

ATLANTIC FOOD SAFETY - STUDY GUIDE

Part 1 - PROVIDING SAFE FOOD

FOODBORNE ILLNESS is a disease carried or transmitted to people by food.

FOODBORNE ILLNESS OUTBREAK is when two or more people experience the same illness and it is after eating the same food. An investigation must be conducted by state and local authorities. Must be confirmed by the laboratory analysis.

HIGHER RISK POPULATIONS: Infants, preschool age children, the elderly, people taking medications, and people who are seriously ill.

CONTAMINATION - The presence of harmful substances in food. Some food safety hazards are caused by humans or the environment while some occur naturally.

- **BIOLOGICAL** – Bacteria, Virus, Parasites, Fungi, Natural Toxins. *Pathogens are the greatest threat to food safety.* Some plants, mushrooms and seafood that carry harmful toxins are included in this group.
- **CHEMICAL** – Foodservice Chemicals can contaminate food if used incorrectly. Cleaners, Sanitizers, Toxic Metal from Non Food Service Grade Utensils and Cookware and Pesticides.
- **PHYSICAL** – Foreign Objects – Hair, Glass, Paper, Metal Shavings and naturally occurring objects such as chicken or fish bones.

THE CENTERS FOR DISEASE CONTROL (CDC) TOP FIVE DOCUMENTED REASONS FOR OUTBREAKS:

1. Purchasing food from unsafe sources
2. Failing to cook food adequately
3. Holding food at incorrect temperatures
4. Contaminated equipment
5. Poor personal hygiene

WAYS FOOD BECOMES CONTAMINATED

Time-Temperature Abuse - *Food is time-temperature abused when it has stayed too long at temperatures that are good for the growth of pathogens.*

- ❖ Food is not held or stored at the correct temperature
- ❖ Food is not cooked or reheated enough to kill pathogens
- ❖ Food is not cooled correctly

Cross Contamination - Pathogens can be transferred from one surface or food to another

- ❖ Contaminated ingredients are added to food that requires no further cooking
- ❖ Contaminated food touches or drips fluids onto cooked or ready to eat food
- ❖ Ready-to-eat food touches contaminated surfaces
- ❖ Food handler touches contaminated food and then touches ready-to-eat food

Poor Personal Hygiene

- ❖ Failing to wash hands correctly after using the restroom
- ❖ Cough or sneeze on food
- ❖ Touch or scratch wounds and then touch food
- ❖ Work while sick

Poor Cleaning and Sanitizing - Pathogens can be spread to food if equipment has not been cleaned and sanitized correctly.

- ❖ Equipment and utensils are not washed, rinsed, and sanitized between uses.
- ❖ Food contact surfaces are wiped clean instead of being washed rinsed, and sanitized
- ❖ Wiping cloths are not stored in a sanitizer solution between uses
- ❖ Sanitizer solution was not prepared correctly

Food Most Likely to Become Unsafe

Certain foods can support the growth of pathogens more than others. These foods are called TCS foods, or Time-Temperature Control for Safety foods. Although any type of food can become contaminated, some are better able to support the rapid growth of microorganisms than others. These foods require TIME-TEMPERATURE CONTROL FOR SAFETY (TCS). TCS Foods must be kept out of the Danger Zone (41° - 135°)

- ✓ Examples of TCS foods are meats, poultry, dairy products, eggs, fish, shellfish, cooked vegetables, potatoes, tofu and other soy proteins, untreated garlic-in-oil mixtures, sprouts and sprout seeds, cut melons, cut tomatoes and leafy greens. Even though these foods seem very different, they can all support the growth of bacteria if not kept at the proper temperatures.

READY-TO-EAT FOOD (RTE) is food that can be eaten without further preparation, washing or cooking. **Ready to eat food includes: cooked food, washed fruits and vegetables, deli meats, bakery items, sugar, spices and seasonings.** Like TCS food, RTE food also needs careful handling to prevent contamination.

Training and Monitoring - Managers must understand food safety practices and create the necessary procedures. As a manager, it is your responsibility to ensure that employees have the knowledge and skills needed to handle food safely in your establishment. Some of the benefits can include preventing a foodborne illness outbreak, preventing loss of revenue and reputation following an outbreak, improving employee morale, and increasing customer satisfaction.

Government Agencies Responsible for the Prevention of Foodborne Illness

FDA - Inspects all food EXCEPT meat, poultry and eggs. The FDA issues the *Food Code*, a science based code that provides recommendations for food safety. FDA recommends that states adopt the Food Code but cannot require it. Regulates foods that cross state lines except meat, poultry and eggs.

USDA - Inspects and regulates meat, poultry and eggs. Regulates foods that cross state lines or involves more than one state.

CDC and PHS - Assist the FDA, USDA and local and state health departments. Investigate outbreaks and conduct research into foodborne-illness outbreaks.

State and local regulatory authorities (DHEC) - write or adopt code that regulates retail or foodservice operations. They also inspect operations, enforce regulations, investigate illnesses, issue licenses, issue variances and approve HACCP plans.

Remember: The FDA can only offer guidance. It is up to each state to write their own food code.

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Part 2 - FORMS OF CONTAMINATION

Eating food contaminated with foodborne pathogens or their toxins is the leading cause of foodborne illness.

CONTAMINATION - *presence of harmful substances in food. These substances are biological, chemical or physical. Some cause foodborne illness. Others can result in physical injury.*

Contaminants come from a variety of places:

- ❖ Animals we use for food
- ❖ Air, contaminated water, and dirt
- ❖ People, both deliberately and accidentally

People can contaminate food when:

- ❖ they don't wash their hands after using the restroom
- ❖ they are in contact with a person who is ill
- ❖ they sneeze or vomit onto food or food contact surfaces
- ❖ they touch dirty food-contact surfaces and equipment and then touch food

Biological Contamination

Microorganisms are small living organisms that can be seen only with a microscope. Most are harmless, but some cause illness. Harmful microorganisms are called PATHOGENS. Some make you sick when you eat them and others produce poisons (TOXINS) that make you sick.

