



7th Edition Revised **ServSafe Manager**

Welcome



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Providing Safe Food

Let's watch a DVD...

**Some other things you
should know...**

What Do You Think?

When is a foodborne illness considered an outbreak?

- A. Two or more people have same symptoms after eating same food
- B. Regulatory authorities have investigated
- C. The outbreak is confirmed by laboratory analysis

Challenges to Food Safety

Challenges include:

- Time
- Language and culture
- Literacy and education
- Pathogens
- Unapproved suppliers
- High-risk customers
- Staff turnover



The Cost of Foodborne Illnesses

The human cost of foodborne illness:

- Lost work
- Medical costs
- Long-term disability
- Death

How Foodborne Illnesses Occur

Unsafe food is usually the result of contamination:

- The presence of harmful substances in food

Contamination may come from:

- Biological, chemical, and physical hazards
- Unsafe practices

How Food Becomes Unsafe



Purchasing from
unapproved source



Time-temperature abuse



Cross-contamination



Poor personal hygiene



Poor cleaning
and sanitizing

What Do You Think?

Is it OK for a foodservice operation to use food prepared in a private home?

A. Yes

B. No

Why?

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

How Food Becomes Unsafe

Poor cleaning and sanitizing:

- Equipment and utensils are not washed, rinsed, and sanitized between uses
- Food-contact surfaces are wiped clean instead of being washed, rinsed, and sanitized
- Wiping cloths are not stored in a sanitizer solution between uses
- Sanitizer solutions are not at required levels



What Do You Think?

What is the problem?



- A. Time-temperature abuse
- B. Cross-contamination
- C. Poor personal hygiene
- D. Poor cleaning and sanitizing

What Do You Think?

What is the problem?



- A. Time-temperature abuse
- B. Cross-contamination
- C. Poor personal hygiene
- D. Poor cleaning and sanitizing

What Do You Think?

What is the problem?



Chicken breasts

- A. Time-temperature abuse
- B. Cross-contamination
- C. Poor personal hygiene
- D. Poor cleaning and sanitizing

What Do You Think?

What is the problem?



Wiping prep table
between uses with
single-use towel

- A. Time-temperature abuse
- B. Cross-contamination
- C. Poor personal hygiene
- D. Poor cleaning and sanitizing

Populations at High Risk for Foodborne Illnesses

These people have a higher risk of getting a foodborne illness:

- Elderly people
- Preschool-age children
- People with compromised immune systems



Keeping Food Safe

Focus on these measures:

- Purchasing from approved, reputable suppliers
- Controlling time and temperature
- Preventing cross-contamination
- Practicing good personal hygiene
- Cleaning and sanitizing



Keeping Food Safe

Training and monitoring:

- Train staff to follow food safety procedures
- Provide initial and ongoing training
- Provide all staff with general food safety knowledge
- Provide job-specific food safety training
- Retrain staff regularly



Keeping Food Safe

Training and monitoring:

- Document training
- Monitor staff to make sure they are following procedures
- Retrain employees who complete tasks incorrectly



Keeping Food Safe

The person in charge must:

- Be a Certified Food Protection Manager
- Be onsite during operating hours



Keeping Food Safe

The person in charge may not need to be onsite at all times if:

- The operation poses minimal risk for causing a foodborne illness
 - Based on the kind of operation it is
 - Based on the type of food served or sold
 - Cashier-less markets and convenience stores are examples

Keeping Food Safe

To become a Certified Food Protection Manager:

- You must pass a test from an accredited program
- The program must be accredited by an agency approved by a Conference for Food Protection
- Completing this course and passing the ServSafe exam meets this requirement

Keeping Food Safe

Why is it important to be a Certified Food Protection Manager:

- CDC study suggests that it
 - reduces the risk of foodborne illness.
 - was a distinguishing factor between restaurants that experienced an outbreak and those that had not.
- FDA studies suggest more effective control of risk factors for foodborne illness

Agencies Responsible for Preventing Foodborne Illness

Food and Drug Administration (FDA):

- Inspects all food except meat, poultry, and eggs
- Regulates food transported across state lines
- Provides technical support and training
- Issues the *Food Code*

The FDA *Food Code*:

- Provides recommendations for food safety regulations
- Created for city, county, state, and tribal agencies
- Is recommendation, not law

Agencies Responsible for Preventing Foodborne Illness

The U.S. Department of Agriculture (USDA):

- Regulates and inspects meat, poultry, and eggs
- Regulates food transported across state lines
- Regulates food involving more than one state

The Centers for Disease Control and Prevention (CDC)

The Public Health Service (PHS):

- Assist the FDA, USDA, and state and local health departments
- Conduct research into causes of foodborne-illness outbreaks
- Assist in investigating outbreaks

Agencies Responsible for Preventing Foodborne Illness

State and Local Regulatory Authorities:

- Write or adopt codes regulating retail and foodservice operations
- Codes may differ from FDA *Food Code*

Food safety responsibilities include:

- Inspecting operations
- Enforcing regulations
- Investigating complaints and illnesses
- Issuing licenses/permits



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Forms of Contamination

Let's watch a DVD...

