Module 1: Providing Safe Food

Foodborne Illnesses

Challenges to Food Safety

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

A foodborne illness is considered an outbreak when:

- 2 or more people have the same symptoms after eating the same food.
- investigation is conducted by state/local regulatory authorities
- outbreak confirmed by laboratory analysis

Each year MILLIONS of people get sick from unsafe food.

Challenges to foodservice operations include:

- TIME - PRESSURE TO WORK QUICKLY
- LANGUAGE AND CULTURE - STAFF MAY SPEAK DIFFERENT LANGUAGES
- LITERACY & EDUCATION - STAFF HAVE DIFFERENT LEVELS OF EDUCATION
- PATHOGENS - ILLNESS-CAUSING MICROORGANISMS FOUND ON FOOD ONCE CONSIDERED SAFE
- UNAPPROVED SUPPLIERS - FOOD THAT IS RECEIVED FROM UNSAFE SUPPLIERS
- HIGH-RISK CUSTOMERS - ELDERLY POPUL, ETC. ARE AT HIGHER RISK.
- STAFF TURNOVER - TRAINING NEW STAFF LEAVES LESS TIME FOR FOOD SAFETY TRAINING.

The Cost of Foodborne Illnesses

Foodborne illnesses cost the United States BILLIONS of dollars each year.

Some of the costs of a foodborne-illness outbreak include:

- loss of customers and sales
- negative media exposure
- lawsuits and legal fees
- increased insurance premiums
- loss of reputation
- lowered staff morale
- staff missing work
- staff retraining

The most important costs are: HUMAN COSTS.

Victims of foodborne illnesses may experience the following:

- lost work
- medical costs
- long-term disability
- death

How Foodborne Illnesses Occur

Contamination is
the presence of harmful substances in food.

The three categories of contaminants are:

Biological:

- pathogens are greatest threat to food safety. Include viruses, parasites, fungi, bacteria.
- plants, mushrooms and seafood can carry harmful toxins (poisons).

Chemical:

- cleaners, sanitizers, polishes
- food service chemicals can contaminate food

Physical:

- foreign objects such as metal shavings, staples, bandages can get into food
- glass, dirt, bag ties, fish bones in fillets.

BIOLOGICAL contaminants are responsible for most foodborne illnesses.

How Food Becomes Unsafe

The five most common food-handling mistakes, or risk factors, that can cause a foodborne illness are:

1. purchasing food from unsafe sources
2. failing to cook food correctly
3. holding food at incorrect temperatures
4. using contaminated equipement
5. practicing poor personal hygiene

Food prepared in a private home is considered to be a from an unsafe source and must be avoided.

Practices Related to Foodborne Illness:

Time-temperature abuse	Time-temperature abuse is food stayed too long at temperatures that are good for the growth of pathogens Time-temperature abuse can happen if: • 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	Cross-contamination is pathogens can be transfered from one surface or food to another. It can cause a foodborne illness in many ways: • contaminted ingredients are added to food that receives no further cooking • ready-to-eat food touches contaminated surfaces • contaminated food touches or drips fluids onto cooked or ready-to-eat food • food handler touches contaminated food and then touches read-to-eat food; contaminated wiping cloths
Poor personal hygiene	Poor personal hygiene can cause a foodborne illness if a food handler does any of the following actions: • failsto wash hands after restroom • cough or sneeze on food • touch or scratch wounds and then touch food • work while sick
Poor cleaning and sanitizing	Poor cleaning and sanitizing happens in the following ways: • equipment and utensils are not washed, rinsed and sanitized between uses • food-contact surfaces are wiped clean rather than being washed • wiping cloths are not stored in a sanitizer solution between uses • sanitizing solutions are not at required levels to sanitize objects

Food Most Likely to Become Unsafe

TCS Food

TCS food is

(T)IME AND TEMPERATURE (C)ONTROL FOR (S)AFETY.

TCS food items include:

- milk, dairy products, meat (beef, pork, lamb), poultry, fish, baked potatoes, tofu, sliced melons
- sprouts and sprout seeds, shellfish and crustaceans
- shell eggs

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

Ready-to-Eat Food

Ready-to-eat food is
food that can be eaten without further preparation, washing, or cooking._____.

Examples of ready-to-eat food are:

- cooked food_____
- washed fruit and vegetables (whole and cut)_____
- deli meat_____
- bakery items - sugar, spices, seasonings_____

Populations at High Risk for Foodborne Illnesses

Groups of people who have a higher risk of getting a foodborne illness include:

- elderly people_____
- preschool-age children_____
- compromised immune systems_____

Keeping Food Safe

Managers should focus on the following measures:

1. purchasing food from approved, reputable suppliers_____
2. controlling time and temperature_____
3. preventing cross-contamination_____
4. practicing personal hygiene_____
5. cleaning and sanitizing_____

Training and Monitoring

- staff should be trained when they are first hired and on an ongoing basis
- staff needs general food safety knowledge
- everyone needs to know correct way to wash hands
- receiving staff need to know how to inspect produce during receiving
- monitor staff to make sure they are following procedures
- retrain as often as possible
- _____
- _____
- _____
- _____

Corrective action is
important to correct inappropriate or dangerous acts of food preparation
_____
_____.

Government Agencies Responsible for the Prevention of Foodborne Illness

The government agencies that take leading roles in the prevention of foodborne illness in the United States are:

- Food and Drug Administration (FDA)
- U.S. Department of Agriculture (USDA)

The FDA
Responsibilities of the FDA include:

- FDA inspects all food except meat, poultry, and eggs.
- also regulates food transported across state lines
- _____

The *Food Code* provides
recommendations for food safety regulations.

The *Food Code* was created for
city, county, state, and tribal agencies.

These agencies regulate foodservice for the following groups:

- restaurants and retail food stores
- vending operations
- schools and day care centers
- hospitals and nursing homes

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

Other Agencies

Other agencies that have an important role in food safety and the prevention of foodborne illness include:

USDA:

- USDA regulates and inspects meat, poultry, and eggs
- also regulates food that crosses state boundaries ro involves more than one state

CDC and PHS:

- assist the FDA, USDA, and health departments.
- conduct research into the causes of foodborne-illness outbreaks
- also assist in investigating outbreaks

State and local regulatory authorities:

- write or adopt codes that regulate retail and foodservice operations
- codes may differ from FDA Food Code

Some responsibilities of state and local regulatory authorities include:

- inspecting operations
- enforcing regulations
- investigation complaints and illnesses
- issuing licenses and permits
- approving construction
- reviewing and approving HAACP plans (Hazard Analysis Critical Control Point)

Module 2: Forms of Contamination

Biological, Chemical, and Physical Contaminants

One of the foodservice manager's most important roles is to prevent any type of contamination of food from occurring.

Contamination is
the presence of harmful substances in food.

Harmful substances can be:

- biological
- chemical
- physical

Most contaminants cause food-borne illness while others can result in physical injury.

How Contamination Happens

- found in the animals we use for food
- air, contaminated water, dirt
- chemicals we use in operations
- some occur naturally, such as the bones in fish
-
-
-
-

The fecal-oral route of contamination is
food handlers that do not wash their hands after the restroom may contaminate food and suraces with feces from their fingers.

Contaminants are passed very easily in the following ways:

- from person to person
- through sneezing or vomiting onto food or food-contact surfaces
- from touching dirty food-contact surfaces and equipment, and then touching food

Biological Contamination

Microorganisms are
small, living organisms that can be seen only through a microscope.

Pathogens are
harmful microorganisms; make you sick when you eat them. Others produce poisons (toxins) that make you sick..

The four types of pathogens that can contaminate food and cause a foodborne illness are:

- bacteria
- viruses
- parasites
- fungi (including molds and yeasts)

The FDA has singled out six pathogens and named them the BIG SIX. These include:

- Shigella spp.
- Salmonella Typhi
- Nontyphoidal Salmonella (NTS)
- Shiga toxin-producing Excherichia coli (SETC) aka E. coli
- Hepatitis A
- Norovirus

Symptoms of Foodborne Illness

Most victims of foodborne illness share some common symptoms including:

- diarrhea
- vomiting
- fever
- nausea
- abdominal cramps
- jaundice (yellowing of skin and eyes)

Onset time is
how quickly foodborne-illness symptoms appear in a person.

Onset time can range from
30 minutes to as long as 6 weeks.

- mild diarrhea to death
-
-

Bacteria

Bacteria that cause foodborne illness have some basic characteristics including:

Location:

- bacteria can be found almost everywhere; live in and on our bodies
- some keep us healthy, while others cause illness.

Detection:

- bacteria cannot be seen, smelled, or tasted.

Growth:

- bacteria need 6 conditions to grow. ("FAT TOM")
- If FAT TOM conditions are correct, bacteria will grow in rapid numbers
-

Prevention:

- CONTROL TIME AND TEMPERATURE!!!

FAT TOM – Conditions for Bacteria to Grow

F OOD	• Most bacteria need nutrients to survive. • TCS food supports the growth of bacteria better than other types of food
A CIDITY	• Bacteria growt best in food that contains little or no acid • pH is the measure of acidity (pH scales ranges from 0 to 14.0) • Value of 0 is highly acidic, while 14 is highly alkaline (basic) • pH of 7 is neutral • bacteria grows best in food that is neutral (7) to slightly acidic (3-7). •
T EMPERATURE	• bacteria grow rapidly between 41F and 135F (5C and 57C). • this is known as the TEMPERATURE DANGER ZONE • bacteria grow even more rapidly from 70F to 125F (21C to 52C) • bacteria growth is limited when food is held above or below the temperature danger zone.
T IME	• bacteria need time to grow • the more time bacteria spend in the temperature danger zone, the more opportunity they have • ...to grow to unsafe levels.
O XYGEN	• some bacteria need oxygen to grow • others grow when oxygen is not there
M OISTURE	• bacteria grow well in food with high levels of moisture • amount of moisture available in food for this growth is called WATER ACTIVITY (Aw) • Aw scale ranges from 0.0-1.0. higher the value, more available moisture in the food • water has a water activity (Aw) of 1.0.

Controlling FAT TOM Conditions

Controlling time and temperature includes:

- to control temperature - keep TCS food out of temperature danger zone
- to control time - you must limit how long food spends in the temperature danger zone

Major Bacteria That Cause Foodborne Illness

Four major bacteria that are highly contagious and can cause serve illness:

- Salmonella Typhi
- Nontyphoidal Salmonella (NTS)
- Shigella spp.
- Shiga toxin-producing E. coli (STEC)

Major Bacteria That Cause Foodborne Illness

Bacteria	Source	Food Linked with the Bacteria	Prevention Measures
Salmonella Typhi	lives only in humans. typhoid fever carry bacteria in bloodstream and intestinal tract. present in feces weeks after symptoms have ended.	• ready-to-eat food • beverages	• wash hands • cook food to min internal temp • exclude sick employees
Nontyphoidal *Salmonella*	farm animals carry this naturally. present in feces weeks after symptoms have ended.	• poultry and eggs • meat • milk and dairy products • produce (tomatoes, peppers, cantaloupes)	• cook poultry and eggs to min internal temp • prevent cross-contamination • exclude sick employees
Shigella spp.	found in feces of humans with the illness; eat or drink contaminated food or water. flies can transfer the bacteria to food.	• contaminated by hands (salads, potato, tuna, shrimp) • contaminated water produce	• exclude sick employees • wash hands • control flies inside and outside
Shiga toxin-producing *Escherichia coli*, also known as *E. coli*	found in intestines of cattle. contaminate meat during slaughtering.	• ground beef (raw & undercooked) • contaminated produce	• exclude sick employees • cook food, ground beef to min internal temp • purchase produce from APPROVED sources • prevent cross-contamination

Viruses

Viruses that cause foodborne illness have some basic characteristics including:

Location:

- carried by humans beings and animals
- require a living host to grow
- while they do not grow in food, they can be transferred through food and still remain infections in food.

Sources:

- people can get viruses from food, water or any contaminated surface
- illnesses occur from fecal-oral routes
- NOROVIRUS is one of leading causes of foodborne illness
- NOROVIRUS can be transmitted through vomit particles (airborne).

