart palpitations, hives
- Prevention
  - Purchasing from approved, reputable suppliers

Chemical Contaminants

Sources: Cleaners, Machine lubricants, pesticides
Symptoms: Varies with the chemical consumed, check label for warnings
Prevention: Use only chemicals designed for food service. Always use chemicals per the manufacturers guidelines.

Physical Contaminants

Sources: Objects that get into food, such as metal shavings, bread ties, fingernails, bandages, dirt.
Symptoms: Depending on object consumed, possible cuts, dental damage and possible choking.
Prevention: Purchase from an approved reputable supplier, always inspect food before, during and after preparation for any objects that may have ended up in the food.

Deliberate contamination of food

People that can deliberately contaminate food

1. Terrorists or activists
2. Disgruntled current or former staff
3. Vendors
4. Competitors

FDA tool for food defense

- **A**-Alert-make sure all products are coming in from safe, approved sources
- **L**-Look-Monitor all products in the operation
- **E**-Employees- Make sure you know who is in your operation always
- **R**-Reports-Keep all information regarding food defense accessible
- **T**-Threat- Have a plan in place in case of a threat or suspicious activity occurs

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How to respond to a foodborne illness

1. Gather Information
2. Notify authorities
3. Segregate product
4. Document information
5. Identify staff
6. Cooperate with authorities
7. Review Procedures

Allergens

Food Allergens: Protein that occurs in food naturally, that people are sensitive too.
Allergy Symptoms: Depends on the severity of the person that is allergic. Can include symptoms such as Nausea, wheezing or shortness of breath, hives, swelling of the body, including the face.
Allergic Reactions: Symptoms can become serious quickly, a severe reaction, called anaphylaxis, can lead to death.

BIG 8 Allergens

1. Milk
2. Soybeans (soy)
3. Eggs
4. Wheat
5. Fish (such as tuna and cod)
6. Crustacean shellfish, such as creb, lobster, and Shrimp
7. Peanuts
8. Tree nuts, such as almonds and pine nuts
9. Sesame

Ways to prevent allergic reactions

Service Staff: Describe how the dish is prepared, identify ingredients, make suggestions that does not include the allergen, hand deliver food to people with food allergens

Kitchen Staff: Wash utensils and prep area before preparing a dish for a food allergy, avoid cross-contact with food allergens.

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Food Handler

Food handlers contaminate food when:

1. They have a foodborne illness
2. They have been in contact with a sick person
3. They have wounds that contain a pathogen
4. They sneeze or cough
5. They have symptoms such as vomiting, diarrhea, and/or jaundice
6. They touch anything that may contaminate their hands and don't wash them

Actions that food handlers do to contaminate food:

1. Coughing or sneezing into their hands
2. Spitting in the operations
3. Rubbing an ear
4. Running fingers through their hair
5. Scratching the scalp
6. Touching a pimple or infected wound
7. Wearing a dirty uniform
8. Wiping or touching the nose
9. Touching a pimple or infected wound

Managers need to focus on:

1. Creating a personal hygiene policy
2. Modeling correct behavior always
3. Supervising food safety practices
4. Training food handlers on personal hygiene
5. Revising the personal hygiene policies regularly

Proper work attire for a Food handler

1. A clean clothing, hat or other hair restraint
2. No jewelry, except for a plain band wedding ring
3. When wearing an apron, remove it when leaving food prep areas
4. Clean, short, and unpolished fingernails. Acrylic fingernails are not allowed

Food handler is only allowed to eat, drink, smoke, or chew gum or tobacco in a designated area, and not in or during the following:

1. Prepping or serving food
2. While working in a prep area
3. Working in areas used to clean utensils and equipment

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Proper way to wash your hands (whole process is 20 seconds)

1. Wet hands with running warm water
2. Vigorously scrub hands and arms for ten to fifteen seconds, clean under your fingernails and between fingers
3. Rinse thoroughly under running water
4. Dry hands and arms with a single use paper towel or a warm-air hand dryer. If using a single use paper towel, once finished drying use towel to turn off the faucet and open the bathroom door.