**Some other things you
should know...**

How Contamination Happens

Contaminants come from a variety of places:

- Animals used for food
- Air, contaminated water, and dirt
- Chemicals used in the operation
- Natural contaminants (e.g., bones in fish)
- People
 - Deliberately
 - Accidentally

How Contamination Happens

Contaminants come from a variety of places:

- Fecal–oral route of contamination
 1. Failure to wash hands after using restroom
 2. Feces on fingers gets on food
 3. Food with feces is then eaten

How Contamination Happens

Contaminants come from a variety of places:

- Contact with a person who is sick
- From person to person
- Sneezing or vomiting onto food or food-contact surfaces
- Touching dirty surfaces/equipment and then touching food

Biological Contamination

The “Big Six” pathogens:

- *Shigella* spp.
- *Salmonella* Typhi
- Nontyphoidal *Salmonella*
- Shiga toxin-producing *Escherichia coli* (STEC)
- Hepatitis A
- Norovirus

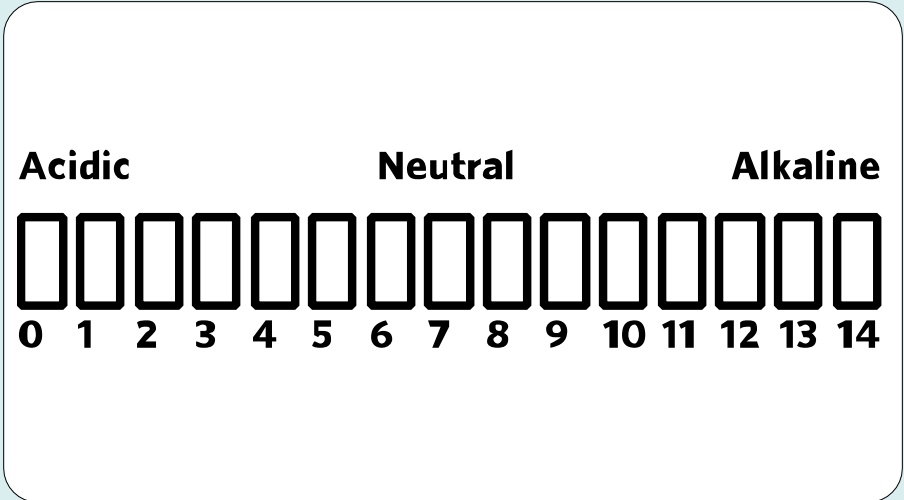
What Do You Think?

Bacteria grow best in food with which pH?

A. 0

B. 7

C. 14



Bacteria grow best in food that is neutral to slightly acidic.

What Do You Think?

At what temperatures do bacteria grow most rapidly?

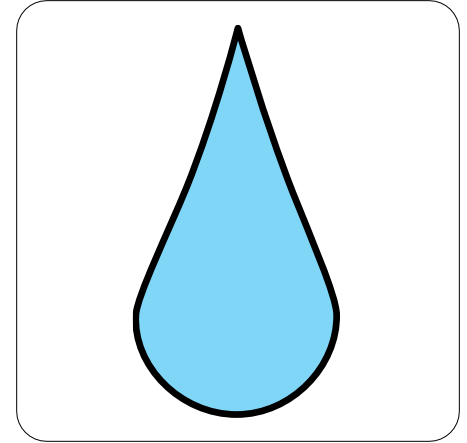
A. 41°F to 135°F (5°C to 57°C)

B. 70°F to 125°F (21°C to 52°C)

Conditions for Bacteria to Grow

Moisture:

- Water activity (a_w) = Moisture available in food for bacteria growth
- A_w scale ranges from 0 to 1.0
- The higher the value the more available moisture
- Water has an a_w of 1.0



What Do You Think?

Does this food need time and temperature control to keep it safe?



Cut lettuce

A. Yes

B. No

Teach the Bug

Who Am I?

1. Norovirus

- I can be transferred to food or equipment by food handlers with feces on their fingers.
- People become contagious within a few hours of eating me.
- I am often linked with ready-to-eat food.
- Excluding staff with diarrhea and vomiting can prevent me from causing further illness.

Who Am I?

2. *Salmonella Typhi*

- I live in a person's bloodstream and intestines.
- I am commonly linked with ready-to-eat food and beverages.
- I am in a person's feces for weeks after symptoms have ended.
- Washing hands and cooking food to required minimum internal temperatures can prevent me.
- I only live in humans.

Who Am I?

3. ***Shigella* spp.**

- I am found in the feces of people I have infected.
- Flies can transfer me.
- I am linked with food easily contaminated by hands.
- Washing hands can prevent me.

Who Am I?

4. Hepatitis A

- I am often linked with ready-to-eat food.
- I'm often transferred to food by food handlers who have feces on their fingers.
- Excluding staff with jaundice can prevent me from causing illness.
- Normal cooking temperatures do not destroy me.
- I may not show symptoms for weeks but may still be infectious.

Who Am I?

5. Shiga toxin-producing *E. coli*

- I can be found in the intestines of cattle.
- I produce toxins in a person's intestines, which cause illness.
- I am found in raw ground beef and contaminated produce.
- Cooking ground beef to required minimum internal temperatures can prevent me.

Who Am I?

6. Nontyphoidal *Salmonella*

- Many farm animals carry me naturally.
- The severity of a person's symptoms depends on how much of me is eaten.
- I've been found in tomatoes, peppers, and cantaloupes.
- Cooking poultry or eggs to the right temperature can prevent me from causing illness.

Who Am I?