Destruction:

- viruses are not destroyed by normal cooking temperatures
- very important to practice good personal hygiene when handling food and food-contact surfaces
- the quick removal and cleanup of vomit is also important.

Major Viruses That Cause Foodborne Illness

Two major viruses that are highly contagious and can cause serve illness:

- Hepatitis A
- Norovirus

Major Viruses That Cause Foodborne Illness

Virus	Source	Food Linked with the Virus	Prevention Measures
Hepatitis A	found in feces infected with it; can contaminate water and many types of food; commonly linked with ready-to-eat food; also linked with shellfish from contaminated water transferred from feces in hands to food or equipment.	• ready-to-eat food • shellfish from contaminated water	• exclude ill employees who have been diagnosed with Hep A • exclude employees with jaundice <7 days • wash hands • avoid bare-hand contact with ready-to-eat food • purchase shellfish from APPROVED sources
Norovirus	linked to contaminated water; transfered from feces in hands to food or equipment.	• ready-to-eat food • shellfish from contaminated water	• exclude ill employees with diarrhea or norovirus • wash hands • avoid bare-hand contact with ready-to-eat food • purchase shellfish from APPROVED sources

Parasites

Parasites share some basic characteristics including:

Location:

- parasites require a host to live and reproduce.

Sources:

- Parasites are commonly associated with seafood, wild game, and food processed with contaminated water, such as produce.

Prevention:

- Purchase food from approved, reputable suppliers.
- Cooking foods required minimum interval temperatures
- make sure that fish that will be served raw or undercooked has been correctly frozen by the manufacturer

Fungi

Fungi include yeasts, Mold, and mushrooms.

- some mold and mushrooms produce toxins I can cause foodborne illness
- throw out all moldy food unless the mold is a natural part of the food
- purchase all mushrooms from approved, reputable suppliers

Biological Toxins

Origin:

- Toxins are a natural part of some fish
- other toxins such as histamine, are made by pathogens on the fish when it is time-temperature abused
- This can occur in tuna and mahimahi
- Some fish become contaminated when they eat smaller fish that have eaten a toxin
- it can be found in barracuda snapper and amberjack
- Shellfish such as oysters can be contaminated when they eat marine algae that have a toxin
-
-

Symptoms:

- Diarrhea or vomiting
- neurological symptoms may also appear such as tingling in the extremities
- flushing out the face, difficulty breathing, burning in the mouth, heart palpitations
-
-
-

Prevention:

- toxins cannot be destroyed by cooking or freezing
- purchase plants mushrooms in seafood from approved reputable suppliers
- it is also important to control time and temperature when handling raw fish

Chemical Contaminants

To keep food safe from chemical contaminants, follow these guidelines:

Sources:

- cleaners, sanitizers, polishes, machine lubricants and pesticides can be risks
- Deodorize yrs come first day products, and health and beauty products such as hand lotions and hair sprays
- do not spray chemicals to close the food
- copper and zinc and painted pottery can be risks for chemical contamination
- These materials are not always safe for food and can cause contamination, such as tomato sauce that is held in them
-
-

Symptoms:

- vomiting and diarrhea are typical
- call the poison control number
-
-

Prevention:

- Chemicals you use must be approved for use in a food service operation
- They may also be necessary for the maintenance of the facility

Ways to protect food and food-contact surfaces from contamination by chemicals include:

- purchase chemicals from approved reputable suppliers
- store chemicals away from prep areas and food storage areas
- chemicals must be separated from food and food-contact surfaces by spacing and partitioning
- chemicals must NEVER be stored above food or food-contact surfaces
- use chemicals for their intended use and follow the manufacturer's directions
-

Physical Contaminants

To keep food safe from physical contaminants, follow these guidelines:

Some common objects that can get into food include:

- Metal shavings from cans
- would
- fingernails
- staples, bandages, glass, jewelry
- dirt

- _____
- _____
- _____

Naturally occurring objects that can be contaminants include:

- fruit pits _____
- bones _____

Symptoms:

- cuts, dental damage _____
- choking, bleeding and pain _____
- _____

Prevention:

- purchase food from approved, reputable suppliers to prevent physical contamination _____
- closely inspect food you receive _____
- take steps to make sure no physical contaminants can get into it _____
- _____

Deliberate Contamination of Food

People who may deliberately contaminate food include:

- terrorists or activists _____
- disgruntled current or former staff _____
- vendors _____
- competitors _____

Materials or contaminants that these people might use to tamper with food include using:

- biological _____
- chemical _____
- physical contaminats _____
- radioactive materials _____

Attacks can occur ANYWHERE _____ in the food supply chain. Attacks are usually focused on a specific:

- food item _____
- process _____
- business _____

The FDA has created a tool that can be used to develop a food defense program based on the acronym A.L.E.R.T._____.

Assure:

- make sure that products you receive are from safe sources
- supervise product deliveries
- use approved suppliers who practice food defense; request that delivery vehicles are locked and sealed.
-

Look:

- monitor the security of products in the facility
- limit access to prep and storage areas
- create a system for handing damaged products
- store chemicals in a secure location
- train staff to spot food defense threats

Employees:

- know who is in your facility
- limit access to prep and storage areas
- identify all visitors and verify credentials
- conduct background checks on staff

Reports:

- keep information related to food defense accessible
- receiving logs
- office files and documents
-
- random food defense self-inspections

Threat:

- identify what you will do and who you will contact if there is suspicious activity or a threat at your operration
- hold any product you suspect to be contaminated
- contact your regulatory authority immediately
- maintain an emergency contact list

Responding to a Foodborne-Illness Outbreak

Items managers should consider when responding to an outbreak include the following.

Gathering information:

- ask the person making the complaint for general contact information and to identify the food that was eaten
- also ask for a description of symptoms and when the person first became sick

Notifying authorities:

- contact the local regulatory if suspect an outbreak

Segregating product:

- set the suspected product if any remains
- include a label with DO NOT USE and DO NOT DISCARD

Documenting information:

- log information about the suspected product
- this might include a product description production date and lot number
- the sell - by date and pack size should also be recorded

Identifying staff:

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

Cooperating with authorities:

- cooperate with regulatory authorities in the investigation
- provide appropriate documentation
- you may be asked to provide temperature logs HACCP documents staff files etc

Reviewing procedures:

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

Food Allergens

A food allergen is

a protein in a food or ingredient that some people are sensitive to.

Allergy Symptoms

Depending on the person, an allergic reaction can happen just after the food is eaten or several hours later.

This reaction could include some of all of these symptoms:

- nausea
- wheezing or itchy rashes
- swelling of various parts of the body
- vomiting and/ or diarrhea
- abdominal pain
- itchy throat
- hives

Anaphylaxsis is
a severe allergic reaction.

If a customer is having a severe allergic reaction to food, call
emergency number in your area.

Common Food Allergens

The big eight allergens are:

- milk
- soy
- eggs
- wheat
- fish
- shellfish
- peanuts
- tree nuts

Preventing Allergic Reactions

- 15 million Americans have a food allergy, and allergic reactions result in 200,000 emergency room visits.
-
- these precautions also apply to any food sensitivities that a customer might mention, such as gluten intolerance

Food Labels

- law requires manufactured products containing one or more of Big 8 allergens to clearly identify them on ingredient label.
-

The allergen on food labels may be included as part of the:

- common name of the food, buttermilk

or

- shown in parentheses after the ingredient

or

- often will be shown in a "contains" statement: CONTAINS: WHEAT.

Service Staff

- your staff should be able to tell customers about menu items that contain potential allergens
-
- when customers say they have a food allergy your staff should take it seriously

When working with a customer to place an allergen special order, service staff must be able to:

Describe dishes:

- tell customers how the item is prepared
- this information is critical to a customer with a peanut allergy

Identify ingredients:

- tell customers if the food they are allergic to is in the menu today
-

Suggest items:

- suggest menu items that do not contain the food that the customer is allergic to

Identify the allergen special order:

- clearly mark or otherwise indicate the order for the guest with the food allergy
-

Deliver food:

- confirm the allergen special order with the kitchen staff when picking up the food
- make sure no garnishes or other items containing the allergen touch the plate
-
- food should be hand delivered to guest with allergens

Kitchen Staff

Cross-contact is

food allergen transferred from food or food- contact surfaces containing an allergen _____
_____
_____.

Cross-contact examples:

- cooking different types of food in the same fryer oil _____
- letting food touch surfaces equipment or utensils _____

How to Avoid Cross-Contact

- check recipes and ingredient labels to confirm that the allergen is not present _____
- wash, rinse , and sanitize cookware , utensils and equipment before prepping food _____
- make sure allergen does not touch anything for customers with food allergies _____
- use separate fryers and cooking oils when frying food for customers with food allergies _____
- label food packaged on-site for retail sale _____
- _____

Module 3: Safe Food Handler

How Food Handlers Can Contaminate Food

- at every step in the flow of food , food handlers can contaminate food
- they might not even realize it when they do it
- something as touching the face while prepping a salad could make a customer sick
- as a manger you need to know the many ways that the food handlers can contaminate food

Situations that Can Lead to Contaminating Food

Food handlers can contaminate food when:

- when they have a food-borne illness
- when they have wounds or boils that contain a pathogen
- when they have contact with a person who is ill
- when they use the restroom and do not wash their hands
- these food handlers may contaminate food and surfaces with feces from their fingers
- when they have symptoms such as diarrhea vomiting orb jaundice

With some illnesses, a person may infect other people before showing any symptoms.

With other illnesses, a person may infect other people for days or months after symptoms are gone.

Carriers are
people whom are nondeductible with the virus.

Actions That Can Contaminate Food

Some common actions to avoid that can contaminate food include:

- scratching the scalp
- running fingers through the hair
- wiping or touching the nose
- rubbing an ear
- touching a pimple or an infected wound/boil
- wearing and touching a dirty uniform
- coughing or sneezing into the hand
- spitting in the operation

Managing a Personal Hygiene Program

- to keep food handlers from contaminating food, your operation needs a good personal hygine
- a good personal hygiene program
- a good personal hygiene program succeeds

- _____

Managers can support a personal hygiene program by:

- creating personal hygiene policies _____
- training food handlers on those policies and retraining the regularly _____
- modeling the correct behavior at all times _____
- supervising food safety practices _____
- supervising food safety practices at all times _____

Handwashing and Hand Care

Handwashing

- hand washing is the most important part of personal hygiene _____
- and many food handlers do not wash their hands correctly or as often as they should _____
- _____
- _____
- _____

Where to Wash Hands

Hands should only be wash in a sink designated for handwashing _____.

Hands should *never* be washed in:

- sinks for food prep or dishwashing _____
- sinks used for discarding waste water _____
- _____

How to Wash Hands

The whole handwashing process should take 20 seconds _____ seconds.

Steps for handwashing:

1. wet hands and arms - use running warm water _____
2. apply soap - make sure there is enough soap to build up a good lather. follow manufacturer's recommendations _____
3. scrub hands and arms vigorously for 10-15 seconds - clean the fingerprints, under fingernails between fingers. _____
4. rinse hands and arms thoroughly - use running warm water _____
5. dry hands are arms - use a single-use paper towel or a hand dryer. _____

To keep from contaminating hands after washing them, use a paper towel to:

- turn off the faucet and to open the door when leaving the restroom
- food handler in photo is using paper towel to open the restroom door in order to avoid contamination

When to Wash Hands

Food handlers must wash their hands before:

- preparing food or working with clean equipment and utensils.
- putting on single-use gloves.
- unloading the clean glasses.

Food handlers must wash their hands after the following activities:

- using the bathroom.
- touching the body or clothing.
- coughing, sneezing,blowing nose, using a handkerchief or tissue.
- eating, drinking, smoking, chewing gum or tobacco.
- handling soiled items.
- handling raw meat, seafood, or poultry.
- taking out garbage
- handling service animals or aquatic animals.
- handling chemicals that might affect food saftey.
- changing tasks (before beginning new task).
- leaving and returning to the kitchen/prep area.
- using electronic devices.
- touching anything else that may contaminate hands.

Corrective Action

If a food hander touches food or food-contact surfaces with unclean hands, managers must:

- dispose of the contaminated food.
- clean potentially contaminated equipment and utensils.
- retain or coach food handlers who are not following proper handwashing procedures if necessary.