Times when a food handler must wash their hands:

1. Before they start work
2. After using the restroom
3. Before and after handling raw meat, poultry, and seafood.
4. After touching the hair, face, body and clothing
5. After sneezing, coughing, or using a tissue
6. After eating, drinking, smoking, or chewing gum or tobacco
7. After handling chemicals
8. After taking out the garbage
9. After clearing tables or busing dirty dishes
10. After handling money
11. After handling any type of animals
12. After leaving and returning to the kitchen
13. After touching anything that can contaminate hands

Single-use gloves

1. Always needs to be worn when preparing and handling ready to eat food except when washing produce or ingredients in a dish that will be cooked to its minimum internal temperature.
2. Must NEVER be used in place of proper hand washing
3. Must NEVER be washed and reused
4. Must fit correctly

Must change gloves when:

1. They become dirty, torn or soiled
2. Beginning a different task
3. Handling raw meat, seafood, or poultry and before handling ready to eat food
4. After 4 hours of continuous use
5. Being interrupted and coming back to your

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Handling Staff Illnesses

1. The food handler has a sore throat with a fever
    - Restrict from working with food
    - Exclude from work if serving a high-risk population
    - Can return to work with a doctor's note
2. The food handler has vomiting and/or diarrhea
    - Exclude the food handler from the operation
    - Can return to work after 24 hours symptom free or a doctor's note
3. The food handler has had jaundice for 7 days or less
    - Report it to the regulatory authority (Health department)
    - Exclude food handler from the operation
    - Can return with a doctor's note approved by your health regulatory agency
4. The food handler has been diagnosed with a foodborne illness
    - Work with your regulatory department
    - Exclude the food handler from the operation

Flow of Food

Preventing Cross-Contamination

1. Use separate equipment for each type of food
2. Clean and sanitize all work surfaces, equipment, and utensils after each task
3. Prepare raw meat, fish, and poultry at different times than ready-to-eat foods
4. Buy foods that do not require much prepping or handling

Preventing Time-Temperature abuse

1. To avoid time temperature abuse, monitor time and temperature. Make sure the correct kinds of thermometers are available. Regularly record temperatures and the times they are taken. Minimize the time that food spends in the temperature danger zone. Take corrective actions if time-temperature standards are not met.

Thermometers

1. **Bimetallic Stemmed Thermometers**: Measures temperature through its metal stem.

Thermocouples and Thermistors

1. **Immersion Probe**: Use these to check the temperature of liquids.
2. **Surface Probe**: Use these to check the temperature of any flat cooking equipment
3. **Penetration Probe**: Use these to check the internal temperature of food
4. **Air Probe**: Used to check the inside coolers and ovens

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Infrared Thermometers

1. Used to measure surface area

Time-Temperature Indicators (TTI)

1. Monitor both time and temperature, are attached to packages by the supplier

Maximum registering tape

1. Indicates the highest temperature reached during use

Thermometer guidelines

1. Wash, rinse, sanitize, and air-dry thermometers before and after using them. Calibrate them before each shift to ensure accuracy. Glass thermometers are only to be used if encased in a shatterproof casing
2. Insert the thermometer into the thickest part of the food, usually the center. Take more than one reading in different spots. Wait for the thermometer reading to steady before recording the temperature.

Purchasing, Receiving and Storage

Purchase food from approved, reputable suppliers: All products have been inspected and meets all applicable local, state, and federal laws

Deliveries must meet the following criteria:

1. Be inspected upon arrival at the operation
2. Must come from an approved, reputable supplier
3. All food must be placed in the correct storage location
4. Make sure all food is honestly presented
5. Make sure all food is not contaminated
6. All food has been protected from contamination in storage

Rejecting Deliveries

1. Separate rejected items from accepted items
2. Tell the delivery person what is wrong with the item
3. Get a signed adjustment or credit slip before giving the rejected item to the delivery person
4. Log the incident on the invoice or receiving document

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Handling Recalls

1. Identify the recall items
2. Label the item in a way that will prevent it from being placed back in inventory
3. Remove the item from inventory, and place it in a secure and appropriate location
4. Store item separately from food, utensils, equipment, linens, and single-use items
5. Inform staff not to use the product
6. Refer to the vendor's notification or recall notice to determine what to do with the item