7. Histamine

- I am a seafood toxin.
- I am produced by pathogens found on certain fish.
- You can find me on tuna, bonito, and mahi-mahi.
- I am produced when fish is time-temperature abused.

Who Am I?

8. Ciguatera toxin

- I am a seafood toxin.
- I occur in certain fish that eat smaller fish that have consumed the toxin.
- You can find me in barracuda, snapper, grouper, and amberjack.

What Do You Think?

What is the onset time for an illness from a biological toxin?

- A. Within a few minutes
- B. Within a few hours
- C. 6–12 hours
- D. 24 hours

What Do You Think?

What symptoms are associated with a biological toxin?

- A. Vomiting and diarrhea
- B. Neurological symptoms
- C. Flushing, hives, and difficulty breathing
- D. Heart palpitations

Chemical Contaminants

To prevent chemicals from contaminating food:

- Make sure the manufacturer's labels on original chemical containers are readable
- Follow directions and local regulatory requirements when throwing out chemicals
- Use chemicals for their intended use
- Separate chemicals from food and food-contact surfaces by spacing and partitioning



Physical Contaminants

Symptoms:

- Cuts
- Dental damage
- Choking
- Bleeding and pain



To prevent contamination:

- Purchase food from approved, reputable suppliers
- Inspect food upon receipt
- Practice good personal hygiene

Deliberate Contamination of Food

Groups who may attempt to contaminate food:

- Terrorists or activists
- Disgruntled current or former staff
- Vendors
- Competitors

FDA defense tool:

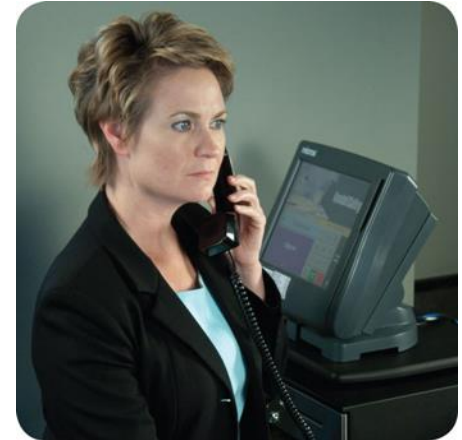
- A.L.E.R.T.

Deliberate Contamination of Food

- A**ssure Make sure products received are from safe sources.
- L**ook Monitor the security of products in the facility.
- E**mployees Know who is in your facility.
- R**eports Keep information related to food defense accessible.
- T**hreat Develop a plan for responding to suspicious activity or a threat to the operation.

Responding to a Foodborne-Illness Outbreak

- Gather information
 - Ask the person for general contact information
 - Ask the person to identify the food eaten
 - Ask for a description of symptoms
 - Ask when the person first got sick
- Notify authorities
 - Contact the local regulatory authority if an outbreak is suspected



Responding to a Foodborne-Illness Outbreak

- Segregate product
 - Set the suspected product aside if any remains
 - Include a label with “Do Not Use” and “Do Not Discard” on it
- Document the information
 - Log information about the suspected product
 - Include a product description, product date, lot number, sell-by date, and pack size



Responding to a Foodborne-Illness Outbreak

- Identify staff
 - Keep a list of food handlers scheduled during the incident
 - Interview staff immediately
- Cooperate with authorities
 - Provide appropriate documentation
- Review procedures
 - Determine if standards are being met
 - Identify if standards are not working



Food Allergens

A food allergen is a protein in a food or ingredient

- When enough of an allergen is eaten, it can cause an allergic reaction in some people
 - The immune system mistakenly considers the food protein, which is normally harmless, to be a threat
 - The immune system attacks the food protein

To protect guests, managers and staff must know

- The signs of an allergic reaction
- What to do when an allergic reaction occurs
- The types of food that most often cause allergic reactions

Food Allergy Symptoms

A food allergy is the reaction a person's immune system has to a certain food.

- An allergic reaction can happen within a few minutes or up to two hours later
- It could include some or all of these symptoms:
 - Wheezing
 - Difficulty breathing
 - Hives, rashes, itching
 - Tingling in the mouth



Food Allergy Symptoms

A food allergy is the reaction a person's immune system has to a certain food.

- It could include some or all of these symptoms
 - Swelling, including the tongue and throat
 - Abdominal cramps
 - Diarrhea
 - A drop in blood pressure
 - Loss of consciousness



Allergic Reactions to Food

Allergic reactions

- Can vary widely
- In some cases, anaphylaxis can occur
 - Anaphylaxis is a severe, life-threatening allergic reaction
 - Anaphylaxis can lead to death

Allergic Reactions

IF:

- You or your staff see a customer having severe symptoms
- A customer tells you they are having a severe allergic reaction
 - Act immediately
 - Let other staff know that assistance is needed
 - Instruct staff to call emergency medical services
 - **DO NOT** leave the person alone



Most Common Food Allergens

The Big Nine:

- Milk
- Soybeans (soy)
- Eggs
- Wheat
- Fish, such as tuna and cod
- Crustacean shellfish, such as crab, lobster, and shrimp
- Peanuts
- Tree nuts, such as almonds and pine nuts
- Sesame

Preventing Allergic Reactions

Food labels

- Major allergens must be clearly identified in labels on packaged foods
 - The allergen must be found within the ingredient listing or directly after the listing on the label
 - The information must use the Big Nine allergen common names
 - As an alternative, allergens can be listed in one spot using a “contains” label

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

INGREDIENTS: CHICKEN BROTH, CONTAINS L
OF THE FOLLOWING: SALT, DEXTROSE, C
MONOSODIUM GLUTAMATE, HYDROLYZED WI
NATURAL FLAVORS, AUTOLYZED YEAST EXTF
JUICE CONCENTRATE, MONO AND DIGLYCERIL
GUM, ONION JUICE CONCENTRATE.