Types of Pathogens

- ❖ **VIRUSES**
- ❖ **BACTERIA**
- ❖ **PARASITES**
- ❖ **FUNGI**

Symptoms of Foodborne Illness

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

Not everyone who is sick will have all the symptoms nor are symptoms limited to this list. Onset time depends on the type of foodborne illness a person has. Onset time can range from 30 minutes to as long as six weeks.

BACTERIA

- ❖ Can be found almost anywhere
- ❖ Cannot be seen, smelled or tasted
- ❖ The most important way to prevent bacteria from causing foodborne illness is Time-Temperature Control.
- ❖ Most bacteria are controlled by keeping food out of the temperature danger zone (41-135F). If FAT TOM conditions are right they grow rapidly.

Pathogens need six conditions to grow. These conditions favor the growth of most foodborne pathogens. **FAT TOM** stands for Food, Acidity, Temperature, Time, Oxygen and Moisture. Time & Temperature are the easiest things for us to control.

Food - Most bacteria need nutrients to survive. TCS food supports the growth of bacteria better than other types of food.

Acidity - Bacteria grow best in food that contains little or no acid.

Temperature - Bacteria grow rapidly between 41°F and 135°F (5°C and 57°C) this range is known as the temperature danger zone. Bacteria growth is limited when food is held above or below the temperature danger zone.

Time - Bacteria need time to grow

Oxygen - Some bacteria need oxygen to grow, while others grow when oxygen isn't there

Moisture - Bacteria grow well in food with high levels of moisture.

MAJOR BACTERIA THAT CAUSE FOODBORNE ILLNESS - FDA has identified four that are highly contagious and can cause severe illness. Food handlers diagnosed with these illnesses from bacteria CAN NEVER WORK IN A FOOD SERVICE OPERATION WHILE SICK!

- **Salmonella Typhi** - Lives only in humans. Eating only a small amount can make a person sick. It is found in a person's feces for weeks after the symptoms have ended. Linked to ready-to-eat food and beverages. Food handlers diagnosed with Salmonella Typhi must be excluded from the operation. Prevention Measures - wash hands and cook food to minimum internal temperatures
- **Nontyphoidal Salmonella** – Many farm animals carry nontyphoidal Salmonella naturally. Food linked with this bacteria include: poultry, eggs, meat, milk, dairy products and produce. Prevention measures – cook poultry and eggs to minimum internal temperatures, prevent cross contamination, exclude food handlers diagnosed with salmonellosis.
- **Shigellosis** - Found in the feces of humans with shigellosis - Most illnesses occur when people eat contaminated food or water. Can be spread by flies. Linked to food easily contaminated by hands especially salads containing TCS Foods (potato, tuna, shrimp) and food such as produce that has come in contact with contaminated water. Food handlers diagnosed with Shigellosis must be excluded from the operation. Prevention Measures - Exclude food handlers with diarrhea, wash hands, control flies

- **Shiga toxin producing E. Coli** - Found in the intestines of cattle and infected people. Bacteria can contaminate the meat during slaughter. Eating only a small amount can make a person sick. Found in a person's feces for weeks after the symptoms have ended. Commonly found in raw or undercooked ground beef and contaminated produce. *Food handlers diagnosed with E coli must be excluded from the operation.* Prevention Measures - Exclude food handlers with diarrhea, cook food (especially ground beef) to minimum internal temperatures, purchase produce from approved reputable suppliers, prevent cross-contamination.

VIRUSES are the smallest of the microbial contaminants. Viruses require a host to *grow*. Viruses can survive cooler and freezer temperatures. While a virus cannot reproduce in the food, once consumed it will cause illness. Viruses are spread from PERSON TO PERSON, PERSON TO FOOD, AND PERSON TO FOOD CONTACT SURFACES. Most are spread through a fecal-oral route. Practicing good personal hygiene and minimizing bare-hand contact with ready-to-eat food can help defend against viral foodborne illnesses. Often spread by airborne vomit particles, quick removal and cleanup of vomit is important.

- **Hepatitis A** - found mainly in the feces of people infected with it. The virus can contaminate water and many types of foods. Commonly linked with ready-to-eat food and shellfish from contaminated water. Symptoms of Jaundice and nausea. Prevention Measures - exclude staff with jaundice from the operation, wash hands, avoid bare-hand contact with ready-to-eat food and purchase shellfish from reputable suppliers. ***Employees with Jaundice or Hepatitis A must be excluded from the operation***
- **Norovirus** - Linked to ready-to-eat food and shellfish from contaminated water. Often transferred to food when infected food handlers touch food or equipment with fingers that have feces on them. Eating only a small amount can make a person sick. ***Employees with Norovirus must be excluded from the operation.*** Prevention Measures - Exclude staff with vomiting and diarrhea from the operation, wash hands, avoid bare-hand contact with ready-to-eat food, wash hands, purchase shellfish from approved reputable suppliers.

PARASITES are organisms that need a living host to survive. Commonly associated with seafood, wild game and food processed with contaminated water (produce). Prevention Measures - Purchase food from approved, reputable suppliers and cook food to required minimum internal cooking temperature. Make sure fish that will be served raw or undercooked fish is correctly frozen by the manufacturer.

FUNGI include yeasts, molds and mushrooms. Some molds and mushrooms can produce harmful toxins. Throw out all moldy food. Yeasts can spoil food rapidly and will produce a smell or taste of alcohol. Foods spoiled by yeast should also be discarded. Buy foods from an approved, reputable supplier.

BIOLOGICAL TOXINS

Biological toxins are naturally associated with some plants, mushrooms and seafood. Toxins are a natural part of some fish. **SCOMBROID**, – *Histamine Toxin* – Occurs when Tuna, Mackerel, Bonito and Mahi-mahi are time-temperature abused.