Checking the temperature of received foods

Meat, Poultry and Fish: Insert probe into the thickest part of the meat
ROP food (Reduced oxygen packaging): Insert the probe between 2 packages or fold package around the probe
Other packaged food (I.E Cartons, tubs etc.): Open the package and insert the probe into the food

Receiving Temperatures

1. **Cold TCS Food:** Receive at 41°F (5°C) or lower, unless otherwise specified
2. **Live Shellfish:** Receive oysters, mussels, clams, and scallops at an air temperature of 45°F (7°C) and an internal temperature no greater than 50°F (10°C) (Must reach 41° within 4 hours of receiving)
3. **Shucked Shellfish**: Receive at 45°F (7°C) or lower (Must reach 41° or lower within 4 hours of receiving)
4. **Shell Eggs**: Receive at an air temperature of 45°F (7°C) or lower.
5. **Milk:** Receive at an air temperature of 45° (7°C) or lower. (Must reach 41° or lower within 4 hours of receiving)
6. **Hot TCS food:** Receive at 135°F (57°C) or higher
7. **Frozen food:** Receive frozen solid

Reject delivery if there is:

1. Evidence of thawing and/or refreezing
2. Fluids or water stains in case bottoms or on packaging
3. Ice Crystals or frozen liquids on the food or packaging
4. Tears, holes, or punctures in packaging
5. Cans with swollen ends, rust, or dents
6. Bloating or leaking reduced oxygen packaged food
7. Broken seals or cartons
8. Dirty and discolored packaging
9. Leaks, dampness, or water stains
10. Signs of pests or pest damage
11. Expired products
12. Evidence of tampering

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Required documents to be collected when receiving food:

1. Shellfish must be received with a shell stock identification tag. Tags must be kept on file for 90 days from the date the last shellfish was used from its delivery container
2. Fish that will be eaten raw or partially cooked. Documentation must show the fish was correctly frozen before being received. Documents must be kept on file for 90 days from the sale of the fish.
3. Any farm raised fish must have documentation stating the fish was raised to FDA standards. Documents must be kept on file for 90 days from the sale of the fish.

Food Quality

Appearance: Reject food that is moldy or has an abnormal color
Texture: Reject meat, fish and poultry if it is slimy, sticky, or dry. It has soft flesh that leaves an imprint when touched.
Odor: Reject food with an abnormal or unpleasant odor.

Labeling food for use on-site:

1. All items not in their original containers must be labeled
2. Food labels should include the common name of the food or a statement that clearly and accurately identifies it
3. It is not necessary to label food if it clearly will not be mistaken for another item.

Date Marking:

1. Ready-to-eat TCS food must be marked if held for 24 hour or longer
2. Date on food item must indicate when the food must be sold, eaten or thrown out
3. Ready-to-eat TCS food can be stored for no longer than seven days if held at 41°F or lower
4. The count begins on the day that the food was prepared or a commercial container opened

Temperatures

1. Store cold TCS food at 41°F (5°C) or lower and hot TCS food at 135°F (57°C)
2. Store frozen food at a temperature to keep it frozen
3. All storage units need to have at least one air temperature device. It must be accurate to +/-3°F or +/-1.5°C. Place the thermometer in the warmest part in a refrigerated unit and the coldest part of hot-holding units.

FIFO (First In First Out) proper way to rotate food

1. Identify the food items use-by date or expiration date
2. Store items with the earliest use-by or expiration dates in front of items with later dates
3. Once on the shelve, use the items that are stored in the front first
4. Throw away any food that has passed manufacturer's use-by or expiration date

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Preventing Cross-Contamination while storing floor:

1. Store items in a designated storage area
2. Store items 6 inches (15 centimeters) and away from walls
3. Store all single use items in their original packaging
4. Use only food containers that are durable, leak proof, and can be sealed and covered
5. Do not put food in empty chemical containers
6. Keep all storage areas clean and dry
7. Clean up spills and leaks immediately
8. Clean dollies, carts, transporters, and trays often
9. Store food in containers that have been properly cleaned and sanitized
10. Store all dirty linens in a clean, nonabsorbent containers or washable laundry bags

Storage order in top-to-bottom order:

1. Ready-to-eat food
2. Seafood
3. Whole cuts of beef and pork
4. Ground meat and ground fish
5. Whole and ground poultry

*The storage order is based on the minimum internal cooking temperature of each food.