Hand Antiseptics

Hand antiseptics are
are liquids or gels that are used to lower the number of pathogens on skin.

Hand antiseptics must comply with:

- the Code of Federal Regulations (CFR).

- Food and Drug Administration (FDA).

Only use hand antiseptics after handwashing.

Hand antiseptics must never be used in place of hand-washing.

Wait for hand antiseptics to dry before touching food or equipment.

Hand Care

Fingernail length	• keep fingernails short and clean. • fingernails should be kept cleaned and filed. • • • •
False fingernails	• do NOT wear false fingernails. • they can be hard to keep clean. • they also break off into food. • however, they can be wore if the food handler wears single-use gloves.
Nail polish	• do NOT wear nail polish. • it can disguise dirt under nails and may flake off into food. • however, can be wore if food handler wears single-use gloves.

Infected wounds or boils:

- contain pus.
- must be covered if they are open or draining.
- how an infected wound or boil is covered depends on where it is located.

If the wound or boil is located on the hand or wrist then	• cover with impermeable over like a finger coat. • impermeable- liquid cannot pass through the cover. • wear single-use gloves
If the wound or boil is located on the arm then	• cover with impermeable cover. • the wound must be completely cover.
If the wound or boil is located on another part of the body then	• cover with a dry, durable, tight-fitting bandage.

Single-Use Gloves

- are designed for one task, after which they must be discarded.
- used properly they can help keep food safe by creating a barrier between hands and food.
- single-use gloves should never be used in place of handwashing.

Single-use gloves should always be worn when handling ready to eat food.

Exceptions to wearing single-use gloves include:

- when washing produce
- when handling ready-to-eat ingredients for a dish that will be cooked to correct internal temperature.

Which Gloves to Buy

When buying gloves for handling food, follow these guidelines:

Approved gloves:

- only gloves approved for foodservice should be purchased.

Disposable gloves:

- buy only single-use gloves for handling food. NEVER was and reuse gloves.

Multiple sizes:

- make sure you provide different glove sizes.

Latex alternatives:

- some food handlers and customers may be sensitive to latex. consider providing gloves made from other materials.

How to Use Gloves

When using single-use gloves, follow these guidelines to prevent contamination:

- wash your hands before putting on gloves when starting a new task.
- select correct gloves size.
- hold gloves by the edge when putting them on.
- once you have put them on, check for rips or tears.

Never do the following when using gloves:

- blow into gloves.
- roll gloves to make them easier to put on.
- was and reuse gloves.

When to Change Gloves

Food handlers must change single-use gloves at all of these times:

- as soon as the gloves become dirty or torn.
- before beginning a different task.
- after an interruption, such as taking a phone call.
- after handling raw meat, seafood, or poultry, and before handling ready to eat food.
- after four hours of continuous use.

Bare-Hand Contact with Ready-to-Eat Food

- food can become contaminated when it has been handled with bare hands.
- this is especially true when hands have not been washed correctly or have infected cuts or wounds.

Do not handle ready to eat food with bare hands.

If an operation serves a high-risk population, *never* handle ready to eat food with bare hands.

It is acceptable to handle ready-to-eat food with bare hands in these situations:

- the food will be added as an ingredient to a dish that does not contain raw meat, seafood, or poultry.
- will be cooked to at least 145 degrees Fahrenheit.

Some regulatory authorities allow bare - handed contact with ready-to-eat food. If a jurisdiction allows this, manager must have specific policies in place about staff health. Staff must also be trained in handwashing and personal hygiene practices.

Personal Hygiene Practices

- wearing dirty clothes or neglecting to shower will not go over well with your guests.
- keeping food safe means paying attention to personal hygiene.
- the entire staff needs to know the basics.
-

Personal Cleanliness

- pathogens can be found on hair and skin.
- there is a greater risk of these pathogens being transfered to food and food equipment.
- make sure food handlers shower or bathe before work.

Work Attire

- food handlers in dirty clothes may give a bad impression of your operation.
- dirty clothes may carry pathogens that can foodborne illnesses.
- pathogens can be transfered from clothing to hands and to the food being prepared.
- set up a dress code, and make sure all staff follows it.

Eating, Drinking, Smoking, and Chewing Gum or Tobacco

- small droplets of saliva can contain thousands of pathogens.
- saliva can be transfered to hands or directly to food being handled.

Employees should only eat, drink, smoke, and chew gum or tobacco in designated areas.

Never eat, drink, smoke, and chew gum or tobacco when:

- preparing or serving food.
- working in prep areas.
- working in areas used to clean utensils and equipment.

Employees can drink from a covered container if they handle the container carefully to prevent contamination of:

- their hands
- the container
- exposed foods
- utensils
- equipment

A correctly covered container includes:

- a lid with a straw
- sip-lid top

Work Attire Guidelines

Hair Restraints	• wear a clean hat or other hair restraint when in food-prep areas. _____ • food handlers with facial should also wear a beard restraint. _____ • _____ Do not: • wear hair accessories that could become a physical contaminates. ____ • wear false eyelashes. _____
Clean Clothing	• wear clean clothing daily. _____ • change soiled uniforms, including aprons, as needed to prevent contamination. • change into work clothes at work. _____ • store street clothing and personal belongings in designated areas. _____ • keep dirty clothing that is stored in the operation away from food and prep areas.
Aprons	• remove aprons when leaving prep areas. _____ Never • wiper you hands on your apron. _____
Jewelry	• remove jewelry from hands and arms before prepping food _____ • remove jewelry from hands and arms when working around prep areas __ Food handlers cannot wear any of the following: • rings, except for a plain band _____ • bracelets including medical bracelets _____ • watches _____

Policies for Reporting Health Issues

- tell your staff to let you know when they are sick. _____
- this includes newly hired staff who have not started working yet. _____

Some regulatory authorities may ask for proof that food handlers were told to let managers know when they are sick. Proof can be provided in the following ways:

- presenting signed statements in which staff have agreed to report illness. _____
- providing documentation showing staff have completed training, which includes information on the importance of reporting illness.
- posting signs or providing pocket cards that remind staff to notify mangers when they are sick. _____

Reporting Illness

- staff must report illness before they come to work.
- they should also let you know immediately if they get sick while working.

When food handlers are sick, managers may need to restrict them from working with exposed foods, utensils, and equipment.

Sometimes managers may even need to exclude sick employees from coming into the operation if they have these symptoms:

- vomiting
- diarrhea
- jaundice
- sore throat with fever
- infected wound or boil that is open or draining

Food handlers must also tell managers when they have been diagnosed with an illness from one of these pathogens:

- norovirus
- hepatitis A
- shigella spp.
- shiga-toxin producing E. coil (STEC)
- salmonella typhi
- nontyphoidal salmonella

Food handlers must tell managers if they live with someone who has been diagnosed with any of these illnesses, *except* nontyphoidal salmonella.

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

Watching for Staff Illnesses

Managers should watch food handlers for signs of illness including:

- vomiting
- excessive trips to the bathroom
- yellowing of the skin, eye, and fingernails
- cold sweats or chills (indicating fever)
- persistent nasal discharge and sneezing

Restricting or Excluding Staff for Medical Conditions

-
-

How to Handle Medical Conditions

If	Then
The food handler has an infected wound or boil that is not properly covered.	Restrict the food handler from working with exposed food, utensils, and equipment
The food handler has a sore throat with a fever.	Restrict the food handler from working with exposed food utensils,and equipment Exclude the food handler from the operation if you primarily serve high-risk population
The food handler has persistent sneezing, coughing, or a runny nose that causes discharges from the eyes, nose, or mouth.	Restrict the handler from working with exposed food, utensils, and equipment
The food handler has at least one of these symptoms from an infectious condition: • Vomiting • Diarrhea • Jaundice (yellow skin or eyes)	Exclude the food handler from the operation Vomiting and diarrhea: food handlers must meet one of these requirements before they can return ton work have no symptoms for at least 24 hours have a written release from a medical practitoner Jaundice: food handlers with jaundice must be reported to the regulatory authority food handlers who have had jaundice for seven days or less must be excluded from the operation food handlers must have q written release from a medical practitioner and approval from the regulatory authority
The food handler is vomiting or has diarrhea and has been diagnosed with an illness caused by one of these pathogens: • Norovirus • *Shigella* spp. • Nontyphoidal *Salmonella* • Shiga toxin-producing *E. coli* (STEC) The food handler has been diagnosed with an illness caused by one of these pathogens: • Hepatitis A • *Salmonella* Typhi	Exclude the food handler from the operation Report the situation to the regulatory authority • • • some food handlers diagnosed with an illness may not experience symptoms, or their symptoms may have ended. work with the medical practitioner and the local regulatory authority to determine whether the food handlers must be excluded from the operation or restricted from working with exposed food

Module 4: Introduction to the Flow of Food

Hazards in the Flow of Food

The flow of food is

to keep food safe, you must apply what you learn in the servsafe program thoughout your operation_____.

It begins when you buy_____ the food and ends when you serve_____ it.

Managers are responsible for the safety of the food at every_____ point_____ during the flow of food.

Cross-Contamination

- pathogens can move around easily in your operation_____
- they can spread from food or unwashed hands to prep areas_____
- cross-contamination can happen at almost any point in the flow of food_____
- the most basic way is too keep raw and ready to eat food away from each other_____

Guidelines for Preventing Cross-Contamination Between Food

Use separate equipment for raw and ready-to-eat food	• each type of food should have separate equipment_____ • for example use one set of cutting boards utensils and containers for raw poultry • colored cutting boards and utensil handles which equipment to use with each food item • you might use yellow for raw chicken, red for raw meat and green fro produce • _____
Clean and sanitize before and after tasks	• clean and sanitize all work surfaces equipment and utensils before and after each task • when you cut up raw chicken , for example you cannot get by with just rinsing the equimnent • pathogens such as nontyphodidal salmonella can contaminate food throughj croos contamintion • _____
Prep raw and ready-to-eat food at different times	• if you need the same prep table for different types of food prep_____ • you must clean and sanitize work surfaces_____ • also, by prepping ready to eat food before raw food, you can reduce the chance for cross-contamintion
Buy prepared food	• buy food that does not require much prepping or handling_____ • you could buy precooked chicken breast or chopped lettuce_____

Time-Temperature Control

Most foodborne illnesses happen because TCS food has been time_____ - tempature_____ abused.

TCS food has been time-temperature abused any time it remains between 41 and 135. This is call the tempature danger zone because pathogens grow in this range. Most pathogens grow much faster between 70 and 125.

Food is being temperature abused whenever it is handled in the following ways:

- cooked to the wrong internal temperature
- held at the wrong temparature
- cooled or reheated incorrectly

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

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

Avoiding Time-Temperature Abuse

Monitoring	• learn which food items should be checked • make sure food handlers understand what to do
Tools	• make sure the correct kinds of thermometers are available • give food handlers their own thermometers • have them use timers in prep areas to check how long food in the temperature danger zone
Recording	• have food handlers record temperature regularly • make sure they write down when the temperatures were taken • print simple forms for recording this infornmation • post them on clipboards outside of coolers and freezers
Time and temperature control	• have procedures to limit TCS food spends in the temprature • this might include limiting the amount of food that can be removed from a cooler
Corrective actions	• make sure food handlers know what to do when time and temperature standards are not met •

Monitoring Time and Temperature

To keep food safe, control the amount of time it spends in the temperature danger zone. This requires monitoring.

The most important tool to monitor temperature is the thermometer.

Three types are commonly used in operations:

1. bimetallic stemmed thermometers
2. thermocouples
3. thermistors

Bimetallic Stemmed Thermometer

- can check temperatures from 0F to 220F
- can use to check food temperatures during receiving.
- can also use it to check food in a hot or cold holding unit.
- measure temperatures through it's metal stem.
- insert the stem into the food up to the dimple.
- the sensing area of the thermometer goes from the tip of the stem to the dimple.
- useful for checking temperatures of large or thick food.
- not practical for thin food, such as hamburger patties.
-

Bimetallic stemmed thermometers should have these features:

Calibration nut:

- you can adjust the thermometer to make it accurate by using it's calibration nut.