CONTAINS: WHEAT.

Preventing Allergic Reactions: Front of House Staff

Front of house staff should:

- Inform guests about allergens on menus
 - Some operations
 - Note allergens in menus
 - Include disclaimers requesting that guests inform servers of food allergies
 - Staff can inform guests by
 - Bringing food labels to them
 - Reading ingredient labels to them
 - Telling them about menu items



Preventing Allergic Reactions: Front of House Staff

Front of house staff should:

- **Listen to guests**
 - Answer all guest questions about menu items
 - It's important to check if a guest has a food allergy if:
 - They ask about substituting ingredients
 - They mention being sensitive to something
 - Once you know that a guest has a food allergy
 - Pay attention
 - Take notes—and read the notes back to them to make sure they are correct.



Preventing Allergic Reactions: Front of House Staff

Front of house staff should:

- **Communicate the order to back of house staff**
 - Provide kitchen staff with written notes about the guest's allergen special order
 - Verbally confirm the order with kitchen staff when placed
 - When collecting the order, confirm the meal is correct and matches the ticket.
 - Always confirm the allergen special order verbally with kitchen staff



Preventing Allergic Reactions: Front of House Staff

Front of house staff should:

- **Deliver the allergen special order safely**
 - Always confirm the order verbally with the guest.
 - To prevent cross-contact when delivering food
 - Deliver the allergen special order first, separate from other items
 - All orders for the table can be delivered at the same time with an additional server or manager delivering just the special meal



Preventing Allergic Reactions: Front of House Staff

Front of house staff should:

- **Avoid cross-contact in workstations**
 - Keep workstations clean
 - Don't mix old product with new product
 - Be careful when restocking stations
 - Avoid spills and clean carefully if they happen
 - Use new, clean tools (ladles, serving baskets, etc.) when handling orders
 - Prepare breadbaskets, salads, and other items at a separate location used for allergen special orders

Preventing Allergic Reactions: Front of House Staff

Front of house staff should:

- **Clean and sanitize**
 - Replace soiled cloths and cleaning and sanitizing solutions regularly
 - Clear and reclean tables and chairs for guests with food allergies
 - When resetting tables, be mindful of condiments or other food items that may contain allergens
 - Clean spills immediately and common surfaces regularly



Food Allergens

Cross-contact:

- Has occurred when allergens are transferred from food or food-contact surfaces containing an allergen to the food served to the customer
- It can happen when:
 - Different types of food are cooked in the same fryer oil
 - Food touches surfaces, equipment, or utensils that have touched allergens.



Preventing Allergic Reactions: Back of House Staff

Back of house staff should:

- **Review the menu and ingredients for Big Nine allergens**
 - Check recipes and ingredient labels
 - Ingredient substitutions should be
 - Identified
 - Tested in advance
 - Noted in recipes
 - Stay in regular communication with vendors
 - Check with the vendor if uncertain about ingredients



Preventing Allergic Reactions: Back of House Staff

Back of house staff should:

- **Receive and store items correctly**
 - Check deliveries carefully
 - Check ingredient labels on substituted items
 - Check for broken packaging or spills
 - Reject deliveries if
 - Inappropriate substitute items have been provided
 - Cross-contact is suspected
 - Label and store items for allergen special orders separately from Big Nine allergens



Preventing Allergic Reactions: Back of House Staff

Back of house staff should:

- **Clean surfaces, utensils, and equipment**
 - Scrape or remove food from items. Then wash, rinse, sanitize, and air-dry them to remove allergens
 - Use fresh cleaning solutions and cleaning cloths when cleaning items to be used for allergen special orders
- **Use separate utensils and equipment for allergen special orders**
 - All designated equipment should be properly identified and stored separately



Preventing Allergic Reactions: Back of House Staff

Back of house staff should:

- **Practice good personal hygiene**
 - Wash hands and change gloves before preparing an order for a guest with a known food allergy
 - Avoid touching anything that may have had contact with a food allergen, including:
 - Uniforms
 - Skin
 - Hair



Preventing Allergic Reactions: Back of House Staff

Back of house staff should:

- **Prepare the allergen special order correctly**
 - When the order is received
 - Check the ticket
 - Verbally confirm the order with the server
 - Check written recipes and ingredient labels to confirm the allergen in question is not present
 - Follow recipes and only use approved ingredient substitutions
 - Discard items if cross-contact has occurred
 - Do not add anything to an item that was plated or packaged
 - Verbally confirm the order with the person serving it
 - **Do not** serve items that cannot be prepared safely



3

The Safe Food Handler

Let's watch a DVD...

**Some other things you
should know...**

What Do You Think?

Can a person contaminate food by coughing or sneezing on it?

A. Yes

B. No

Food handlers can contaminate food when they are coughing or sneezing; have a foodborne illness; have wounds or boils; have contact with an ill person; use the restroom without washing hands; or have diarrhea, vomiting, or jaundice.