NEVER STORE FOOD IN THE FOLLOWING AREAS:

1. Locker rooms and dressing rooms
2. Restrooms or garbage rooms
3. Mechanical rooms
4. Under unshielded lines or leaking water lines
5. Under stairwells

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Preparation

When prepping food:

1. Only remove as much food from the cooler as you can prep in a short period
2. Return prepped food to the cooler or cook it as quickly as possible
3. Make sure workstations, cutting boards, and utensils are clean and sanitized

Proper Thawing Procedures

1. Thaw food by putting it into a cooler under 41° F or lower
2. Thaw food by placing it under running water 70°F or lower
3. Thaw food in a microwave, only if it will be cooked immediately after thawing
4. Thaw food as part of the cooking process

Thawing ROP fish

Frozen fish may be supplied in reduced oxygen packaging (ROP). This fish should usually remain frozen until ready for use. If it is stated on the label, the fish must be removed from packaging at the following times:

- Before thawing it under refrigeration
- Before or immediately after thawing it under running water

If you are packaging fish using a reduced –oxygen packaging method the fish must:

- Be frozen at the time of packaging
- Include a label that states the fish must be frozen until used

Prepping Specific Foods

Produce:

1. Do not let produce touch surfaces that have been exposed to raw meats, poultry or seafood.
2. Wash produce thoroughly and when soaking or storing in water do not mix different items or multiple batches of the same item.
3. Refrigerate cut melons, cut tomatoes and cut leafy greens
4. Do not serve raw seed sprouts to a high-risk population

Egg and Egg mixtures:

1. Handle pooled eggs with care by cooking promptly or storing at 41°F or lower.
2. Clean and sanitize in between batches
3. For high risk populations use pasteurized eggs if they are pooled or not fully cooked

Salads containing TCS foods:

1. Make sure all TCS food has been cooked to the proper internal temperature and cooled properly before making the salad.

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Ice:

1. Never use ice as an ingredient if it was used to keep food cold
2. Transfer ice using clean and sanitized scoops
3. Store ice scoops outside machines
4. NEVER use glass to scoop ice

practices that need a variance to preform

1. Packaging fresh juice on-site for sale later, unless the juice has a warning label
2. Smoking food to preserve, but not to enhance the flavor
3. Using food additives or adding components such as vinegar to preserve so that it no longer needs time and temperature control for safety
4. Curing Food
5. Custom-processing animals for personal use.
6. Packaging food using ROP (reduced-oxygen packaging) this includes MAP, vacuum packed and sous vide food
7. Sprouting seeds or beans
8. Offering live shellfish from a display tank.

Minimum internal temperatures

1. **Poultry**-(including whole or ground chicken, turkey, and duck) 165°F (74°C) for 1 second
2. **Ground Meat**-(including beef, pork, other meat) 155°F (68°C) for 17 seconds
3. **Injected meat**-155°F (68°C) for 17 seconds
4. **Pork, beef, veal, lamb**-Steaks/Chops: 145°F (63°C) for 15 seconds
   Roasts: 145°F (63°C) for 4 minutes
5. **Fish**- 145°F (63°C) for 15 seconds
6. **Ground, chopped, minced fish**- 155°F (68°C) for 17 seconds
7. **Eggs for immediate service**- 145°F (63°C) for 15 seconds
8. **Eggs that will be hot-held for service**-155°F (68°C) for 17 seconds
9. **Commercially processed food**- 135°F (57°C) for 15 seconds

If partially cooking during preparation:

1. Never cook the food longer than 60 minutes during the first initial cooking process
2. Cool the food immediately after the initial cooking process
3. Freeze or refrigerate the food after cooling it
4. Heat the food to its required minimum internal temperature before selling or serving
5. Cool the food if it will not be served immediately or held for service