*Some fish become contaminated when they eat smaller fish that have eaten the **CIGUATERA TOXIN**. The toxin is found in certain marine algae. Commonly linked to reef fish (Barracuda, Grouper, Jacks, and Snapper) Shellfish such as oysters can be contaminated when they eat marine algae that have the toxin.*

Symptoms of illness from eating seafood toxins: diarrhea, vomiting, tingling in the extremities, reversal of hot and cold sensation, flushing of face, etc.

Purchase fish from APPROVED SUPPLIERS since cooking or freezing cannot destroy these toxins.

+All produce should be purchased from an approved supplier. This will prevent illnesses associated with wild mushrooms, and produce that has been contaminated with sewage or chemicals.

CHEMICAL CONTAMINANTS can come from a wide variety of substances including toxic metals, pesticides, cleaning products, sanitizers, lubricants, hairsprays and first aid products. To prevent contamination, such as lead in a pewter pitcher, use only approved food-grade utensils & equipment to prepare and store food. If carbonated-beverage dispensers are installed improperly, and carbonated water is allowed to flow back into the copper supply lines, it can leach copper from the line and contaminate the beverage. Allow only a licensed professional to apply pesticides.

- **Symptoms:** Depends on the chemical consumed. Consult the chemicals **MSDS (Material Safety Data Sheet)** which contains important safety information about the chemical.
- Always follow the manufacturer's directions

PHYSICAL CONTAMINATION can occur when foreign objects are accidentally introduced into food. Common physical contaminants include metal shavings from cans, staples, glass from broken light bulbs, fingernails, hair, eye lashes, band-aids, dirt. Purchase food from approved, reputable supplier. Closely inspect the food you use. Food handlers must practice good personal hygiene

- Mild to fatal injuries are possible including cuts, dental damage, choking, bleeding and pain.

DELIBERATE CONTAMINATION OF FOOD addresses the prevention or elimination of the deliberate contamination of food. You must take steps to stop people who are trying to contaminate it. This may include terrorists or activists, disgruntled staff, vendors or competitors. May use biological, chemical or physical contaminants. Attacks can occur anywhere in the food chain. The FDA has created a tool that can be used to develop a food defense program.

A - How do you **assure** that the supplies and ingredients you use are from a safe secure source?

L - How do you **look** after the security of the products and ingredients in your facility?

E - What do you know about your **employees** and people coming in and out of your facility?

R - Could you provide **reports** about the security of your products while under your control?

T -Who do you notify if you have a **threat** or issue at your facility, including suspicious behavior?

HOW TO RESPOND TO A FOODBORNE-ILLNESS OUTBREAK

Here are some things to consider if responding to a foodborne illness outbreak:

- Gather Information
- Notify Authorities
- Segregate Product
- Document Information
- Identify staff
- Cooperate with authorities
- Review Procedures.
- **IF YOU SUSPECT AN OUTBREAK YOU MUST INFORM REGULATORY AUTHORITIES**

FOOD ALLERGIES. Some allergic reactions could include itching, tightening of the throat, wheezing, hives, swelling, diarrhea, vomiting, cramps, and loss of consciousness or even death. Managers and employees should be aware of the most COMMON FOOD ALLERGIES, which include **milk, dairy, eggs, shellfish, fish, wheat, soy, peanuts, and tree nuts**. You and your employees should be able to inform customers of these and other potential food allergens that may be included in food served at your establishment. Servers should suggest simple menu items. They must tell the customer any secret ingredients. There should always be a designated manager on duty to answer allergy related questions. Kitchen staff must make sure allergens are not transferred from food containing an allergen to a food served to a customer with allergies. Food handlers working offsite must also be able to handle questions asked by customers about allergies.

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PART 3 - THE SAFE FOOD HANDLER

Food Handlers have the potential to contaminate food when they;

- ❖ Have a foodborne illness
- ❖ Have wounds that contain a pathogen
- ❖ Sneeze or cough
- ❖ Have contact with a person who is ill
- ❖ Touch anything that may contaminate their hands and don't wash them
- ❖ Have symptoms such as diarrhea, vomiting, or jaundice—a yellowing of the eyes or skin

Carrier - Some people carry pathogens and infect others without ever getting sick themselves.

ACTIONS THAT CAN CONTAMINATE FOOD

- ❖ Scratching the scalp
- ❖ Running fingers through hair
- ❖ Wiping or touching the nose
- ❖ Rubbing an ear
- ❖ Touching a pimple or infected wound
- ❖ Wearing a dirty uniform
- ❖ Coughing or sneezing into the hand
- ❖ Spitting in the operation

Actions such as eating, drinking, chewing gum, spitting or smoking may transfer saliva to hands or directly to food.

Managers must focus on the following:

- ❖ Creating personal hygiene policies
- ❖ Training food handlers on personal hygiene policies and retraining them regularly
- ❖ Modeling correct behavior at all times
- ❖ Supervising food safety practices
- ❖ Revising personal hygiene policies when laws or science change

PROPER HAND WASHING must always be practiced, because simple acts like scratching, or touching ones hair can contaminate food. This is especially important before starting work, after using the restroom, after sneezing, coughing, smoking, eating, drinking, taking out the garbage and BEFORE and AFTER handling raw meat poultry and fish.

1. Turn on hot water - **100F** minimum - wet hands and arms
2. Apply soap
3. Scrub hands & arms for **10-15 SECONDS**.
4. Rinse
5. Dry with a single-use towel or hand dryer
6. If an establishment uses a hand antiseptic, it must be FDA approved.

Only use hand antiseptics after hand washing – never in place of.

HANDS: short, clean nails free of nail polish and false fingernails. Fingernails should be trimmed and filed. Ragged nails are hard to clean and may hold pathogens.

Infected wounds or cuts

- ❖ Must be covered to prevent pathogens from contaminating food and food-contact surfaces.
- ❖ How a wound is covered depends upon where it is located
- ❖ Cover wounds on the hand or wrist with an impermeable cover. (i.e. bandage or finger cot) and then a single-use glove.
- ❖ Cover wounds on the arm with an impermeable cover, such as a bandage.
- ❖ Cover wounds on other parts of the body with a dry, tight-fitting bandage.