Managing a Personal Hygiene Program

Managers must focus on the following:

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



What Do You Think?

Which sink can be used for handwashing?

- A. Food prep sink
- B. Three-compartment sink
- C. Utility sink
- D. None of these

Why?

Hands must only be washed in a sink designated for handwashing.

What Do You Think?

What should the temperature of the water be when first wetting hands and rinsing the soap from them?

- A. Cold
- B. Warm
- C. As cold as you can stand
- D. As hot as you can stand

When to Wash Hands

You should also wash your hands after:

- Handling service animals or aquatic animals
- Changing tasks (before beginning new task)
- Leaving and returning to the kitchen/prep area
- Using electronic devices
- Eating, drinking, chewing gum, or using tobacco products (including chewing tobacco, cigarettes, and devices that deliver nicotine electronically such as e-cigarettes, vapes, and mods)



What Do You Think?

What should you do if you see food handlers touch food with dirty hands?

- A. Throw it out
- B. Cook it to 165°F (74°C) or higher
- C. Freeze it

Why?

The food may be contaminated and must be thrown out.

What Do You Think?

Do you need to file ragged fingernails?

A. Yes

B. No

Why?

Ragged nails are hard to keep clean, can hold pathogens, and can break off into food.

Infected Wounds or Boils

How a wound is covered depends on where it is located:

- Cover wounds on the hand, finger, or wrist with an impermeable cover (i.e., bandage or finger cot) and then a single-use glove
- Cover wounds on the arm with an impermeable cover, such as a bandage
- Cover wounds on other parts of the body with a dry, durable, tight-fitting bandage



Single-Use Gloves

Single-use gloves:

- Should always be worn when handling ready-to-eat food
 - Except when washing produce
 - Except when handling ready-to-eat ingredients for a dish that will be cooked

How to Use Gloves

How to use gloves:

- Wash and dry hands before putting gloves on
- Select the correct glove size
- Hold gloves by the edge when putting them on
- Once gloves are on, check for rips or tears
- **NEVER** blow into gloves
- **NEVER** roll gloves to make them easier to put on



What Do You Think?

Do you need to rewash hands each time gloves are changed if you are performing the same task?

A. Yes

B. No

Why?

It is not necessary as long as the same task is being performed and hands have not become contaminated.

What Do You Think?

Do you need to wear gloves when adding cheese to a pizza?

A. Yes

B. No

Why?

Ready-to-eat food can be handled with bare hands if it is an ingredient in a dish that contains no raw meat, seafood, or poultry and will be cooked to at least 145°F (63°C).

What Do You Think?

Do you need to wear gloves when adding salt and pepper to raw duck breasts?

A. Yes

B. No

Why?

Ready-to-eat food can be handled with bare hands if it is an ingredient in a dish cooked to the correct minimum internal temperature.

What Do You Think?

Would it be OK to wear a hair tie embellished with crystal beads and rhinestones when preparing food?

A. Yes

B. No

Why?

Food handlers cannot wear hair accessories that could become physical contaminants.

What Do You Think?

Is this food handler ready to prepare food?



A. Yes

B. No

Why?

Food handlers with facial hair should wear a beard restraint.

Work Attire

To prevent contamination:

- Change into work clothes at work if possible
- Store street clothing and personal belongings in designated areas
- Store dirty clothing away from food and prep areas
 - In nonabsorbent containers
 - In washable laundry bags

Handling Staff Illnesses

Provide proof that staff have been informed of the need to report illness:

- Signed statements that they will report illness
- Documentation of completed training that includes the need to report illness
- Posted reminders to notify managers of illness



What Do You Think?

Does a chef need to tell you if they have been diagnosed with an illness from *Shigella* spp.?

A. Yes

B. No

What Do You Think?

Does a cook need to tell you if they live with someone diagnosed with hepatitis A?

A. Yes

B. No

What Do You Think?

Do you have to report a food handler with Norovirus to the health department?

A. Yes

B. No

Watch for Staff Illnesses

Signs of illness you should watch for:

- Vomiting
- Excessive trips to the bathroom
- Yellowing of the skin, eyes, fingernails
- Cold sweats or chills (indicating a fever)
- Persistent nasal discharge and sneezing



Restrict or Exclude?

What Do You Think?

A food handler has an infected wound that is not covered properly.

- A. **Restrict** from working with exposed food, utensils, and equipment
- B. **Exclude** from the operation

What Do You Think?

A food handler at a restaurant has a sore throat with fever.

- A. **Restrict** from working with exposed food, utensils, and equipment
- B. **Exclude** from the operation

What Do You Think?

A food handler has a persistent runny nose.

- A. **Restrict** from working with exposed food, utensils, and equipment
- B. **Exclude** from the operation

What Do You Think?

A food handler is vomiting.

- A. **Restrict** from working with exposed food, utensils, and equipment
- B. **Exclude** from the operation

What Do You Think?

When can food handlers who are vomiting return to work?

- A. When they have had no symptoms for at least 24 hours
- B. When they have a written release from a medical practitioner
- C. Either A or B

What Do You Think?

When can food handlers who have jaundice return to work?

- A. When they have a written release from a medical practitioner
- B. When they have approval from the health department
- C. Both A and B

What Do You Think?

A food handler has been diagnosed with an illness caused by hepatitis A. What must a manager do?