Easy-to-read markings:

- clear makings reduce the chances that someone will misread the thermometer.
- the thermometer must be scaled in at least two-degree increments.

Dimple:

- the dimple is the mark on the stem that shows the end of the temperature-sensing area.

Thermocouples and Thermistors

- measure temperatures through a metal probe.
- temperatures are displayed digitally.
- the sensing area on thermocouples and thermistors is on the tip of their probe.
- do not have to insert them into the food as far as bimetallic stemmed thermometers to get a correct reading.
- thermocouples and thermistors are good for checking the temperature of both thick and thin food.
-
-

Types of Probes

Immersion probes	• use these to check liquids.
Surface probes	• use these th check the temperature of flat coking equipment, such as griddles.
Penetration probes	• us these to check the internal temperature of food. • especially useful for checking the temperature of thin foods.
Air probes	• use these to check the temperature inside coolers and ovens

Infrared (Laser) Thermometers

- measure the temperature of food and equipment surfaces.
- quick and easy to use.
- do not need to touch a surface to check its temperature. less chance for cross contamination.
- however, cannot measure air temperature or the internal temperature of food.
-

Follow these guidelines when using infrared thermometers:

Distance:

- hold the thermometer as close to the food or equipment as you can without touching it.

Barriers:

- remove anything between the thermometer and the food, food packages, or equipment.
- DO NOT take readings through metal.
- DO NOT take reading through glass.

Manufacturer's directions:

- always follow the manufacturer's guidelines.
- that should give you the most accurate readings.

Other Temperature-Recording Devices

- a maximum registering thermometer _____
- _____
- it works well for checking the final rinse temperature of dishwashing machines. _____
- some devices monitor both time and temperature. _____
- some suppliers place temperature-recording devices inside their delivery trucks. _____
- _____
- these devices constantly check and record temperature. _____
- you can check the devices during receiving to make sure food was at safe temperature. _____
- _____
- _____
- _____

General Thermometer Guidelines

- you should know how to use and care for each type of thermometer in your operation. _____
- you should always follow manufacturer's directions. _____

Cleaning and sanitizing:

- thermometers must be washed, rinsed, sanitized and air-dried. _____
- keep storage cases clean, too. _____
- be sure the sanitizing solution you use is for food-contact surfaces. _____
- _____
- always have plenty of clean and sanitized thermometers on hands. _____

Calibration:

- adjusting to give a correct reading. _____
- _____

Calibrate thermometers at these times:

- after they have been bumped or dropped. _____
- after they have been exposed to extreme temperature changes. _____
- _____
- before deliveries arrive and before each shift. _____

Keep in mind:

- some thermometers cannot be calibrated and must be replaced. _____
- _____
- always follow the manufacturer's directions regarding calibration. _____

Accuracy:

Thermometers used to measure the temperature of food must be accurate to within 2F to 1F_____.

Thermometers used to measure air temperature in food-storage equipment must be accurate to within 3F to 1.5F_____.

Glass thermometers:

- physical contaminate if they break._____
- they can only be used when enclosed in a shatterproof casing._____

Checking temperatures:

When checking the temperature of food do the following:

- insert the probe into the thickest part of the food, usually the center._____
- take another reading in a different spot._____
- the temperature my vary in different ares._____
- _____

Allow at least 15_____ seconds after inserting the bimetallic stemmed thermometer stem into the food.

Calibrating Thermometers

Boiling-point method: involves adjusting the thermometer to the temperature at which water boils 210F_____.

Ice-point method: involves adjusting the thermometer to the temperature at which water freezes 32F_____.

The ice-point method is easier_____ and safer_____.

The steps include:

1. fill a container with ice._____
2. . put the thermometer stem or probe into the ice water. wait 30 seconds or until the indicator stops moving.
3. . adjust the thermometer so it reads 32F_____

Module 5: Purchasing, Receiving, Storage

General Purchasing and Receiving Principles

You cannot make unsafe food safe. Make sure only safe food is brought into the operation.

Two ways to ensure the safety and quality of the food used in the operation include:

1. purchasing food from approved, reputable suppliers.
2. following good receiving procedures.

Purchasing

Before any deliveries are accepted, make sure that the food purchased is safe.

Follow these guidelines when purchasing food.

Approved, reputable suppliers:

- these suppliers have been inspected and can show you an inspection report.
- must meet all applicable local,state, and federal laws.
- this applies to all suppliers in a supply chain.
- operation's chain can include growers shippers packers manufacturers, distributors and local markets
- develop a relationship with your suppliers, and get to know their food safety practices.
- consider reviewing suppliers' most recent inspection reports
- reports can be from from the U.S Department of Agriculture (USDA) or the Food and Drug Administration (FDA)
- the should be based on Good Manufacturing Practices (GMP) or Good Agriculture Practices (GAP)

Make sure inspection reports review the following areas:

- receiving and storage
- processing
- shipping
- cleaning and sanitizing
- personal hygiene
- staff training
- recall program
- HACCP programing or other food safety system

Many operations establish supplier lists based on their company:

- specifications
- standers
- procedures

Only approved _____ suppliers _____ should be included on these lists.

Deliveries:

- suppliers must deliver food when staff has enough time to do inspections. _____
- schedule deliveries at a time when they can be correctly received. _____

Receiving and Inspecting

Managers must take action to ensure that the receiving and inspection is smooth and safe by:

- make specific staff responsible for receiving. _____
- provide staff with the tools they need, including purchase orders, thermometers and scales. _____
- make sure enough trained staff are available to receive and inspect food items promptly. _____

The process starts with a visual _____ inspection _____ of the delivery truck.

Check it for signs of contamination _____ and pests _____. Inspect the overall condition _____ of the vehicle. If there are signs of problems, reject _____ the delivery.

Continue with a visual inspection of food _____ items _____. Make sure they have been received at the correct temperature _____. Once inspected, food items must be stored as quickly _____ as possible in the correct areas. This is especially true for refrigerated _____ and frozen _____ items.

Key Drop Deliveries

A key drop delivery is
the supplier is given a key or other access to the operation to make the delivery. _____
Products are then placed in coolers, freezers, and dry-storage areas. _____
_____.

The delivery must be inspected once a manager or food hander arrives at the operation and must meet the following conditions:

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

Rejecting Items

- set it aside from the items you are accepting.
- tell the delivery person exactly what is wrong with the rejected item.
- make sure you get a signed adjustment or credit slip before giving the item back to the delivery person.
- log the incident on the invoice or receiving document
- occasinally you may be able to recondition and use items that would have been rejected.
- example, a shipment of cans with contaminated surface can be cleaned and sanitized.
- however the same cans may not be reconditioned if they are damaged

Recalls

- food items you have received may sometimes be recalled by the manufacturer.
- this may happen when food contaminated is confirmed or suspected.
- can also occur when items have been mislabeled or misbranded.
- when allergens have not been identified.
- most vendors will notify you of a recall.
- you should also monitor recall notifications made by the FDA and the USDA.

Follow these guidelines when notified of a recall:

- identify the recallled food items by matching information from the recall notice to the item.
- remove the item from inventory and place it in a secure and appropriate location.
- label the item in a way that will prevent it from being placed back in inventory.

Temperature

Use thermometers to check food temperatures during receiving.

Checking the Temperature of Various Types of Food:

Meat, poultry, and fish	• inset the thermometer stem or probe directly into the thickest part of the food. • the center is usually the thickest.
Reduced-oxygen packaging (ROP), MAP, vacuum-packed, and sous vide food	• inset the stem or probe between two packages. • if the package allows, fold it around the thermometer stem or probe. • be careful NOT to puncture the package.
Other packaged food	• open the package and insert the thermometer stem or probe into the food. • the sensing area must be fully immersed in the food. • the stem or probe must NOT touch the package.

Delivery temperatures:

Food	Receiving Criteria
Cold TCS food	• receive at 41F or lower, unless otherwise specified.
Live shellfish (oysters, mussels, clams, and scallops)	• receive at an air temperature of 45F and an internal temperature no greater than 50F • cool the shellfish to 41F or lower in 4 hours
Shucked shellfish	• receive at 45F or lopwer • cool the shellfish to 41F or lower in four hours.
Milk	• receive at 45F or lower • cool milk to 41F in four hours
Shell eggs	• receive at an air temperature of 45F or lower
Hot TCS food	• receive at 135F
Frozen food	• frozen food should be frozen solid when received • REJECT if fluids or water stains appear in case bottoms or on packaging. • REJECT if there are ice crystals or frozen liquids on the food or packaging.

Packaging

- both food items and nonfood items must be packaged correctly when you receive them.
- items should be delivered in their original packaging with the manufacturer's label.
- the packaging should be intact and clean and protect food and food contact surfaces from contamination.
- reject food and nonfood items if packaging has any of the following problems.

Damage:

Reject items with:

- sever dents in the can seams
- deep dents in the can body
- missing labels
- swollen or bulging ends
- holes and visible signs of leaking
- rust

All food packaged in a reduced-oxygen environment must be rejected if the packaging is bloated _____ or leaking _____.

Do not accept cases or packages that appear to have been tampered _____ with.

Liquid:

- reject items with leaks dampness, or water stains _____

Pests:

- reject items with signs of pests or pest damage _____

Dates:

- must be correctly labeled _____
- do NOT accept food that is missing the use-by date or expiration date from the manufacturer _____
- reject items that have passed their use-by or expiration date _____

Use-by date or expiration date is
the recommended last date for the product to be at peak quality _____.

Sell-by date is
tells the store how long to display the product for sale _____.

Best-by date is
the date by which the product should be eaten for best flavor or quality _____.

Documents

- food items must be delivered with the correct documents _____
- shellfish must be revived with a shellfish indication tag _____
- do NOT remove the shellfish tag from the container until the last shellfish has been used _____
- when the last shellfish has been removed write down the date on the shellfish tag _____
- keep the tag on file for 90 days from that date _____
- fish that will be eaten raw or partially cooked must also be received with the correct documentation _____
- these documents must indicate that the fish was correctly frozen before you received it _____
- keep these documents for 90 days from the sale of the fish _____
- if the fish was farm raised, it must have documentation that states the fish was raised to FDA standers _
- these documents must also be kept for 90 days from the sale of fish _____
- _____
- _____
- _____

Food Quality

Poor food quality can be a sign that food has been time - temperature abused and may be unsafe. Work with suppliers to define specific safety and quality criteria for the food items typically received.

Reject food if it has any of the following problems:

Appearance:

- reject food that is moldy or has an abnormal color
- reject food that is moist when it supposed to be dry
- do NOT accept any food item that shows signs of pests or pest damage

Texture:

- reject mean,fish, or poultry that is slimy, sticky, or dry
- also reject it if it has soft flesh that leaves an imprint when you touch it

Odor:

- reject food with an abnormal or unpleasant odor.

Always reject any items that does not meet company standards for quality.

Storing

Labeling

- illness can occur when unlabeled chemicals are mistaken for food
- customers can suffer allergic reaction when food was unknowingly prepped with a food allergen that was not labeled

Labeling Food for Use On-Site

- all items not that are not in their original packaging
- food labels should indicate the common name of the food or a statement that clearly identifies it

Labeling Food That Is Packaged On-site for Retail Sale

Food packaged in the operation that is being sold to customers for use at home, must be labeled.

The label must include the following information:

- common name of the food or a statement clearly identifies it
- quantity of the food
- list of ingredients and ingredients in deciding order by weight
- list of all artificial colors and flavors in the food

- chemical perservatives
- name and place of business of the manufacture, packer, or distributor
- source of each major food allergen contained in the food

The labeling requirements do not apply to customers' leftovers food items placed in a carry-out containers.

Date Marking

- refrigeration slows the growth of most bacteria
- when food is refrigerated for long periods of time, these bacterias can grow enough to cause illness

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

The label must indicate when the food must be sold, eaten, or thrown out.

Ready-to-eat TCS food can be stored for only 7 days if it is held at 41F or lower. After that date, the food must be discarded.

The count begins on the day that the food was prepared or a commercial container was opened.