SINGLE USE GLOVES should never be used in place of hand washing. Hands must be washed before putting on gloves and when changing to a new pair. You do not need to rewash your hands each time you change gloves as long as you are performing the same task and your hands have not become contaminated. Gloves used to handle food are for single-use and should never be washed or reused. They must be changed when they become soiled or torn, or when beginning a new task. Never blow into gloves or roll gloves to make them easier to put on.

There are times when it is acceptable to handle RTE food with bare hands:

- ❖ The food will be added as an ingredient to a dish that does not contain raw meat, poultry or seafood but will be cooked to 145. For example, adding cheese to pizza dough.
- ❖ The food will be added as an ingredient in a dish containing raw meat, seafood and poultry and the dish will be cooked to the required minimum internal temperature of the raw item. For example, adding vegetables to beef stew.

NEVER handle ready-to-eat food with bare hands when you primarily serve a high-risk population. Use single use gloves.

PERSONAL HYGIENE - All employees must bathe or shower before work and keep their hair clean. Prior to handling food, employees must put on clean clothing, appropriate shoes and a clean hair restraint or hat. They must also remove jewelry from hands and arms. Only a plain wedding band should be allowed. Aprons should always be removed when the employee leaves food-preparation areas. Never wipe your hands on your apron. Eating, drinking, smoking, and chewing gum should not be allowed when preparing, serving or working in food-prep areas.

EMPLOYEE ILLNESS

A manager must be very knowledgeable with the symptoms of foodborne illness so they know when to:

- **RESTRICT** employees from working with or around food if they have a *sore throat with a fever*. If serving a high risk population exclude food handlers with a sore throat and fever.
- **EXCLUDE** employees with **DIARRHEA OR VOMITING**. Food handlers with diarrhea or vomiting must be symptom free for 24 hours or have a written release from a medical practitioner before returning. Food handlers with Jaundice must be reported to the regulatory authority. Food handlers who have had Jaundice less than 7 days must be excluded. Food handlers with Jaundice must have a written release from a medical practitioner and approval from the regulatory agency before they can return to work.
- **EXCLUDE** and work with the food handler's medical practitioner and the local regulatory agency to decide when this person can come back to work or are restricted if diagnosed with the following conditions:
 - Hepatitis A
 - Salmonella Typhi
 - Nontyphoidal Salmonella
 - E. Coli
 - Norovirus
 - Shigella

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Part 4 – FLOW OF FOOD INTRODUCTION

The flow of food is the path food takes in your operation from purchasing to service. Many things can happen to food in its flow through the operation. Two major concerns are cross contamination and time-temperature abuse.

CROSS CONTAMINATION can happen at any point in the operation. The most basic way to avoid cross contamination is to keep raw and ready-to-eat food away from each other.

- ❖ Separating equipment
- ❖ Cleaning and sanitizing
- ❖ Prepping food at different times
- ❖ Buying Prepared food

TIME-TEMPERATURE ABUSE – Most foodborne illnesses happen because food is time-temperature abused. This is food cooked to the wrong internal temperature, held at the wrong temperature or cooled or reheated incorrectly.

*****Danger Zone 41-135

Pathogens grow the fastest between 70-125

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 are the most important tools managers have to prevent time-temperature abuse.

Thermometers should be washed, rinsed and sanitized and air-dried before each use to prevent cross contamination. They should also be calibrated before each shift to ensure accuracy. Thermometers should be recalibrated after they are dropped. When measuring the internal temperatures of food, the thermometer stem or probe should be inserted into the thickest part of the product. The temperature should be taken in two different places. Wait for the thermometer to steady before reading.

- **Bimetallic Stemmed**- the stem should be immersed in the product from the tip to the end of the sensing area (dimple). It should have an adjustable calibration nut, be easy-to-read, and accurate to within 2 degrees. The bimetallic thermometer is good for checking large or thick food (roast). It is not good for checking thin food (hamburger patty).
- **Infrared** – measure surface temperatures and can NOT be used to take the internal temperatures
- **Thermocouples and Thermistors** are digital with different types of probes.
 - Immersion Probes - use these to check liquids such as soups, sauces and frying oil
 - Penetration Probes - use to check the internal temperature of food. Especially useful for checking temperatures of thin food
 - Surface Probes - check the temperature of flat cooking equipment, such as griddles
 - Air Probes - check the temperature inside coolers or ovens

- **Time-Temperature Indicator (TTI)** monitors time and temperature during a shipment. Records if product has been abused
- **Maximum Registering Thermometer** indicates highest temperature reached during its use. Good for checking final rinse temperatures of a dishwashing machine.

NEVER USE GLASS THERMOMETERS TO MEASURE FOOD TEMPERATURES unless they are in an enclosed shatterproof casing.

Notes:

Part 5 - PURCHASING, RECEIVING AND STORAGE

Food Safety control begins with purchasing

APPROVED SUPPLIER – Has been inspected and meets all applicable local, state, and federal laws

RECEIVING – Must plan delivery schedules so products can be handled promptly and correctly. Employees assigned to receive deliveries must be trained to follow food safety guidelines. They must be trained to inspect food properly as well as to distinguish between products that are acceptable and those that are not. Packaging should be clean and undamaged, use-by dates current, and show no signs of mishandling. **PRODUCTS MUST BE DELIVERED AT THE PROPER TEMPERATURES.**

Key Drop Deliveries - after hour deliveries. The delivery must be inspected once you arrive at the operation and must meet the following conditions:

- It is from an approved source
- It was placed in the correct storage location to maintain required temperature
- It has not been contaminated and has been protected from contamination in storage
- It is honestly presented

REJECTING ITEMS

- Set the item aside from items you are accepting. Tell the delivery person exactly what was wrong with the item. Get a credit slip. Log the incident on the invoice.