- A. **Restrict** the food handler from working with exposed food, utensils, and equipment
- B. **Exclude** the food handler from the operation



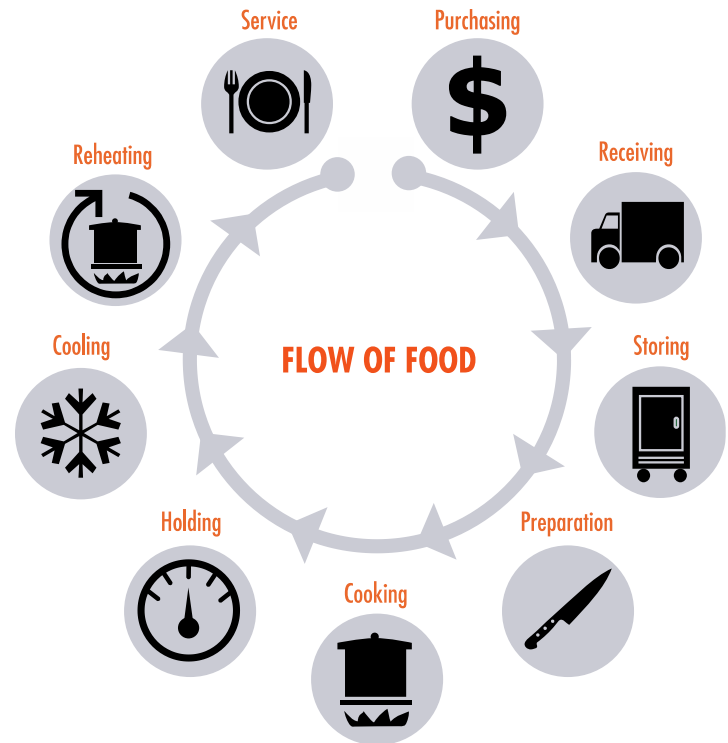
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The Flow of Food: An Introduction

Hazards in the Flow of Food

To keep food safe throughout the flow of food:

- Prevent cross-contamination
- Prevent time-temperature abuse



What Do You Think?

Can this prevent cross-contamination?



A. Yes

B. No

Why?

The food handler is using a yellow-colored cutting board for preparing raw poultry. Using separate equipment for raw and ready-to-eat food can prevent cross-contamination.

What Do You Think?

Can this prevent cross-contamination?



A. Yes

B. No

Why?

Cleaning and sanitizing surfaces before and after tasks can prevent cross-contamination.

What Do You Think?

Can this prevent cross-contamination?



A. Yes

B. No

Why?

Prepping raw and ready-to-eat food on separate prep tables can prevent cross-contamination. So can prepping these foods at different times.

Preventing Cross-Contamination

Prep raw and ready-to-eat food at different times:

- Separate raw meat, poultry, and seafood from unwashed and ready-to-eat fruits and vegetables

Buy prepared food:

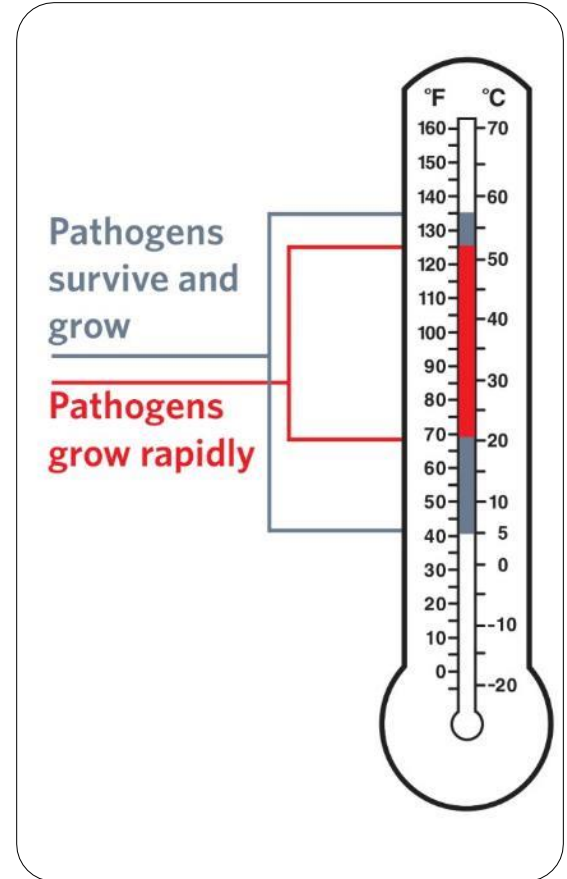
- Buy food items that don't require much prepping or handling.