- operations have a variety of systems for date marking
- sometimes commercially processed food will have a use-by date that is less than 7 days from the day the container was opened
- in this case the container should be marked with this use-by date as long as the date is based on food saftey
-
-

When combining food with different use-by dates in a dish, the discard date of the dish should be based on the earliest use-by date of any food items involved.

Temperatures

Pathogens can grow when food is not stored at the correct temperature.

Follow these guidelines to keep food safe:

- store TCS food at an internal temp of 41F or lower or 135F or higher
- store frozen food at temps that keep it frozen
- make sure storage units have at least 1 air temperature measuring device.
- do not overload coolers or freezers
- use open shelving. do NOT line shelves with aluminum foil, sheet pan, or paper
- monitor food temperatures regularly

Rotation

Food must be rotated in storage to
maintain quality and limit the growth of pathogens.

Food items must be rotated so that those with the earliest use-by or expiration dates are used before items with later dates.

FIFO stands for first in first out.

FIFO is used to rotate the following items during storage:

- refrigerated food
- frozen food
- dry food

One way to use the FIFO method includes:

1. identify the food items use-by or expiration date
2. store items with the earliest use-by/ expiration date in the front
3. once items are shelve, use those items stored in the front first
4. throw out food that has passed its manufacturer's use-by or expiration date

Preventing Cross-Contamination

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

Follow these guidelines during storage:

Supplies:

- store all items in designated storage areas
- store items away from walls and at least 6 inches from the floor
- store single-use items in original packaging

Containers:

- store food in containers intended for food
- use containers that are durable, leakproof, and able to be sealed or covered
- NEVER use empty food containers to store chemicals and NEVER put food in empty chemical containers

Cleaning:

Keep all storage areas clean and dry.

Clean the following items on a regular basis:

- floors
- Walls
- shelving in coolers, freezers
- dry storage areas, heated holding cabinets

Clean up spills and leaks promptly to keep them from contaminating other food.

Follow these additional guidelines:

- clean dollies,carts, transporters, and trays often
- store food in containers that have been cleaned and sanitized
- store dirty linens away from food. store them in clean, nonabsorbent containers.

Storage Order

Safe food storage starts with wrapping or covering food. After that, how food is stored depends on the type of food and options for storage.

- store raw meat, poultry, and seafood separately from read-to-eat foods
- raw meat. poultry, and seafood can be stored with or above ready-to-eat food in the freezer
- store raw meat, poultry, and seafood in coolers in the following top-to-bottom order

Exception:
ground meat and ground fish can be stored above whole cuts of beef and pork

Storage Location

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

Never store food in these areas:

- locker rooms or dressing rooms
- restrooms or garbage rooms
- mechanical rooms
- under unshielded sewer lines or leaking water lines
- under stairwells

Damaged, Spoiled, or Incorrectly Stored Food

If there is expired, damaged, spoiled, or incorrectly stored food that has become unsafe, discard it.

This includes food that is
missing a date mark , ready-to-eat TCS food that has exceed its date mark, and food that has exceed time/temperature requirements.

If the food must be stored until it can be returned to the vendor, avoid contaminating the food stored near it by:

- store the food away from other food and equipment
- label the food so food handlers do not use the product.

Module 6: Preparation

General Preparation Practices

Prevent pathogens from spreading and growing by making good food-prep choices including:

Equipment:

- make sure workstations, cutting boards, and utensils are clean and sanitized

Quantity:

- only remove as much food from the cooler as you can prep in a short period of time.

Storage:

- return prepped food or color additives when prepping food to the cooler, or cook it, as quickly as possible

Additives:

- only use additives that have been approved by your regulatory authority
- NEVER use more than is allowed by law
- NEVER use additives to alter the appearance of the food
- DO NOT sell produce that was treated with sulfite before it was received in the operation
- NEVER add sulfite to produce that will be eaten raw

Presentation:

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

Do not use the following to misrepresent the appearance of food:

- food additives or color additives
- colored overwraps
- lights

Corrective actions:

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

All food–especially ready-to-eat food–must be thrown out in the following situations:

- When it is handled by staff who have been restricted or excluded from the operation due to illness
- When it is contaminated by hands or bodily fluids, for example, sneezing
- When it has exceeded the time and temperature requirements designed to keep food safe

Thawing

Never thaw food at room temperature.

Methods and Guidelines for Thawing TCS Food	
Refrigeration	• Thaw food in a cooler, keeping its temperature at 41°F (5°C) or lower.
Running Water	• Submerge food under running, drinkable water at 70° or lower. The flow of water must be strong enough to wash loose food bits into the drain. • Always use a clean and sanitized food-prep sink when thawing food this way. • Never let the temperature of the food go above 41F (5C) for longer than four hours. This includes the time it takes to thaw the food plus the time it takes
Microwave	• Thaw food in microwave if it will be cooked immediately after thawing. • The food must be cooked in conventional cooking equipment, such as an oven, once it is thawed.
Cooking	• Thaw as part of the cooking process.

Thawing ROP Fish

- ROP fish should remain frozen until ready for use.

If stated on the label, the fish must be removed from the packaging at the following times:

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

Prepping Specific Food

Produce

Cross-contamination:

- Make sure fruit and vegetables do NOT touch surfaces exposed to raw meat, seafood, or poultry.

Washing:

- Wash produce thoroughly under running water. This is especially important before cutting, cooking, or combining it with other ingredients.
- The water should be a little warmer than the produce.
-
- Certain chemicals may be used to wash fruits and vegetables. Also, produce can be treated by washing it in water containing ozone. This treatment helps control pathogens.

Soaking or Storing:

- When soaking or storing produce in standing water or an ice-water slurry, do NOT mix different items or multiple batches of the same item.

Fresh-cut produce:

- Refrigerate and hold sliced melons, cut tomatoes, and cut leafy greens at 41F (5C) or lower.

Raw seed sprouts:

- If your operation primarily serves high-risk populations, do NOT serve raw seed sprouts.

Eggs and Egg Mixtures

Pooled eggs:

- Handle pooled eggs carefully. Pooled eggs are eggs that are cracked open and combined in a container.
- Cook them promptly after mixing, or store them at 41F (5C) or lower.

Pasteurized eggs:

- Consider using pasteurized shell eggs or egg products when prepping egg dishes that need little or no cooking.

High-risk Populations:

- If you mainly serve high-risk populations, such as those in hospitals and nursing homes, use pasteurized eggs.
- Shell eggs that are pooled must also be pasteurized.

Salads Containing TCS Food

- Only use leftover TCS food, such as pasta, chicken, and potatoes, if it was cooked, held, cooled, and stored correctly.
- Do NOT use leftover TCS food that has been held for more than seven days.

Ice

Consumption:

- Make ice from water that is safe to drink.

Cooling food:

- Never use ice as an ingredient if it was used to keep food cold.

Containers and scoops:

- Use clean and sanitized containers and ice scoops to transfer ice from an ice machine to other containers.
- Store ice scoops outside of ice machine in a clean, protected, location.
- NEVER hold or carry ice in containers that have held raw meat, seafood, or poultry; or chemicals.
- NEVER touch ice with hands or use a glass to scoop ice.

Preparation Practices That Have Special Requirements

A variance is

When applying for a variance, the regulatory authority may require managers to submit a HACCP plan.

A variance is required if an operation plans to prep food in any of the following ways:

- Packing fresh juice on-site for sale at a later time, unless the juice has a warning label that complies with local regulations.
- Smoking food as a way to preserve it (but not to enhance flavor).
- Using food additives or adding components such as vinegar to preserve or alter the food so that it no longer needs time and temperature control for safety.
- Curing food.
- Custom-processing animals for personal use. For example, a hunter brings a deer to a restaurant for dressing and takes the meat home for later use.
- Packaging food using a reduced-oxygen packaging (ROP) method. This includes MAP, vacuum-packed, and sous vide food, as shown in the photo at right.
- Sprouting seeds or beans.
- Offering live shellfish from a display tank.

Cooking Food

The only way to reduce pathogens in food to safe levels is to cook it to its correct minimum internal temperature.

Once reached, food must be held for a specific amount of time.

While cooking reduces pathogens in food, it does not destroy spores or toxins they may have produced.

How to Check Temperatures

The guidelines to follow when checking temperatures include:

- Pick a thermometer with a probe that is the correct size for the food.
- Check the temperature in the thickest part of the food
- Take at least two readings in different locations.

Cooking Requirements for Specific Food

165°F (74°C) for 15 seconds	• Poultry—including whole or ground chicken, turkey, or duck • Stuffing made with fish, meat, or poultry • Stuffed meat, seafood, poultry, or pasta • Dishes that include previously cooked TCS ingredients (raw ingredients should be cooked to their required minimum internal temperatures)
155°F (68°C) for 15 seconds	• Ground meat—including beef, pork, and other meat • Injected meat—including brined ham and flavor-injected roasts • Mechanically tenderized meat • Ratites (mostly flightless birds with flat breastbones)—including ostrich and emu • Ground seafood—including chopped or minced seafood
145°F (63°C) for 15 seconds	• Seafood—including fish, shellfish, and crustaceans • Steaks/chops of pork, beef, veal, and lamb • Commercially raised game • Shell eggs that will be served immediately
145°F (63°C) for 4 minutes	• Roasts of pork, beef, veal, and lamb
135°F (57°C) (no minimum time)	• Fruits, vegetables, grains (e.g., rice, pasta), and legumes (e.g., beans, refried beans) that will be hot held for service

Cooking TCS Food in the Microwave Oven

Meat, seafood, poultry, and eggs that are cooked in a microwave oven must be cooked to 165F (74C).

Follow these guidelines when cooking TCS food in a microwave oven:

- Cover the food to prevent its surface from drying out.
- Rotate or stir it halfway through the cooking process so that the heat reaches the food more evenly.
- Let the covered food stand for at least two minutes after cooking to let the food temperature even out.
- Check the temperature in at least two places to make sure that the food is cooked through.

Partial Cooking during Preparation

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

Follow these steps when partially cooking meat, seafood, poultry, eggs, or dishes containing these items:

1. Do not cook the food for longer than 60 minutes during initial cooking.
2. Cool the food immediately after initial cooking.
3. Freeze or refrigerate the food after cooling it. If refrigerating the food, make sure it is held at 41F or lower.
4. Heat the food to its required minimum internal temperature before selling or serving it.
5. Cool the food if it will not be served immediately or held for service.

The local regulatory authority will require written procedures that explain how partially cooked food will be prepped and stored.

These procedures must be approved by the regulatory authority and describe the following:

- How the requirements will be monitored and documented
- Which corrective actions will be taken if requirements are not met
- How these food items will be marked after initial cooking to indicate that they need further cooking
- How these food items will be separated from ready-to-eat food during storage, once initial cooking is complete

Consumer Advisories

Disclosure:

- If your menu includes TCS items that are raw or undercooked, such as animal products, you must note it on the menu next to these items.
- This can also be done by placing an asterisk next to the item that points customers to a footnote at the bottom of the menu.
- The footnote musk also include a statement that indicates the item is raw or undercooked, or contains raw or undercooked ingredients.

Reminder:

- You must advise customers who order TCS food that is raw or undercooked, such as animal products, of the increased risk of foodborne illness.
- You can also do this by posting a notice in your menu.
- You can also provide this information using brochures, table tents, signs, or other written methods.

Children's Menus

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

Operations That Mainly Serve High-Risk Populations

Operations that mainly serve a high-risk population, cannot serve the following items:

- Raw seed sprouts.
- Raw or undercooked eggs (unpasteurized), meat, or seafood.
- Unpasteurized milk or juice.

Cooling and Reheating Food

Temperature Requirements for Cooling Food

Cool TCS food from 135F to 41F or lower within six hours.

First, cool food from 135F to 70F within two hours.

Then cool it from 70F to 41F or lower in the next four hours.

If food has not cooled to 70F within two hours, it must be reheated and then cooled again.

If food cannot be cooled from 135F to 70F in less than two hours, use the remaining time to cool it to 41F or lower.

However, the total cooling time cannot be longer than six hours.