CHECKING TEMPERATURES OF VARIOUS TYPES OF FOOD

- **Meat, Poultry and Fish** - insert probe in thickest part of food, usually the center
- **Reduced Oxygen Packaged Foods (ROP, Map, vacuum-packed and sous vide food)** insert the thermometer stem or probe between two packages. Be careful not to puncture packages
- **Other packaged food** - open the package and fully immerse stem or probe into the food (milk, coleslaw, sour cream)

TEMPERATURE UPON DELIVERY

- Cold TCS Foods – 41F or lower unless otherwise specified
- Shellfish - 45F or lower. Cool shellfish to 41F within 4 hours of delivery
- Milk - 45F or lower. Cool milk to 41F within 4 hours of delivery
- Shell Eggs - 45F
- Hot TCS Foods - 135F or higher
- Frozen – Frozen Solid with no Fluid Stains or Large Ice Crystals

PACKAGING - clean and intact. Reject items with tears, holes or punctures. Reject cans that have swollen or bulging ends, rust or dents. Reject ROP food that is bloated or leaking. Reject food with leaks damage or water stains. Reject items with signs of pest infestation. Reject items past expiration date.

DOCUMENTS

Shellfish - must be received with shellstock identification tags. These tags indicate where the shellfish were harvested. These tags must be kept for 90 days from the date the last shellfish was used from its delivery container.

Fish Received that will be eaten raw or partially consumed must have documentation showing fish was properly frozen before you received it. Farm raised fish must have documentation showing it was raised to FDA standards. You must keep the documents for 90 days from the sale of the fish.

FOOD QUALITY - Poor food quality can be a sign food has been time-temperature abused.

- Reject food that is moldy or has an abnormal color or odor.

LABELING FOOD FOR USE ON-SITE - Label food so it is not mistaken for a chemical or another food.

- Items not in their original containers must be labeled.
- Food labels should include the common name or a statement that accurately identifies it.

DATE MARKING - Ready to eat TCS food must be marked if held for longer than 24 hours.

- Ready-to-eat TCS foods prepped in house can only be held for seven days if it is held at 41F. Commercially processed food (sour cream) can be held for seven days from the date it was opened. Date begins on the day the product was prepared or the container was opened. If a commercially prepared product has an expiration date that is less than the seven days, use the expiration date on the container.

TEMPERATURES GUIDELINES

- locate thermometers in the warmest part of refrigerated unit
- Do not overload coolers or freezers
- Set refrigerators at 39F or lower
- Never place hot food in refrigerators, which could raise the temperature inside. Cool food to 70° before placing it in the refrigerator.
- Do not line refrigerator shelves, overload units, or open doors too often. These practices make units work harder to maintain the temperature inside.
- Product temperatures should be checked regularly. Internal and external thermometers must be maintained.

FIRST-IN, FIRST-OUT (FIFO) stock rotation should be followed. Store items with earlier use by dates in front, and use them first.

Items should be stored in original packaging. If removed from its original packaging place it in a clean sanitized NSF container with a tight fitting lid. All packaging and containers should be labeled with the NAME OF THE FOOD, THE DATE PREPARED AND EXPIRATION DATE. NEVER USE EMPTY FOOD OR CHEMICAL SOLUTION CONTAINERS TO STORE FOOD. NEVER STORE CHEMICALS IN USED FOOD CONTAINERS.

STORAGE - Store items in designated areas. They should be clean and well ventilated to maintain food quality. Food in dry storage should be stored at least **6 inches** off the floor. Do not store food

products near chemicals, cleaning supplies or dirty linens since food can easily become contaminated. **Open dry food items should be labeled and stored in a sealed container.**

STORAGE ORDER FROM TOP TO BOTTOM (REFRIGERATOR)

1. **Ready-to-eat (top)**
2. **Seafood**
3. **Whole cuts of beef and pork**
4. **Ground meat and fish**
5. **Whole and ground poultry (bottom)**

Wrap or cover food

Store raw meat, poultry, and seafood separately from ready-to-eat food. If this is not possible, store ready-to-eat food above raw meat, poultry, and seafood. This practice will prevent juices from raw food dripping onto ready-to-eat food

NOTES:

Section 6 - Preparation

BEST PRACTICES

- Make sure workstations, equipment, cutting boards and utensils are clean and sanitized.
- Only remove as much food from the cooler as can be prepped in a short period of time.
- Return prepped food to the cooler as soon as possible.
- If you use food or color additives they must be approved by the local regulatory authority.
- Do not sell produce that was treated with sulfites.
- Do not use the following to misrepresent the appearance of food - Food additives or color additive, colored overwraps, lights. Food not presented honestly must be thrown out.

CORRECTIVE ACTIONS - food that has become unsafe and must be thrown out

- When food has been handled by a restricted or excluded employee
- When contaminated by hands or bodily fluids from the nose or mouth
- When food has exceeded time temperature requirements

THAW frozen food in the refrigerator (BEST WAY) or:

- Submerge food under drinkable running water 70F or lower. Never let the temperature of the food rise above 41 degrees for more than 4 hours.
- In a microwave oven, if the item will be cooked immediately
- As part of the cooking process
- **NEVER THAW FOOD AT ROOM TEMPERATURE**

Frozen fish in ROP packaging: If it states on the package that the fish must remain frozen until use, it has its own thawing guidelines. It must be removed from the packaging before thawing under refrigeration or immediately after thawing under running water.

CONTROL TIME AND TEMPERATURE - Prepare food in small batches, use pre-chilled ingredients, utensils and bowls.

EGGS AND EGG MIXTURES - Pooled eggs that are cracked open and combined in a common container should be cooked promptly or stored at 41F or below. Remove only as many eggs as needed from the refrigerator at a time. Egg batters and breading should be prepared in small batches. High-risk establishments should serve only pasteurized eggs for undercooked items. Example: over easy egg

PRODUCE AND FRUIT should be washed under running water before cooking, but do not mix different items or do multiple batches. Fruit such as tomatoes and melons must be washed under running water before slicing. Once fruit is cut it must be stored at 41 or lower.