Preventing Time-Temperature Abuse in the Flow of Food

Time-temperature control:

- Food held in the range of 41°F to 135°F (5°C to 57°C) has been time-temperature abused
- Most pathogens grow much faster between 70°F and 125°F (21°C and 52°C)
- Food has been time-temperature abused whenever it is handled in the following ways:
 - Cooked to the wrong internal temperature
 - Held at the wrong temperature
 - Cooked or reheated incorrectly



Preventing Time-Temperature Abuse in the Flow of Food

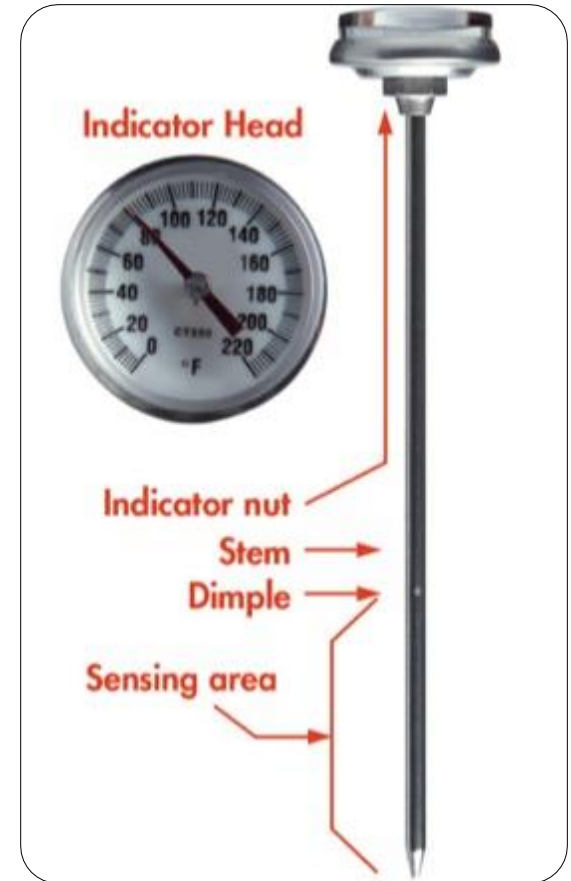
Avoid time-temperature abuse:

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



Monitoring Time and Temperature

Bimetallic stemmed thermometers



Monitoring Time and Temperature

Thermocouples and thermistors:

- Measure temperature through a metal probe
- Display temperatures digitally
- Have a sensing area on the tip of their probes



Monitoring Time and Temperature



Immersion Probe



Surface Probe



Penetration Probe



Air Probe

What Do You Think?

Which thermometer(s) should be used?



Hamburger patty

- A. Bimetallic stemmed
- B. Thermocouple
- C. Infrared

What Do You Think?

Which thermometer(s) should be used?



Roast

- A. Bimetallic stemmed
- B. Thermocouple
- C. Infrared

What Do You Think?

Which thermocouple probe should be used?



Cooler temperature

- A. Immersion probe
- B. Surface probe
- C. Penetration probe
- D. Air probe

What Do You Think?

Which thermocouple probe should be used?



Fryer oil

- A. Immersion probe
- B. Surface probe
- C. Penetration probe
- D. Air probe

What Do You Think?

Which thermocouple probe should be used?



Steak

- A. Immersion probe
- B. Surface probe
- C. Penetration probe
- D. Air probe

Monitoring Time and Temperature

Infrared (laser) thermometers:

- Use to measure the surface temperature of food and equipment
- Hold them as close to the food or equipment as possible
- Remove anything between the thermometer and the food, food package, or equipment
- Follow the manufacturer's guidelines



Monitoring Time and Temperature

Maximum registering thermometer:

- Indicates the highest temperature reached during use
- Used where temperature readings cannot be continuously observed



Time-temperature indicators (TTI):

- Monitor both time and temperature
- Are attached to packages by the supplier
- A color change appears on the device when time-temperature abuse has occurred

General Thermometer Guidelines

When using thermometers:

- Wash, rinse, sanitize, and air-dry thermometers before and after using them
- Make sure thermometers used to measure the temperature of food are accurate to $\pm 2^{\circ}\text{F}$ or $\pm 1^{\circ}\text{C}$
- Only use glass thermometers if they are enclosed in a shatterproof casing



What Do You Think?

When should you calibrate a thermometer?

- A. If you dropped it
- B. If you left it in the freezer
- C. Before each shift
- D. All of these times

What Do You Think?

Where should you stick the thermometer?



Calibrating Thermometers



1. Fill a large container with ice.



2. Put the thermometer stem or probe into the ice water.



3. Adjust the thermometer so it reads 32°F (0°C).



5

The Flow of Food: Purchasing, Receiving, and Storage

Purchasing and Receiving

Purchasing

Purchase food from approved, reputable suppliers:

- Have been inspected
- Meet all applicable local, state, and federal laws

Get to know suppliers' food safety practices:

- Consider reviewing recent inspection reports
- Look at reports from:
 - USDA
 - FDA
 - Third-party inspectors



Receiving and Inspecting

Arrange deliveries so they arrive:

- When staff has enough time to do inspections
- When they can be correctly received

To make sure inspections are smooth and safe:

- Make specific staff responsible for receiving
- Give staff the tools needed (e.g., thermometers)
- Make enough trained staff available
- Inspect deliveries immediately when received



Receiving and Inspecting

When deliveries arrive:

1. Visually inspect the delivery vehicle
 - Check for signs of contamination
 - Inspect overall condition of vehicle
 - Look for signs of pests
2. Visually inspect food items
 - Check temperatures
3. Store items as quickly as possible



Receiving and Inspecting

Key drop deliveries:

- Supplier is given after-hour access to the operation to make deliveries
- Deliveries must meet the following criteria:
 - Be inspected upon arrival at the operation
 - Be from an approved source
 - Have been placed in the correct storage location to maintain the required temperature
 - Have been protected from contamination in storage
 - Are **NOT** contaminated
 - Are honestly presented

What Do You Think?

You receive cases of canned goods with dirty surfaces. Can you accept them?