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If your menu included raw or undercooked TCS food items, you must do the following:

1. Note it on the menu next to the food item
2. Advise customers who order this food of the increased risk of a foodborne illness
3. Put a notice on the menu
4. Provide this information using brochures, table tents, or signs

The Food and Drug Administration (FDA) advises against offering the following items raw or undercooked on a children's menu:

1. Eggs
2. Meat
3. Poultry
4. Seafood

If your operation serves mainly high-risk populations than you must never serve the following:

1. Raw seed sprouts
2. Raw or undercooked eggs, meat, or seafood
3. Raw oysters
4. Rare hamburgers

Proper way to cool food

1. Must cool food from 135°F (57°C) to 70°F (21°C) within two hours. Then from 70°F to 41°F within 4 hours.
2. Before starting the cooling process cut larger items into smaller parts to cool quicker.
3. Methods for cooling food safely and quickly:
    - Place food in an ice-water bath
    - Stir it with an ice paddle
    - Place it in a blast chiller
    - Cold water or ice as an ingredient

Proper way to Reheat food

1. Food to be reheated for immediate service can be reheated to any temperature if it was cooked and cooled correctly
2. Food to be reheated for hot-holding must be reheated to an internal temperature of 165°F (74°C) for 15 seconds within two hours
3. Commercially processed and packaged ready-to-eat food to an internal temperature of at least 135°F (57°C)

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Food must be thrown out in the following situations:

1. When it is handled by staff that have be diagnosed with a food borne illness
2. When the food has been contaminated by bodily fluids or by hands
3. When it has exceeded the time and temperature requirements designed to keep food safe

Service

Food Holding Temperatures

1. Hold hot TCS food at 135°F (57°C) or higher
2. Hold cold TCS food at 41°F (5°C) or lower
3. Check temperatures at least every 4 hours (every 2 hours for corrective action)
4. Never use hot holding equipment to reheat food unless it's designed for it

Holding food using time not temperature

1. **Cold food can be held without temperature control:**
    - If the food was at 41°F (5°C) or lower before removing it from temperature control.
    - Label the food once removed from refrigeration and the time it must be thrown out.
    - Cannot be held longer than 6 hours
    - Make sure the food does not exceed 70°F (21°C)
    - Sell, serve, or throw out the food within 6 hours
2. **Hot food can be held without temperature control:**
    - If the food was at 135°F (57°C) or higher before removing it from temperature control
    - If there is a label indicating the time the item must be thrown out
    - Sell, serve, or throw out the food within 4 hours

To prevent contamination when serving food

1. Wear single-use gloves or spatula's, tongs, deli sheets, or other utensils when handling ready-to-eat food.
2. Use separate utensils for each food item
3. Always use clean and sanitized utensils for serving
4. Store serving utensils correctly between uses to avoid contamination.
5. Clean and sanitize utensils after each task/ or if using them continuously clean and sanitize them every four hours.
6. Leave utensils in the food item with the handle extended above the container rim

Preset Tableware

1. If presetting tableware keep it wrapped or covered to prevent it from being contaminated

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Re-Serving Food- NEVER re-serve:

1. Food returned by one customer to another customer
2. Uncovered condiments
3. Uneaten bread
4. Plate garnishes

Self-Service Areas Requirements:

1. All self-service area's must have sneeze guards and they must be located 14 inches above the counter, and must extend 7 inches beyond the food.
2. All food must be labeled, placing labels on food, and place salad dressing names on ladle handles
3. All hot food must be kept at 135°F (57°C) or higher
4. All cold food must be kept at 41°F (5°C) or lower
5. Keep all raw food (meat, poultry, fish) separate from ready-to-eat food
6. When coming back for refills customers must use clean plates each time they return
7. Stock food displays with the correct utensils for dispensing food
8. Do not use ice as an ingredient if it was used to keep food or beverages cold

Labeling Bulk food in Self-Service Areas

1. Make sure the label is in plain view of the customers
2. Include the manufacturer or processor label provided with the food

A label is not needed for bulk unpackaged food, such as bakery products, if:

1. The product makes no claim regarding health or nutrient content
2. No laws requiring labeling exist
3. The food is manufactured or prepared on the premises
4. The food is manufactured or prepared at another regulated food operation or processing plant owned by the same person

Off-Site Service

Delivering food off-site:

1. Use insulated, food-grade containers designed to stop food from mixing, leaking, or spilling
2. Clean out the inside of delivery vehicles regularly
3. Check internal food temperatures regularly
4. Label food with a use-by date and time. Also, include reheating and service instructions
5. Make sure the service site has the correct utilities
6. Store raw meat, poultry, and seafood, and ready-to-eat items separately

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Vending Machines-To keep vended food safe

1. Check the product shelf life daily
2. Keep hot food hot and cold food cold
3. Dispense TCS food in its original container
4. Wash all fresh fruit with edible peels and wrap them before putting it in the machine

Management Systems

Food Safety Management system: Is a group of practices and procedures intended to prevent foodborne illness. Actively controls risks and hazards throughout the flow of food.

Foundations of a Food Safety Management system.

1. Personal Hygiene Program
2. Food Safety Training program
3. Supplier selection and specification program
4. Quality control and assurance program
5. Cleaning and sanitizing program
6. Standard Operating Procedures (SOP'S)
7. Facility design and equipment maintenance program
8. Pest-control program

Active Managerial Control focuses on controlling the five most common risk factors for foodborne illness

1. Practicing poor personal hygiene
2. Purchasing food from unsafe sources
3. Failing to cook food adequately
4. Holding food at incorrect temperatures
5. Using contaminated equipment

Ways to Achieve active managerial control in the operation

1. Training programs
2. Manager supervision
3. Standard Operating Procedures (SOPS)
4. HACCP

Critical points to the success of active managerial control:

1. Monitoring critical activities in the operation
2. Taking the necessary corrective action when required
3. Verifying that the actions taken control the risks factors

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HACCP- Hazard Analysis Critical Control Point

1. HACCP is based on identifying significant biological, chemical, or physical hazards at specific points within a product's flow through an operation
2. Once identified, hazards can be prevented, eliminated, or reduced to safe levels

An effective HACCP system must be based on a written place

1. It must be specific to each facility's menu, customer base, equipment, processes, and operations
2. A plan that works for one operation may not work for another

Seven HAACP principles

1. Conduct a hazard analysis
2. Determine critical control points (CCPs)
3. Establish critical limits
4. Establish monitoring procedures
5. Identify Corrective actions
6. Verify that the system works
7. Establish procedures for record keeping and documentation

Specialized processing methods that require a variance and may also require a HACCP place

1. Smoking food as a method to preserve it, but not to enhance the flavor
2. Using food additives or components such as vinegar to preserve or alter food so it no longer requires time and temperature control for safety
3. Curing food
4. Custom-processing animals
5. Packaging food using ROP methods including
6. Treating (pasteurizing) juice on-site and packaging it for later sale
7. Sprouting seeds or beans

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Facilities

Interior Requirements for a Safe Operation-Floors, walls, and ceiling

1. All materials must be smooth and durable for easier cleaning
2. Must be regularly maintained

All foodservice equipment that encounters food must meet these standards:

1. Nonabsorbent, smooth, and corrosion resistant
2. Easy to clean
3. Durable
4. Resistant to damage

Equipment mounted on the floor must either be:

1. Mounted on legs at least 6 inches (15 cm) high
2. Sealed to a masonry base

Tabletop equipment should be either:

1. Mounted on legs at least 4 inches (10cm) High
2. Sealed to the countertop

Once equipment has been installed:

1. It must be maintained regularly
2. Only qualified people should maintain it
3. Set up a maintenance schedule with your supplier or manufacturer
4. Check equipment regularly

Dishwashers must be installed:

1. So, they are reachable and conveniently located
2. In a way that keeps utensils, equipment, and other food-contact services from becoming contaminated

Handwashing stations are required to be in the following locations:

1. In the restrooms or directly next to them
2. Food prep areas
3. Service areas
4. Dishwashing areas

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All handwashing stations are required to have the following:

1. Running water at a temperature of at least 85 degrees Fahrenheit
2. Soap
3. A way to dry hands
4. Garbage receptacle
5. All the proper handwashing signs

Acceptable sources of drinkable water

1. Approved public water mains
2. Regularly tested and maintained private sources
3. Closed, portable water containers
4. Water transport vehicles

Cross Connection-Physical link between safe water and dirty water from drains, sewers, or other wastewater sources

Backflow- Reverse flow of contaminants through a cross-connection into the drinkable water supply, prevention would be using vacuum break or air gap

Backsiphonage- A vacuum created in the plumbing system that sucks contaminants back into the water supply

Lighting Requirements

1. Different areas of the facility have different lighting intensity requirements
2. Local jurisdictions usually require prep areas to be brighter than other areas
3. All lights need to have shatter-resistant light bulbs or protective covers
4. Always replace burned out light bulbs with the correct size bulbs

Ventilation Systems: Must be cleaned and maintained to prevent grease and condensation from building up on walls and ceilings

Garbage: Remove from prep areas as quickly as possible and clean the inside and outside of containers frequently

Indoor garbage receptacles Must be: Leak proof, waterproof, and pest proof, easy to clean and covered when not in use.

Designated storage areas: Store waste and recyclables separately from food and food-contact surfaces. Storage must not create a nuisance or a public health hazard.

Outdoor Containers Must: Be placed on a smooth, durable nonabsorbent surface, have tight-fitting lids, be covered always and have their drain plugs in place

Emergencies that affect the facility

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Imminent health hazard: A significant threat or danger to health or requires immediate correction or closure to prevent injury.

Possible imminent health hazards

1. Electrical power outages
2. Fire
3. Flood
4. Sewage backups

How to respond to a crisis affecting the facility

1. Determine if there is a significant risk to the safety or security of your food
2. If the risk is significant stop service, then notify the local regulatory authority
3. Decide how to correct the problem
4. Establish time-temperature control
5. Clean and sanitize all surfaces that
6. Verify water is drinkable
7. Reestablish physical security of the facility

Pest Management

Three ways to prevent pests

1. Deny pests access to the operation
2. Deny pests food, water and shelter
3. Work with a licensed Pest Control Operator (PCO)

Ways to keep pests from entering the facility through deliveries

1. Check all deliveries before they enter the operation
2. Refuse shipments if pests or signs of pests are found

Pest Prevention

1. Secure all screen windows and vents
2. Seal cracks in floors and walls, and around pipes
3. Install air curtains above or alongside doors

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Ways to deny pests shelter

1. Throw out garbage quickly and correctly
2. Keep containers clean and in good condition
3. Keep outdoor containers tightly covered
4. Clean up spills around containers immediately
5. Store recyclables correctly
6. Keep recyclables in clean, pest-proof containers
7. Keep containers as far away from the building as regulations allow
8. Store food and supplies quickly and correctly
9. Keep them away from walls and at least 6 inches (15cm) off the floor
10. Rotate all products using First In First Out, so the pests can settle and breed
11. Clean the operation thoroughly.
12. Clean up food and beverage spills immediately
13. Clean break rooms after use
14. Keep cleaning tools and supplies clean and dry

Contact your PCO immediately if you notice the following:

1. Feces
2. Nests
3. Damage on products, packaging, and the facility itself

Cleaning and Sanitizing

Cleaners and Sanitizers

Cleaners must be:

1. Stable and noncorrosive
2. Safe to use

Heat Sanitizers

1. Water must be at least 171°F (77°C)
2. Immerse the item for 30 seconds

Chemical Sanitizers

1. Chlorine
2. Iodine
3. Quats (Chemical sanitizer)
   Always follow the manufactures instructions

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Guidelines for Effective Use of Sanitizers

1. **Chlorine** – Water temperature minimum 75°F, 50-99ppm, Contact time minimum 7 seconds
2. **Iodine** – Water temperature minimum 68°F, 12.5-25ppm, Contact time minimum 30 seconds
3. **Quats** – Water temperature minimum 75°F, less than 500ppm, Contact time minimum 30 seconds (Always follow manufacturer's instructions)