USING LEFTOVERS - TCS foods such as pasta, chicken or potatoes can be used only if they have been cooked, held and cooled correctly. Leftovers must be thrown out after 7 days.

ICE - must be made from water that is safe to drink. Never use ice as an ingredient if it was used to keep food cold. Store ice scoops outside the ice machine in a clean sanitized container.

COOKING can reduce the number of microorganisms in food to a safe level. To ensure that microorganisms are destroyed, food must be cooked to minimum internal temperatures.

*******YOU MUST MEMORIZE THE MINIMUM INTERNAL COOKING TEMPERATURES*******

165° - Chicken, Stuffed Meats, Stuffed Pasta, Leftovers, TCS Food Cooked in the Microwave

155° - Ground Meat including beef pork and other meat, mechanically tenderized meat, ratites (ostrich)
Ground Seafood, Eggs to be held for hot Service

145° - Steak, Chops, Fish, Roasts, commercially raised game and Eggs for immediate service

135° - Vegetables, Fruit, Pasta, Beans being held for hot service. Commercially Processed Ready-to-eat food being hot held. Example: previously cooked chicken wings, mozzarella sticks

Remember: Meat, Poultry, Seafood and Eggs cooked in a microwave the temperature must be cooked to 165F (example: ground pork cooked in the microwave must be cooked to 165F instead of the 155F in a regular oven)

MICROWAVE COOKING

- Food must be cooked to 165F
- Must be covered
- Rotate and stir half way through
- Let stand for two minutes - check temperature in two places

Partial Cooking - some operations partially cook food then finish it just before serving

- Food must not cook longer than 60 minutes during initial cooking
- Cool immediately after initial cooking. Freeze or refrigerate after cooling
- Heat food to the required minimum internal temperature before selling or serving.

CONSUMER ADVISORIES - If your menu includes TCS foods that are raw or undercooked it must be noted on the menu. You must advise customers who order food that is raw or undercooked that they are at risk of foodborne illness.

FDA advises against offering raw or undercooked meat, poultry, seafood or eggs on a children's menu.

Operations that serve mainly high risk customers cannot serve raw seed sprouts, undercooked eggs, raw meat or seafood.

TWO STAGE COOLING:

Cool from 135F to 70F in 2 hours and then from 70F to 41F in 4 hours, for a total cooling time of 6 hours.

If you cool food from 135°F to 70°F (57°C to 21°C)

in less than 2 hours:

- Use the remaining time to cool it to 41°F (5°C) or lower
- The total cooling time cannot be longer than 6 hours

Example:

- If you cool food from 135°F to 70°F (57°C to 21°C) in 1 hour
- Then you have 5 hours to get the food to 41°F (5°C) or lower

METHODS FOR COOLING FOOD

- Start by reducing the size. Cut items into smaller pieces, divide large containers of food into smaller containers or shallow pans.
- Use an ice-water bath, stir food with an ice-paddle or use a blast chiller.

If food has not reached 70F within 2 hours it must be reheated and then cooled again or discarded.

*Once food is chilled to at least 70F, it can be stored on the top shelves in the refrigerator.

REHEATING: How you reheat food depends on how it will be served. Food reheated for immediate service (beef for a beef sandwich) can be reheated to any temperature if it was cooked and cooled correctly. Leftover TCS foods for hot holding must be reheated to an internal temperature of 165F within two hours for 15 seconds.

NOTES:

Section 7 - SERVICE

HOLDING FOODS - Check the internal temperature of food being held at least every four hours and discard it if it is not at the proper temperature. (Check temperatures every 2-3 hours to give yourself room for corrective action.)

Hot Holding – 135F or higher

Cold Holding – 41F or lower

Do not use hot-holding equipment to reheat food unless they are built to do so.

HOLDING WITHOUT TEMPERATURE CONTROL – Foods must be labeled with the time removed and discard time.

- **Hot food** can be held without temperature control a maximum of **four hours**.
- **Cold food** must be held 41F or below prior to being removed, it must never reach above 70F once removed. It must be labeled when it was removed and when it is to be discarded which can be a maximum of **six hours**.

Prevent contamination when serving food:

- ❖ Wear single-use gloves whenever handling ready-to-eat food. As an alternative, use spatulas, tongs, deli sheets, or other utensils
- ❖ Use clean and sanitized utensils for serving
- ❖ Use separate utensils for each food
- ❖ Clean and sanitize utensils after each task
- ❖ At minimum, clean and sanitize them at least once every four hours

REFILLING RETURNABLE TAKE-HOME CONTAINERS

Some jurisdictions allow food handlers to refill take-home containers brought back by a customer if the following conditions are followed.

- ❖ **Food:** The containers were provided to the customer by the operation, they were designed to be reused and must be cleaned and sanitized correctly before refilling.
- ❖ **Beverage:** The containers can be refilled as long as it is not a TCS food, can be effectively cleaned at home, can be rinsed with hot water under pressure in the operation and filled in a way that prevents contamination.

GLASSWARE AND DISHES should be held at the base or from underneath, and not be stacked when serving.

FLATWARE AND UTENSILS should be stored with the handles up and in the same direction in a drawer or storage container.

If you preset tableware: Prevent it from being contaminated by wrapping or covering the items. Table settings do not need to be wrapped or covered if extra settings are removed when guests are seated. If extra settings are not preset or removed they must be cleaned and sanitized after guests have left.

CONDIMENTS – Only un-opened individually packaged condiments are okay to re-serve. Plate garnish, breads or open dishes of condiments can never be served to a new guest.

SELF SERVICE BARS - Never allow customers to re-use soiled or dirty plates. Protect food in food bars and buffets with sneeze guards and make sure equipment can hold food at the proper temperature. Keep raw foods away from ready-to-eat or cooked foods and label all food items. Utensils should be washed, cleaned and sanitized once every four hours. Hot food must be held to 135 and cold food must be 41 or lower.