Cooling Food

Factors That Affect Cooling

- Thickness or density of the food: The denser the food, the more slowly it will cool.
- Size of the food: Large food items cool more slowly than smaller items. To let food cool faster, you should reduce its size.
- Storage container: Stainless steel transfers heat away from food faster than plastic. Shallow pans let the heat from food disperse faster than deep pans.

Methods for Cooling Food

- NEVER cool large amounts of hot food in a cooler.
- Ice-water bath: After dividing food into smaller containers, place them in a clean prep sink or large pot filled with ice water.
- Blast chillers blast cold air across food at high speeds to remove heat. They are typically used to cool large amounts of food.
- Ice paddles are plastic paddles that can be filled with ice or with water and then frozen.
- Ice or cold water as ingredient: When cooling soups or stew, the recipe is made with less water than required. Cold water or ice is then added after cooking.

Storing Food for Further Cooling

- Loosely cover food containers before storing them.
- Food can be left uncovered if stored in a way that prevents contaminants from getting into it.
- Storing uncovered containers above other food, especially raw seafood, meat, and poultry, will help prevent cross-contamination.

Reheating Food

Food reheated for immediate service:

Heat food that will be served immediately, to _____. However, make sure the food was cooked _____ and cooled _____ correctly.

Food reheated for hot holding:

Heat TCS food for hot holding to an internal temperature of 165F _____ for 15 _____ seconds.

Make sure the food reaches this temperature within two hours from start to finish.

Reheat commercially processed and packaged ready-to-eat food to an internal temperature of at least 135F.

Module 7: Service

Holding Food

Food that is being held for service is at risk for time - temperature abuse and cross-contamination.

Guidelines for Holding Food

- Creates policies about how long the operation will hold food.
- create policies about when to throw away held food.

Food covers and sneeze guards:

- protect food from contaminants.
- help maintain a food's internal temperature.

Temperature:

Hold hot TCS food at 135F (57C) or higher.

Hold cold TCS food at 41F (5C) or lower.

Thermometer:

- check a food's internal temperature.
- NEVER use the thermometer gauge on a holding unit to check the food's temperature.
- the gauge does not check the internal temperature of the food.

Time:

Check food temperatures at least every 4 hours.

Throw out food that is not 41F (5C) or lower or 135F (57C) or higher.

You can also check the temperature every 2 hours. This will leave time for corrective action.

Hot-holding equipment:

- NEVER use hot holding equipment to reheat food unless it is built to do so.
- most hot-holding equipment does not pass food through the temperature danger zone quickly enough.

- reheat food correctly, then move it to the holding unit.

Holding Food without Temperature Control

If an operation primarily serves a high - risk population, TCS food cannot be held without temperature control.

Examples of when food might be held without temperature control:

- when displaying food for a short time.
- when electricity is not available to power holding equipment.

Before using time as a method of control, check with the local regulatory authority for specific requirements.

Cold Food

Cold food can be held without temperature control for up to 6 hours if these conditions are met:

- hold the food at 41F (5C) or lower before removing it from refrigeration.
- label the food with the time you removed it and the time you must throw it out.
- make sure the food temperature does not exceed 70F (21C) while it is being served.
- sell,serve, or throw out the food within 6 hours

Hot Food

Hot food can be held without temperature control for up to 4 hours if these conditions are met:

- hold the food at 135F (57C) or higher before removing it from the temperature control.
- label the food with the time you must throw it out.
- sell serve or throw out the food within 4 hours.

Serving Food

Kitchen Staff Guidelines

Bare-hand contact with food:

Food handlers must wear single - use gloves whenever handling ready-to-eat food.

Food can also be handled with:

- spatulas
- tongs
- deil sheets
- other utensils

Clean and sanitized utensils:

- use separate utensils for each food item
- clean and sanitize them after each serving task.
- if using utensils continuously, clean and sanitize them at least once every 4 hours.

Serving utensils:

- store serving utensils in the food with the handle extended above the rim of the container
- if serving non-TCS food items, place them on clean and sanitized food-contact surface.
- spoons and scoops used to serve food such as ice cream or mashed potatoes can be stored under running water.
- can also be served in a container of water that is maintained at a temperature of at least 135F (51C)

Refilling take-home containers:

Take-home containers can be refilled if they meet these conditions:

- they were designed to be reused
- they were provided to the guest by the operation
- they are clean and sanitized

The container must also meet these conditions:

- it can be efficiently cleaned at home and in the operation.
- it will be rinsed with fresh hot water under pressure before refilling.
- it will be refilled by staff in the operation or by the guest using a process that prevents contamination.

Take-home beverages containers can also be refilled as long as the beverage is not a TCS food.

Service Staff Guidelines

Service staff should use these guidelines when serving food:

- hold dishes by the bottom or edge.
- hold glasses by the middle bottom or stem
- DO NOT touch food contact areas of dishes or glassware.
- carry glasses in a rack or on a tray to avoid touching the food contact surfaces.
- DO NOT stack glasses when carrying them.
- hold flatware by the handle.
- DO NOT hold flatware by the food-contact surfaces.
- store flatware so that servers grasp the handles, not food-contact surfaces.
- avoid bare-hand contact with food that is ready to eat.
- use ice scoops or tongs to get ice.
- NEVER scoop ice with your bare hands or a glass. A glass my chip or break

Preset Tableware

To prevent contamination of tableware on dining tables wrapping or covering the items.

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

- they are removed when guests are seated
- if they remain on the table, they are cleaned and sanitized after guest have lefted.

Re-serving Food

Menu items:

- DO NOT re-serve food returned by one guest to another guest.

Condiments:

- you must protect condiments from contamination.
- serve them in their original containers or in containers designed to prevent contamination.
- offering condiments in individual packets or portions can also help keep them safe
- NEVER reserve uncover condiments
- DO NOT combine leftover condiments with fresh ones.

Bread or rolls:

-
- DO NOT reserve uneaten bread to other guests. change linens used in basket after each guest.

Garnishes:

-
- NEVER reserve plate garnishes. Throw out served but unused garnishes.

Prepackaged food:

- you may reserve unopened, prepackaged food in good condition.
- these include condiments packets and wrapped crackers.
- you may reserve bottles of ketchup, mustard,and other condiments, the container must remain closed between uses,

Self-service Areas

Follow these guidelines to prevent contamination and time-temperature abuse in self-service areas:

Protection:

- food on display can be protected from contamination by using squeeze guards.
- placing it in display cases or packaging it will also protect it from contamination.

- whole, raw fruits and vegetables and nuts in the shell do NOT require protection

Labels:

- label food located in self service areas.

Temperature:

Keep hot food hot at 135F (51C) or higher.

Keep cold food cold at 41F (5C) or lower.

Raw and ready-to-eat food:

Typically, raw, unpackaged meat, poultry, and seafood cannot be offered for self-service. However, these items are an exception:

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

Refills:

- DO NOT let guests refill dirty plates or use dirty utensils at self serves areas
- pathogens an easily be transferred by reused plates and utensils.
- assign a staff member to monitor guests. post signs reminding guests not reuse plates and utensils.

Utensils:

- stock food displays with the correct utensils for dispensing food.
- includes tongs ladles or deli sheets

Ice:

- ice used to keep food or beverages cold should NEVER be used as an ingredient.

Labeling Bulk Food

- Bulk food in self-service areas must be labeled
- The label must be in plain view of the guest.
- When labeling food, you can include the manufacturer of processor or label provided with the food.

Bulk unpackaged food does not need to be labeled if it meets these conditions:

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

Off-Site Service

To transport food and items correctly for off-site service, follow these procedures:

Food containers:

- Pack food in insulated food containers.
- Use only food-grade containers.
- They should be designed so food cannot mix, leak, or spill.
- At the service site, use appropriate containers or equipment to hold food at the correct temperature.

Labels:

Labels for off-site service should include:

- Label food with a use-by date and time.
- Include reheating and service instructions for staff at off-site locations.
-
-

Delivery vehicles:

- Clean the inside of delivery vehicles regularly.

Internal temperature:

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

Utilities:

- Make sure the service site has the correct utilities: safe water for cooking, dishwashing, and handwashing.
- garbage containers stored away from food-prep, storage, and serving areas.

Storage

- store raw meat poultry, and seafood separate from ready-to-eat items.

Vending Machines

Vending operators should protect food from contamination and time-temperature abuse during transport, delivery, and service.

To keep vended food safe, follow these guidelines:

- check products shelf life daily.
- if the date is expired throw out immediately. throw out refrigerated food prepped if not sold within 7 days
- Keep TCS food at correct temperatures.
- these machines must have controls that prevent TCS food from being dispensed if the temperature stays in the danger zone for to long.
- this food must be thrown out immediately,
- dispense TCS food in its original container.
- wash and wrap fresh fruit with edible peels before putting it in the machine.

Module 8: Food Safety Management Systems

Overview of Food Safety Management Systems

A food safety management system is
of practices and procedures intended to prevent foodborne illness.

It does this by actively controlling risk and
hazards throughout the flow of food.

Examples of different types of food safety programs include:

- personal hygiene program
- food safety program
- supplier selection and specification program
- quality control and assurance program
- cleaning and sanitation program
- standard operating procedures (SOPs)
- facility design and equipment maintenance prgram
- pest-control program

Active Managerial Control

The five common risk factors for foodborne illness are:

- purchasing food from unsafe sources
- failing to cook food correctly
- holding food at incorrect temperature
- using contaminated equipment
- practicing poor personal hygiene

Active managerial control is
_____.

Active managerial control is proactive rather than
reactive. Managers must anticipate risks and
plan for them.

According to the Food and Drug Administration (FDA), to achieve active managerial control, managers can use simple tools such as:

- training programs
- manger supervision
- incorporation SOPs

Active managerial control can also be achieved through more complex solutions, such as a hazard analysis critical control point (HACCP) program.

Managers should practice active managerial control throughout the flow of food.

This includes anticipating potential foodborne illness risk factors and then controlling or eliminating them.

Monitoring the entire flow of food will keep customers and operation free from risk.

Managers must provide their staff with the proper tools.

Important steps to take when implementing active managerial control in an operation include:

1. Identify Risks:
find and document the potential foodborne-illness risk, then identify the hazards that can be controlled or eliminated.

2. Monitor:
food will be safe if managers monitor critical activities in the operation.

3. Corrective Action:
take the appropriate steps to correct improper procedures or behaviors.

4. Management Oversight:
verify that all policies, procedures, and corrective actions are followed.

5. Training:
ensure employees are trained to follow procedures and retrained when necessary.

6. Re-evaluation:
periodically assess the system to make sure it is working correctly and effectively.

The FDA's Public Health Interventions

Public health interventions are
specific recommendations to controlling the common risk factors for foodborne illness.

Public health interventions are designed to
protect the public health.

Demonstration of knowledge:
you must be able to show that you know what to do to keep food safe.

Staff health controls:
procedures put into place to make sure staff are practicing personal hygiene

Controlling hands as a vehicle of contamination:
controls put into place to to prevent bare-hand contact with ready-to-eat food

Time and temperature parameters for controlling pathogens:

procedures put into place to limit the time food spend in the temperature danger zone.

Consumer advisories:
Notices provided to customers if you serve raw or undercooked menu items.

HACCP

One type of system that can achieve active managerial control of foodborne-illness risk factors is called hazard critical control point program.

A Hazard Analysis Critical Control Point (HACCP) system is based on identifying significant biological, chemical, or physical, hazards at specific points within a product's flow.

Once hazards are identified, they can be prevented, eliminated, or reduced to safe levels.

An effective HACCP system must be based on a written plan.

This plan must be specific to each facility's:

- menu
- customers
- equipment
- processes
- operations

Module 9: Safe Facilities and Pest Management

Interior Requirements for a Safe Operation

It is important to recognize that you may need to consult your local regulatory agency before making changes to your operation.

Floors, Walls, and Ceilings

When choosing flooring, wall, and ceiling materials, pick those that are smooth and durable. This makes cleaning easier.

Once installed, flooring, walls, and ceilings must be regularly maintained.

Replace missing or broken ceiling tiles or flooring. Repair all holes in walls.

Coving is
curved sealed edge between the floor and the wall.

Coving should be
glued tightly to the wall to get rid of hiding places for insects.

This also protects the wall from moisture.

Floors should have _____.