Proper way to clean and sanitize

1. Scrape or remove food bits from the surface
2. Wash the surface
3. Rinse the surface
4. Sanitize the surface
5. Allow the surface to air-dry

Food contact surfaces must be cleaned and sanitized:

1. After they are used
2. Before working with a different type of food
3. Any time a task was interrupted and the items may have been contaminated
4. After four hours if the items are in constant use

Cleaning and Sanitizing stationary equipment:

1. Unplug the equipment
2. Rinse the equipment surfaces with clean water
3. Take the removable parts off the equipment
4. Sanitize the equipment surfaces
5. Scrape or remove food from the equipment surfaces
6. Allow all surfaces to air-dry
7. Wash the equipment surfaces
8. Put the unit back together

Clean in place equipment

1. Equipment holding and dispensing TCS food must be cleaned and sanitized every day unless otherwise indicated by the manufacturer
2. Check local regulatory requirements

<u>Machine Dishwashing</u>

High Temperature machines:

1. Final sanitizing rinse must be 180°F (82°C) or higher
2. 165°F (74°C) for stationary rack, single-temperature machines

Chemical-Sanitizing Machines

1. Follow the temperature guidelines provided by the manufacturer

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Dishwasher Operation Guidelines

1. Clean the machine as often as needed
2. Scrape, rinse, or soak items before washing
3. Use the correct dish racks
4. Never overload dish racks
5. Air-dry all items
6. Check the machine's water temperature and pressure

Three Compartment Sink Set-up

1. Clean and sanitize each sink and drain board
2. First Sink: Detergent and water, with a temperature at least 110°F (43°C)
3. Second Sink: Clean rinse water
4. Third Sink: Water and sanitizer, follow manufacturers guidelines
5. Provide a clock with a second hand to let food handlers know how long items have been in the sanitizer

Using a three-compartment sink

1. Rinse, scrape or soak items before washing them
2. Wash items in the first sink
3. Rinse items in the second sink
4. Sanitize items in the third sink
5. Air-Dry items on a clean and sanitized surface

Proper storage of clean and sanitized tableware and equipment

1. Store them at least 6 inches (15cm) off the floor
2. Clean ad sanitize drawers and shelves before items are stored
3. Store glasses and cups upside down on a clean and sanitized shelf or rack
4. Store flatware and utensils with handles up
5. Cover the food-contact surfaces of stationary equipment until ready for use
6. Clean and sanitize trays and carts used to carry clean tableware and utensils

Cleaning

When cleaning the premises: Clean nonfood-contact surfaces regularly. This includes floors, ceilings, walls, equipment exteriors, etc.

Cleaning up after people who get sick: Diarrhea and vomit in the operation must be cleaned up correctly. Correct cleanup can prevent food from becoming contaminated and keep others from getting sick.

Chemical Storage

Proper storage for cleaning tools and chemicals: Place in a separate area away from food and prep areas

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Storage areas should include the following:

1. Good lighting so chemicals can be seen easily
2. Utility sink for filling buckets and washing cleaning tools
3. Floor drain for dumping dirty water
4. Hooks for hanging cleaning tools

Never:

1. Dump mop water or other liquid waste into toilets or urinals
2. Clean tools in sinks used for:
    - Hand washing
    - Food prep
    - Dishwashing

Chemicals:

1. Only purchase those approved for use in foodservice operations
2. Store them in their original containers away from food and food-prep areas
3. If transferring them to a new container, label it with the common name of the chemical
4. Keep MSDS for each chemical
5. When throwing chemicals out, follow instructions on the label and local regulatory requirements

<u>Develop a Cleaning Program</u>

To develop an effective cleaning program:

1. Create a master cleaning schedule
2. Train your staff to follow the cleaning schedule
3. Monitor the program to make sure that it works and is being followed

To create a master cleaning schedule, identify:

1. What should be cleaned
2. Who should clean it
3. When it should be cleaned
4. How it should be cleaned

Monitoring the cleaning program:

1. Supervise daily cleaning routines
2. Check cleaning tasks against the master schedule every day
3. Change the master schedule as needed
4. Ask the staff for their input on the cleaning program