LABELING BULK PACKAGED FOOD - Bulk food in self-service areas must be labeled. The label must be in plain view of the customer. When labeling food, you can include the manufacturer or processor label provided with the food. As an alternative, this information can be provided using a card, sign, or other labeling method. An example of this is the bins in Whole Foods or other grocery store where they sell bulk beans, wheat, nuts, etc.

Bulk unpackaged food such as bakery products and unpackaged food portioned for customers do not need to be labeled if it meets these conditions:

- The product makes no claim regarding health or nutrient content.
- There are no state laws requiring labeling.
- The food is manufactured or prepared on the premises.
- The food is manufactured or prepared at another operation owned by the same person.

OFF SITE SERVICE - Delivery equipment must be **insulated** to keep food at 135F if hot food, or 41F if for cold food. Vehicles must be clean; food must be labeled with storage, shelf life and reheating instructions.

VENDING MACHINES – TCS foods must be dispensed in original containers, Fruits with edible peels must be washed and wrapped.

NOTES:

Section 8 - FOOD SAFETY MANAGEMENT SYSTEMS

PREREQUISITE PROGRAMS for personal hygiene, facility design, supplier selection, sanitation and pest control, equipment maintenance, and food safety training must be in place before attempting either of the food safety management systems.

ACTIVE MANAGERIAL CONTROL - This approach focuses on controlling the five most common risk factors responsible for foodborne illness identified by the CDC. These include purchasing from unsafe sources, failing to cook adequately, holding food at improper temperatures, using contaminated equipment, and practicing poor personal hygiene.

1. First, you must consider the five risk factors as they apply throughout the flow of food.
2. Identify any issues in your operation that could impact food safety.
3. Develop policies and procedures that address any issues that were identified.
4. You must have a monitoring system in place to determine if your new policies are being followed.
5. Verify that the policies and procedures you have established are actually working.

HAZARD ANALYSIS CRITICAL CONTROL POINT (HACCP) system focuses on identifying specific points where it is essential to prevent eliminate or reduce biological, chemical, or physical hazards to a safe level. HAACP Systems focus on preventing food safety hazards.

1. **CONDUCT A HAZARD ANALYSIS** - Identify and assess potential hazards in food you serve by how it is processed. Identify your TCS food on the menu Example: bacteria could pose a risk if serving chicken.
2. Determine the **CRITICAL CONTROL POINTS (CCPs)** where in the flow of food can the hazards be prevented, eliminated or reduced to safe levels. Example: chicken breast cooked for immediate service - CCP would be cooking.
3. Determine and establish maximum and minimum limits (CRITICAL LIMITS) that must be met for each Critical Control Point (CCP). Example: management determined that the critical limit of a chicken breast is to cook it for 165F for 15 seconds. They determined that the critical limit could be met by cooking the breast in the broiler for 16 minutes.
4. Determine and establish **MONITORING PROCEDURES.** Example: the grill cook must use a thermometer to check the temperature of the chicken breast after each cooking. The temperature must reach 165F for 15 seconds.
5. Identify what **CORRECTIVE ACTIONS** will be taken when critical limits have not been met. Example: The chicken breast did not reach its critical limit within the 16 minute cook time. The corrective action would be to continue cooking until 165F is reached.
6. **VERIFY** that your plan is working by checking charts, records, temperature logs, hazard analysis, etc. to determine if the plan prevents, reduces or eliminates hazards to safe levels.
7. Establish procedures for record keeping and documentation - Maintain your HACCP plan and keep all documentation. Keep records for monitoring activities, taking corrective action, validating equipment and working with suppliers.

Section 9 – SANITARY EQUIPMENT AND FACILITIES

FLOORING, WALLS AND CEILINGS should be smooth, durable and easy to clean. Floors should also be non-absorbent, resist wear and help prevent slips especially in walk-ins, food prep areas, dishwashing areas, restrooms and others areas subject to moisture or spray cleaning. Carpeting is not recommended in high soil areas.

RESTROOMS / HANDWASHING STATIONS Restrooms should be cleaned regularly and have a fully equipped hand washing station with hot & cold water, soap, a means to dry hands, a waste container, signage indicating an employee must wash hands before returning to work. Food handler hand washing sinks must be conveniently located.

FOOD SERVICE GRADE EQUIPMENT Only use equipment that has been designed for use in a foodservice operation such as NSF International and Underwriters Laboratories (UL). Prep tables must be smooth, durable and non-absorbent (stainless steel).

STATIONARY EQUIPMENT must be mounted on legs at least **six inches** off the floor, or it must be sealed to a masonry base. Stationary tabletop equipment should be mounted on legs with a clearance of **four inches** between the tabletop and the equipment or it should be sealed to the tabletop.

DISHWASHING MACHINES must be installed where they are reachable and conveniently located. Must be installed so that they prevent contamination of utensils, equipment and other food contact surfaces.

PLUMBING - Only licensed plumbers should install and maintain plumbing systems. The greatest challenge to water safety comes from CROSS CONNECTIONS (a physical link through which contaminants from drains, sewers, and other wastewater sources can flow into the potable-water supply). Vacuum breakers and air gaps can be used to prevent backflow. **THE ONLY SURE WAY TO PREVENT BACKFLOW IS TO CREATE AN AIRGAP.**

LIGHTING - SHATTER-RESISTANT BULBS AND PROTECTIVE COVERS prevent broken glass from contaminating food. The prep area usually needs to be the brightest area.

ADEQUATE VENTILATION improves the indoor air quality by removing smoke, grease, steam and heat. If there is adequate ventilation, there will be no buildup of grease and condensation on walls and ceilings. Ventilation must be designed so hoods, fans, guards, and ductwork do not drip onto food or equipment. Hood filters and grease extractors must be cleaned regularly.

GARBAGE CONTAINERS must be leak proof, water proof, pest proof, easy to clean, and durable. They must have tight-fitting lids and must be kept covered when not in use. All garbage containers should be frequently cleaned thoroughly both inside and out. Garbage should be removed from food-preparation areas as soon as possible, and must not be carried across a food-preparation area.