Equipment Selection

Foodservice equipment must meet certain standards if it will come in contact with food.

NSF International is:
the organization that creates these national standards.

NSF is accredited by the American National Standards Institute (ANSI).

Standards for food equipment require that it be nonabsorbant, smooth, and corrosion resistant.

Food equipment must also be easy to clean, durable, and resistant to damage.

Installing and Maintaining Equipment

- easy to clean and easy to clean around.
- when installing follow the manufacturer's recommendations
- also check your regulatory authority for requirements

Stationary equipment should be installed as follows:

Floor-mounted equipment:

- put floor-mounted equipment on legs at least 6 inches high.
- seal it to a masonry base.

Tabletop equipment

- put tabletop equipment on legs at least 4 inches high.
- seal it to the counter top.

Once you have installed equipment, make sure it is maintained regularly by qualified people.

Set up a maintenance schedule with your supplier or manufacturer.

Check equipment regularly to be sure it is working correctly.

Dishwashing Machines

When selecting and installing dishwashers consider the following guidelines:

Installation:

- dishwashers must be installed so that they are reachable and conveniently located.
- installation must also keep utensils equipment, and other food-contact surfaces from becoming contaminated
- always follow manufacturer's instructions when installing, operating, and maintaining dishwashers.

Supplies:

- use detergents and sanitizers approved by the local regulatory authority.

Settings:

Purchase dishwashers that have the ability to measure the following:

- water temperature
- water pressure
- cleaning and sanitizing chemical concentration.

Information about the correct settings should be posted on the machine.

Cleaning:

- as often as necessary.
- follow the manufacturer's recommendation and local regulatory requirements.

Three-Compartment Sinks

- use to clean and sanitize items manually
- purchase sinks large enough to accommodate large equipment and utensils.
- you should also have other methods for cleaning these large items, such as cleaning them in place

Handwashing Stations

Handwashing stations are required:

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

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

To prevent cross-contamination, make sure adequate barriers are present on handwashing sinks or that there is an adequate distance between handwashing sinks and food and food-contact surfaces.

Make sure handwashing stations work correctly and are well stocked and maintained.

Handwashing stations must be available at all times. They cannot be blocked by portable equipment of stacked full of dirty kitchenware.

Requirements at a Handwashing Station	
Hot-and cold-running water	• must be drinkable and meet temperature and pressure requirement •
Soap	• the soap can be liquid, bar, or powder • •
A way to dry hands	• disposable paper towels or continuous towel system • hands can also be dried with hand dryer •
Garbage container `	• required if disposable paper towels are used
Signage	• a cleanly visible sign or poster must tell staff to wash hands before returning to work

Utilities and Building Systems

Utilities include:

- water _____
- electricity _____
- gas _____
- sewage _____
- garbage disposal _____

Building systems include:

- plumbing _____
- lighting _____
- ventilation _____
- _____

Water and Plumbing

There are national _____ standards _____ for water in the U.S. that are enforced by each regulatory authority.

Potable water is
water that is drinkable _____.

Potable water may come from the following sources:

- approved public water mains _____
- private water sources that are regularly test and maintained _____
- closed, portable water containers _____
- water transport vehicles _____

If an operation has an on-site septic system, make sure it is properly
tested _____ and maintained _____.

Installation and maintenance:

- plumbing that isn't installed or maintained correctly can allow drinkable and unsafe water to be mixed
- have only licensed plumbers work on the plumbing in your operation _____

A cross-connection is
a physical link between safe water and dirty water, which can come from drains, sewers, or other wastewater sources .

Backflow can be the result of
pressure pushing contaminants back into the water supply _____.

Backflow can also happen when
high water use in one area of an operation creates a vacuum in the plumbing system that sucks contaminants back into the water supply .

Backflow is also called backsiphonage.

Two examples of backsiphonage:

1. a running faucet below the flood rim of a sink
2. a running hose in a mop bucket

Backflow prevention:

The best way to prevent backflow is to avoid creating a cross - connection.

Some ways to prevent backflow include:

- vacuum breaker
- double check valves and reduced pressure zone backflow preventers

Backflow prevention devices must be checked periodically by a trained and certified technician. This work must be documented. Always follow local requirements and manufacturers' recommendations.

An air gap is a air space that separates a water supply outlet from a potentially contaminated source.

The only sure way to prevent backflow is to create an air gap.

A sink that is correctly designed and installed usually has 2 air gaps.

The two air gaps at a sink are:

1. between the facet and the flood rim
2. drainpipe and the floor drain

Grease condensation:

- a buildup of grease in pipes is a common problem
- grease traps are installed to prevent blockage in the drain
- if used, they should be put in by a licensed plumber and be easy to access
- clean regularly
- if the traps are not cleaned often enough or correctly, dirty water can back up
- this backup could lead to odors and contamination

Lighting

Lighting intensity or how bright the lights are in the operation is usually measured in units called foot - candles or lux.

- Different areas of the facility have different lighting intensity requirements.
- Local jurisdictions usually require prep areas to be brighter than other areas.
- This allows staff to recognize the condition of food.
- It also allows staff to identify items that need cleaning.

Replace any bulbs that have burned out.

Make sure lightbulbs are the correct size.

All lights should have shatter - resistant lightbulbs or protective covers.

These products prevent:
broken glass from contaminating food or food-contact surfaces.

Ventilation

Ventilation improves the air inside an operation.

Ventilation removes heat, steam, and smoke from cooking lines.

Ventilation eliminates fumes and odors.

If ventilation systems are not working correctly, grease and condensation will build up on walls and ceilings.

To prevent this, ventilation systems must be cleaned and maintained according to the manufacturer's recommendations.

Garbage

Garbage can attract pests and contaminate food, equipment, and utensils if not handled correctly.

Follow these guidelines to control contamination when handling garbage:

Garbage removal:

- Garbage should be removed from prep areas as quickly as possible to prevent odors, pests, and possible contamination.
- Staff must be careful when removing garbage so they do not contaminate food or food-contact surfaces.

Cleaning of containers:

- Clean the inside and outside of garbage containers frequently.
- _____
- Do not clean garbage containers near prep or food-storage areas.

Indoor containers:

- Containers must be leakproof, waterproof, and pestproof.
- _____
- Women's restrooms must include a covered receptacle for sanitary napkins.

Designated storage areas:

- Waste and recyclables must be stored separately from food and food-contact surfaces.
- _____

Outdoor containers:

- Place garbage containers on a surface that is smooth, durable, and nonabsorbent.
- Asphalt and concrete are good choices.
- _____
- Make sure the containers have tight-fitting lids and are kept covered at all times.

Maintaining the Facility

To prevent problems in the facility, do the following:

- Clean the operation on a regular basis.
- Make sure all building systems work and are checked regularly.
- _____
- Control pests.
- Maintain the outside of the building correctly, including patios and parking lots.

Emergencies That Affect the Facility

Some of the most common crises that can affect the safety of the food served are:

- Electrical power outages.
- Fire.
- Flooding.
- Sewage backups.

An imminent health hazard is a significant threat or danger to health that requires immediate correction or closure to prevent injury.

Other threats that should also be considered include:

Temperature control:

- Power failures and refrigeration breakdowns can threaten your ability to control temperature of TCS food.
- This can result in the growth of pathogens.

Physical security:

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

Drinkable water supply:

- Threats to the drinkable water supply must also be considered.
- Broken water mains and breakdowns at water treatment facilities are a risk to the safety of food.
- Terrorist contamination of the water supply could also be a threat.
- When faced with any of these crises, you must first determine if there is a significant risk to the safety or security of your food.
- If the risk is significant, service must be stopped.
- Then the local regulatory authority must be notified.

Spoiled or contaminated food must be thrown out, along with food in packaging that is not intact. Corrective actions could include:

- Establishing time-temperature contro; of TCS food.
- Cleaning and sanitizing surfaces in the operation.
- Reestablishing the physical security of he operation.
- Verifying that the water supply is drinkable.

Regardless of how the problem is corrected, managers need approval from the local regulatory authority before continuing service.

Pest Management

Rodents, insects, and other pests can damage food, supplies, and facilities.

The greatest danger comes from their ability to spread diseases, including foodborne illnesses.

Pest Prevention

Follow three basic rules to keep your operation pest-free:

1. Deny pests access to the operation.
2. Deny pests food, water, and shelter.
3. Work with a licensed pest control operator (PCO).

Deny shelter:

- Careful cleaning eliminates the pests' food supply and destroys insect eggs.
- It also reduces the places pests can take shelter.
- Throw out garbage quickly and correctly.
- Keep garbage containers clean and in good condition.
- Keep outdoor containers tightly covered.
- Clean up spills around garbage containers immediately, and wash containers regularly.
- Store recyclables in clean, pest-proof containers.
- Keep them as far away from building as local regulations allow.
- Store all food and supplies correctly and as quickly as possible.
- Keep food and supplies away from walls and at least six inches (15 centimeters) off the floor.
- Use FIFO to rotate products, so that pests do not have time to settle into them and breed.
- Clean up food and beverage spills immediately, including crumbs and scraps.

Deny access:

- Pests can be brought inside with deliveries or through building openings.
- Check all deliveries before they enter your operation.
- Refuse shipments in which you find pests or signs of pests.
- This includes egg cases and body parts (legs, wings, etc.).
- Make sure all the points where pests can access the building are secure.
- Screen all windows and vents, and patch or replace them as needed.
- Seal cracks in floors and walls and around pipes.
- Install self-closing doors and air curtains (also called air doors or fly fans) above or alongside doors.

Pest Control

- Even after you have made every effort to keep pests out, they may still get into your operation.
- If this happen, you must work with a PCO to get them under control.
- Even if you only spot a few pests, they may actually be present in large numbers.
- This is an infestation and can be very difficult to eliminate.
-
- Look for live or dead insects or rodents, feces, nests, and damage on products, packaging, and the facility itself.
- Contact your PCO immediately if you see these or any other pest-related problems, so that control measures can be taken.
- Poisonous or toxic pest-control materials should only be applied by a certified applicator.

Module 10: Cleaning and Sanitizing

Cleaning and Sanitizing

Cleaning is
removing food and other dirt from a surface.

Sanitizing is
reducing pathogens on surface to safe levels.

Cleaners

Cleaners must be stable, noncorrosive, and safe to use.

Types of cleaners include:

- Detergents.
- Degreasers.
- Delimers.
- Abrasive cleaners.

Ask your supplier to help you pick cleaners that meet your needs. To use cleaners correctly, follow these guidelines:

- follow manufactures' instructions carefully
- if not used correctly, cleaners may not work and can even be dangerous.
- only use cleaners for intended purposes
- NEVER use pone type of cleaner in place of another unless the intended use is the same.

Sanitizers

Food-contact surfaces must be sanitized after they have been cleaned and rinsed. This can be done by using heat or chemicals.

Heat Sanitizing

One way to sanitize items is to soak them in hot water. For this method to work, the water must be at least 171F (77C). The items must be soaked for at least 30 seconds. Another way to sanitize items with heat is to run them through a high - temperature dishwasher.

Chemical Sanitizing

Tableware, utensils, and equipment can be sanitized by soaking them in a chemical sanitizing solution. Or you can rinse, swab, or spray them with sanitizing solution.

Three common types of chemical sanitizers are chlorine, iodine, and quaternary ammonium compounds, also called quats.

Chemical sanitizers are regulated by state and federal environmental protection agencies.

In some cases, you can use detergent - sanitizer blends to sanitize. Operations that have two - compartment sinks often use these. If these blends are used, use it once to clean, then use it a second time to sanitize.

Sanitizer Effectiveness

Several factors influence the effectiveness of chemical sanitizers including:

- concentration
- temperature
- contact time
- water hardness
- pH

Concentration:

Sanitizer solution is a mix of chemical sanitizer and water.

Too little sanitizer may make the solution weak and useless.

Too much sanitizer may make the solution too stronger and unsafe.

Sanitizer can also leave a bad taste on items or corrode metal.

Concentration is measured in parts per million or ppm.

To check the concentration of a sanitizer solution, use a test kit.

Test kits are usually available from:

- chemical manufactures
- suppliers

Test kits should be available at all times and easy to access to employees.

The following can reduce a sanitizer solution's effectiveness:

- hard water
- food bits
- leftover detergent

Change the solution when:

- it looks dirty
- its concentration is too slow

Check the concentration often.

Temperature:

- the water in sanitizing solutions must be the correct temperature
- follow manufactures recommendations

Contact time:

Contact time is
for a sanitizer solution to kill pathogens, it must make contact with the object being sanitized for a specific amount of time.

Water hardness:

Water hardness can affect how well a sanitizer works.

Water hardness is determined by the amount of minerals in your water.

Find out what your water hardness is from your municipality. Then work with your supplier to identify the correct amount of sanitizer to use for your water.

pH:

- water pH can also affect a sanitizer
- find out the pH of your water then work with you supplier to find out the correct amount of sanitizer to use for your water.

General Guidelines for the Effective Use of Chlorine, Iodine, and Quats

	Chlorine		Iodine	Quats
Water temperature	greater than or equal to 100F (38C)	greater than or equal to 75F(24C)	68F(20C)	75(24C)
Water pH	less than or equal to 10	less than or equal to 8	less than or equal to 5 or as per manufactures recommendation	As per manufactures recommendation
Water hardness	as per manufactures recommendation	as per manufactures recommendation	as per manufactures recommendation	less than or equal to 500 ppm or as per manufactures recommendation
Sanitizer concentration	50-99 ppm	50-99 ppm	12.5-25 ppm	as per manufactures recommendation
Sanitizer contact time	greater than or equal to 7 seconds	greater than or equal to 7 seconds	greater than or equal to 30 seconds	greater than or equal to 30 seconds

How and When to Clean and Sanitize

Surfaces that do not touch food only need to be cleaned and rinsed to prevent the accumulation of dirt. However, any surface that touches food must be cleaned, rinsed, and sanitized.

Cleaning and Sanitizing Surfaces

If surfaces have not been cleaned and sanitized properly, take corrective action immediately.

To clean and sanitize a surface follow these steps:

1. scrape or remove food bits from the surface.
   - use the correct cleaning tool, such as a nylon brush or pad, or a cloth towel

2. wash the surface
   - prepare the cleaning solution with an approved cleaner
   - was the surface with the correct cleaning tool, such as a cloth towel.

3. rinse the surface
   - use clean water
   - rinse the surface with the correct cleaning tool, such as a cloth towel

4. santize the surface

- use the correct sanitizing solution
- prepare the concentration per manufactures requirements
- use the correct cleaning tool, such as a cloth towel, to sanitize the surface
- make sure the entire surface has come in contact with the sanitizing solution

5. allow the surface to dry

When to Clean and Sanitize

All food-contact surfaces need to be cleaned and sanitized at these times:

- after they are used
- before working with a different type of food
- after handling different raw TCS fruits and vegetables
- any time there is an interruption during a task and the items being used may have been contaminated
- after 4 hours if items are in constant use

Cleaning and Sanitizing Stationary Equipment

Equipment manufacturers will usually provide instructions for cleaning and sanitizing stationary equipment.

Follow these steps when cleaning and sanitizing stationary equipment:

1. unplug equipment
2. take the removable parts off the equipment , wash rinse and sanitize them by hand.
3. scrape or remove any food from the equipment surfaces
4. wash the equipment surfaces
5. rinse the equipment surfaces with cleaner water.
6. sanitize the equipment surfaces
7. allow all surfaces to air-dry

Clean-in-Place Equipment

- some equipment are designed to have cleaning and sanitizing solution pumped through them.
- they must be cleaned and sanitized everyday unless otherwise indicated by the manufactures

Dishwashing

tableware and utensils are often cleaned and sanitized in a dishwashing machine.

Larger items such as pots and pans are often cleaned by hand in a three - compartment sink.

Store the items so they do not become contaminated.

Machine Dishwashing

Dishwashing machines sanitize by using either hot water or a chemical sanitizing solution.

High-Temperature Machines

High-temperature machines use hot water to clean and sanitize. If the water is not hot enough, items will not be sanitized. Extremely hot water can also bake food onto the items.

The temperature of the final sanitizing rinse must be at least 180F (82C).

For stationary-rack, single-temperature machines, it much be at least 165F(74C).

The dishwasher must have a built-in thermometer that checks the water temperature at the manifold. This is where the water sprays into the tank.

Chemical-Sanitizing Machines

Chemical-sanitizing machines can clean and sanitize items at much lower temperatures.

Follow the dishwasher manufacturer's guidelines.

Dishwasher Operation

Operate your dishwasher according to the manufactures recommendations and keep it in good repair.

Follow these guidelines when operating your dishwashing machine:

Keeping the machine clean:

- clean the machine as often as needed,check at least once a day
- clear spray nozzles of food and foreign objects
- remove mineral deposits when needed.
- fill tanks with clean water, and make sure detergent and sanitizer dispensers are filled.

Preparing items for cleaning:

- scrape items before washing them.
- if needed items can be rinsed and presoaked.
- this may be needed when handling items with dried-on food

Loading dish racks:

- use the correct dish racks.
- load them so the water spray will reach all the surfaces
- NEVER overload dish racks

Drying items:

- air-dry all items
- NEVER use a towel to dry items
- make sure they are completely dry before stacking or storing them

Monitoring:

- check water temperature, pressure and sanitizer levels
- take appropriate corrective action if needed.
- must provide staff with quick and easy way to measure the surface temperature of items being sanitized.
- the method used must provide an irreversible record of the highest temperature reached during the sanitizing rinse.
-
- maximum registering thermometers or heat-sensitive tape are good tools for checking temperatures

Manual Dishwashing

Operations often use a three-compartment sink to clean and sanitize large items.

Preparing a Three-Compartment Sink

The steps to set up a three-compartment sink correctly include:

1. clean and sanitize each sink and drain board
2. fill the first sink with detergent and water. water temperature should be at least 110F (43C)
3. fill the second sink with clean water. this is not needed if items will be sprayed-rinsed instead of dipped
4. fill the third sink with water and sanitizer to the correct concentration.
5. provide a clock with a second hand. this will let food handlers know how long items have been in sanitizer.

Cleaning and Sanitizing in a Three-Compartment Sink

The steps to clean and sanitize items in a three-compartment sink include:

1. scrape items before washing them, if needed items can be rinsed or soaked.
2. wash items in the second sink
3. rinse items in the second sink.
4. sanitize items in the the third sink. NEVER rinse items after sanitizing them.
5. air-dry items on a clean and sanitized surface. NEVER use a towel to dry items as it could contaminate them.

Storing Tableware and Equipment

Once utensils, tableware, and equipment have been cleaned and sanitized, they must be stored in a way that will protect them from contamination.

Follow these guidelines:

Storage:

- store tableware and utensils at least 6 inches off the floor
- protect them from dirt and moisture.

Storage surfaces:

- clean and sanitize drawers and shelves before storing clean items.

Glasses and flatware:

- store glasses and cups upside down on a clean and sanitized shelf or rack
- store flatware and utensils with handles up
- staff can then pick them up without touching the food-contact surfaces

Trays and carts:

- clean and sanitize trays and carts used to carry clean tableware and utensils
- check them daily and clean as often as needed

Stationary equipment:

- keep food-contact surfaces of stationary equipment covered until ready for use.

Cleaning and Sanitizing in the Operation

Wiping Cloths

Wiping cloths are often used in operations to wipe up food spills and to wipe down equipment surfaces.

The two types of wiping cloths are:

1. wet clothes
2. dry clothes

Never use cloths that are meant for wiping food spills for any other purpose.

Wet cloths:

- store wet wiping clothes used for wiping counters and other equipment surfaces in sanitizer solution between uses
- change the solution when it no longer meets requirements for the sanitizer being used
- always keep clothes that come in contact with raw meat, fish, and poultry separate from other cleaning cloths

Dry cloths:

- wiping clothes that are used to to wipe food spills from tableware must be kept dry while in use
- these cloths must NOT contain food debris or be visibly dirty during use

Cleaning the Premises

Nonfood-contact surfaces are surfaces that don't normally come in contact with food.

Examples of nonfood-contact surfaces include floors, walls, ceiling, and equipment exteriors.

Nonfood-contact surfaces do not need to be sanitized. However, they do need to be cleaned regularly. This prevents dust, dirt, and food residue from building up. Not only will this prevent the growth of pathogens, but it will also prevent pests.

Cleaning up after People Who Get Sick

- If vomit or diarrhea contacts surfaces in the operation, it must be cleaned up correctly.
- These substances can carry Norovirus, which is very contagious.
- Cleaning the surfaces correctly can prevent food from becoming contaminated.
- It will also keep others from becoming sick.
- To be effective, operations must have procedures for cleaning up vomit and diarrhea.
- These procedures must address specific actions that employees must take to minimize contamination and exposure to food, surfaces, and people.
- It is critical that employees be trained on these procedures.

Using and Storing Cleaning Tools and Supplies

Your staff needs many tools and supplies to keep the operation clean. However, these items can contaminate food and surfaces if they are not used and stored correctly.

Storing Cleaning Tools and Supplies

Cleaning tools must be stored so that they do not contaminate food and equipment.

It is a best practice to store these items in a designated area away from food.

Cleaning tools should also be stored in a way that makes it easy to clean the area they are stored in. The storage area should have the following:

- Good lighting so staff can see chemicals easily.
- Hooks for hanging mops, brooms, and other cleaning tools.
- Utility sink for filling buckets and washing cleaning tools.
- Floor drain for dumping dirty water.

To prevent contamination, never clean mops, brushes, or other tools in sinks used for handwashing, food prep, or dishwashing.

Never dump mop water or other liquid waste into toilets or urinals.

When storing cleaning tools, consider the following:

- Place mops in a position to air-dry without soiling walls, equipment, or supplies.
- Clean and rinse buckets. Let them air-dry, and then store them with other tools.

If chemicals or cleaning tools have not been used or stored correctly, take corrective action immediately.

Using Foodservice Chemicals

Many of the chemicals used in an operation can be hazardous, especially if they are used or stored the wrong way. One of the biggest dangers is cross - contamination.

To reduce your risk, follow these guidelines:

Use:

- Only chemicals approved for use in a foodservice operation should be used.
- NEVER keep chemicals that are not required to operate or maintain the establishment.
- To prevent contamination, always cover or remove items that could become contaminated before using chemicals.
- After using chemicals, make sure to clean and sanitize equipment and utensils.
- Always follow the law and manufacturers' directions when using chemicals.

Storage:

- Chemicals must be stored in their original containers.
- Some operations also designate specific areas for storing chemicals.
- Whether or not this is done, chemicals must be kept separate from food, equipment, utensils and linens
- by spacing chemicals apart from others
- by partitioning off chemicals from other items stored in the same area
-

Labels:

- chemicals stored in their original container should have a manufactures label
- that label must include the directions for use and be clear enough to read
- if chemicals are transferred to a new container that container must list all possible names for the chemical

Developing a Cleaning Program

To develop an effective cleaning program for your operation, focus on three things:

1. creating a master cleaning schedule
2. training your staff to follow it
3. monitoring the program to make sure it works

Creating a Master Cleaning Schedule

Create a master cleaning schedule with the following information.

What should be cleaned:

- list all cleaning job in one area or list jobs in the order they should be preformed. include both food and nonfood surfaces as items that need to be cleaned
- _____

Who should clean it:

- assign each task to a specific individual _____

When it should be cleaned:

- staffed should clean and sanitize as needed _____
- Schedule major cleaning tools and chemicals when food will not be contaminated or service will not be affected
- schedule work to shifts allow enough time _____

How it should be cleaned:

- have clear written procedure for cleaning _____
- list cleaning tools and chemicals by name _____
- post cleaning instructions near item _____
- always follow manufactures instruction when cleaning equipment _____

Training Your Staff to Follow the Program

- schedule time for training _____
- work with small groups or conduct training by area. _____

Monitoring the Cleaning Program

To make sure the cleaning program is working do the following:

- supervise daily cleaning routines _____
- check all cleaning task against the master schedule every day _____
- change the master schedule as needed for any changes in menu, procedures, or equipment _____
- ask staff during meetings for input on the program _____