PEST PREVENTION

THREE BASIC RULES

1. **DENY PESTS ACCESS TO THE OPERATION** - check deliveries; make sure all points of access where pests can enter the building are secure
2. **DENY PESTS FOOD, WATER AND A HIDING OR NESTING PLACE** - Throw garbage away quickly; store all food correctly and quickly as possible 6 inches off the floor; clean up spills quickly
3. **WORK WITH A LICENSED PEST CONTROL OPERATOR (PCO)** to eliminate any pests that enter.

ROACHES like dark, warm moist places. Check for a strong oily smell, droppings look like grains of black pepper, and capsule egg cases.

RODENTS are also a serious health hazard. A building can be infested with both rats and mice at the same time. Look for droppings, signs of gnawing, tracks, nesting materials and holes.

FLIES can carry Shigellosis and other diseases.

PESTICIDES are hazardous materials. Anytime they are used or stored on your premises, you must have a corresponding MSDS. To minimize the hazard to people, have your PCO use pesticides when you are closed and your employees are not on site. Be sure to wash rinse and sanitize food contact surfaces after a treatment.

PCO - Even after making every effort to keep pests out, they may still get in an operation. If this happens you must work with a PCO (Pest Control Operator) to get them under control.

NOTES:

Section 10 – CLEANING AND SANITIZING

Cleaners must be stable, noncorrosive and safe to use.

CLEANING is the process of removing food and other types of soil from a surface. To properly clean you must use a soap and water solution.

SANITIZING is the process of reducing the number of harmful microorganisms to safe levels. You must clean and rinse a surface before you sanitize.

- Heat Sanitizing – Soak items in hot water which is at least 171 degrees for 30 seconds.
- Chemical sanitizers include chlorine, iodine and Quats. They are influenced by contact time, concentration of the sanitizer, temperature of the solution and pH. Test the solution regularly with a sanitizer test kit.

Chlorine - Concentration 50-99ppm – the item must be in contact with the sanitizer for 7 seconds.

Iodine - Water temperature 68 - concentration 12.5-25ppm - item must be in contact with the sanitizer for 30 seconds.

Quaternary ammonia - water temperature 75 - concentration as per manufacturer's recommendation - item must be in contact with the sanitizer 30 seconds.

CHEMICAL SANITIZERS - Sanitizers should be mixed with water to the right concentration.

- ❖ Not enough sanitizer may make the solution weak and useless.
- ❖ Too much sanitizer may make the solution too strong, unsafe, and corrode metal.
 - Check concentration with a test kit
 - Make sure it is designed for the sanitizer used
 - Check the concentration often
 - Change the solution when:
 - It's dirty
 - The concentration is too low

Temperature: Follow manufacturer's recommendations for the correct temperature.

Contact Time: The sanitizer must make contact with the object for a specific amount of time. Minimum times differ for each sanitizer.

Water Hardness and pH can affect how well a sanitizer works.

FOOD-CONTACT SURFACES must be cleaned and sanitized after each use, whenever you begin working with another food type, any time a task is interrupted, and at **four-hour** intervals if in constant use.

- Remove the food bits
- Wash
- Rinse
- Sanitize
- Air Dry

DISHWASHING MACHINES - Follow manufacturer's guidelines and make sure your machine is clean and in good working condition. Check the temperature and pressure of wash and rinse cycles daily. Information should be posted on the machine regarding proper water temperature, conveyor speed, water pressure and chemical concentration.

- High-Temperature Machines – Use hot water to clean and sanitize. The temperature of the final rinse must be at least 180 degrees.
- Chemical- Sanitizing Machines – Follow manufacturer’s guidelines.

THREE-COMPARTMENT SINK - Setting Up a Three-Compartment Sink

- ❖ Clean and sanitize each sink and drain board.
- ❖ Fill the first sink with detergent and water at least 110°F (43°C).
- ❖ Fill the second sink with clean water.
- ❖ Fill the third sink with water and sanitizer to the correct concentration.
- ❖ Provide a clock with a second hand to let food handlers know how long items have been in the sanitizer.

Items cleaned in the three compartment sink should be presoaked or scrapped clean, washed in detergent with 110F water, rinsed in clean water, and sanitized in either hot water at least 171F or a chemical-sanitizing solution. All items should be air-dried inverted.

STORING TABLEWARE AND EQUIPMENT - Store tableware and equipment at least six inches off the floor. Store glass upside down on a clean sanitized shelf or rack. Store flatware and utensils with the handles up. Sanitize trays and carts used to carry clean tableware and utensils.

Clean nonfood-contact surfaces regularly - Includes floors, ceilings, walls, equipment exteriors, etc. Prevents dust, dirt, food residue and other debris from building up. These surfaces do not need to be sanitized.

CLEANING TOOLS AND CHEMICALS should be placed in a storage area away from food and food-preparation areas. Keep Material Safety Data Sheets (MSDS) for each chemical in a location available to all employees on the job. These sheets have important first aid information, and information about safe use. Dispose of chemicals according to the instructions on the label and local regulations. It is the employees’ right to know what they are working with and around. Cleaning tools (mops, brooms) must be hung up to dry. Do not leave mops in mop buckets. Keep chemicals in their original containers or transfer to smaller containers. These must be correctly labeled with the common name of the chemical.

- Never dump mop water or other liquid waste into toilets or urinals
- Never clean tools in sinks used for:
 - Hand washing
 - Food prep
 - Dishwashing

CLEANING UP AFTER PEOPLE WHO GET SICK - If a person vomits or has diarrhea in the operation, these spills must be cleaned up the correct way. Correct cleanup can prevent food from being contaminated. You must develop a plan for cleaning up after someone gets sick.

MASTER CLEANING SCHEDULE - Lists all cleaning tasks, as well as when and how tasks should be completed. Assign responsibility to each task by job title. Create employee support by including their input into the program design and rewarding good performance. Monitor the cleaning program to keep it effective. Training is critical to the success of a cleaning program.