A. Yes

B. No

Why?

They can be reconditioned through cleaning and sanitizing and then used.

Receiving and Inspecting

Recalls:

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



**Would you accept it
or reject it?**

What Do You Think?

Would you accept or reject this fish?



A. Accept

B. Reject

Why?

Cold TCS food must be received at 41°F (5°C) or lower, unless otherwise specified.

Internal temp of
50°F (10°C)

What Do You Think?

Would you accept or reject these clams?



Internal temperature
50°F (10°C)

A. Accept

B. Reject

Why?

Shellstock (live molluscan shellfish) can be received at an air temperature of 45°F (7°C) and internal temperature no greater than 50°F (10°C). Then, cool them to 41°F (5°C) or lower in four hours.

What Do You Think?

Would you accept or reject these scallops?



Internal temperature
50°F (10°C)

- A. Accept
- B. Reject

Why?

Shucked shellfish (molluscan shellfish with both shells removed) must be received at 45°F (7°C) or lower. Then, cool to 41°F (5°C) or lower in four hours.

What Do You Think?

Would you accept or reject these clams?



Received frozen according
to manufacturer's directions

A. Accept

B. Reject

Why?

In-shell product (non-living, processed shellfish with one or both shells present) must be received according to manufacturer's directions.

What Do You Think?

Would you accept or reject this milk?



A. Accept

B. Reject

Why?

Milk must be received at 45°F (7°C) or lower. Then, cool the milk to 41°F (5°C) or lower in four hours.

Internal temp of
45°F (7°C)

What Do You Think?

Would you accept or reject these eggs?



A. Accept

B. Reject

Why?

Receive shell eggs at an air temperature of 45°F (7°C) or lower.

Air temperature
45°F (7°C)

What Do You Think?

Would you accept or reject this chicken breast?



Received at
120°F (49°C)

A. Accept

B. Reject

Why?

**Hot TCS food must be received at
135°F (57°C) or higher.**

What Do You Think?

Would you accept or reject this frozen shrimp?



A. Accept

B. Reject

Why?

Frozen food with ice crystals or frozen liquids on the food or packaging must be rejected.

What Do You Think?

Would you accept or reject this case of single-use cups?



A. Accept

B. Reject

Why?

Packaging that is not intact and clean must be rejected.

What Do You Think?

Would you accept or reject this bag of flour?



A. Accept

B. Reject

Why?

Items with tears, holes, or punctures in their packaging must be rejected.

What Do You Think?

Would you accept or reject this can of food?



A. Accept

B. Reject

Why?

Cans with severe dents in the seams or deep dents in the can body must be rejected.

What Do You Think?

Would you accept or reject this meat?



A. Accept

B. Reject

Why?

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

What Do You Think?

Would you accept or reject this case of dry pasta?



A. Accept

B. Reject

Why?

Cartons and seals must be intact and there must not be signs of tampering.

What Do You Think?

Would you accept or reject this bag of flour?



A. Accept

B. Reject

Why?

Reject items with leaks, dampness, or water stains (which indicate the item was wet at some point).

What Do You Think?

Would you accept or reject this Danish?



A. Accept

B. Reject

Why?

Do we need to ask? Reject items with signs of pests or pest damage.

What Do You Think?

This date is the last date recommended for use of the product while at peak quality.

- A. Use-by or expiration date
- B. Sell-by date
- C. Best-by date
- D. Coded date

What Do You Think?

This date is the date by which the product should be eaten for best flavor or quality.

- A. Use-by or expiration date
- B. Sell-by date
- C. Best-by date
- D. Coded date

What Do You Think?

This date tells the store how long to display the product for sale.

- A. Use-by or expiration date
- B. Sell-by date
- C. Best-by date
- D. Coded date

Documents

Molluscan Shellfish Documentation:

- Store shellfish in original container
- Do **NOT** remove tag or label from container until the last shellfish is used
- When the last shellfish is removed from the container:
 - Write the date on the tag, label, or invoice
 - Then, keep it on file in chronological order for 90 days from that date

Storing Molluscan Shellfish

- Keep in the same container they are received in until sold or prepared
- Do **NOT** mix shellfish from one container with another, unless:
 - They have the same certification number or harvest date
 - They are from the same growing area

Receiving Documents

Fish to be eaten raw or partially cooked:

- Document must indicate fish was correctly frozen
- Keep document for 90 days from sale of fish

Farm-raised fish:

- Document must state fish raised to FDA standards
- Keep document for 90 days from sale of fish

What Do You Think?

Would you accept or reject this cheese?



A. Accept

B. Reject

Why?

Reject food that is moldy, unless the mold is natural to the product, like the cheese in the photo.

What Do You Think?

Would you accept or reject these pork chops?



A. Accept

B. Reject

Why?

Reject meat, fish, or poultry that is slimy, sticky, or dry.

Sticky to the touch

What Do You Think?

Would you accept or reject this fresh tuna?



A. Accept

B. Reject

Why?

A slight seaweed smell is a normal odor for fish. Reject food that has an abnormal or unpleasant odor.

Slight seaweed smell

Storage

What Do You Think?

Does food being used onsite need to be labeled?



A. Yes

B. No

Why?

All items not in their original container must be labeled.

Labeling

Labels on food packaged on-site for retail sale must include:

- Common name of the food or a statement clearly identifying it
- Quantity of the food
- If the item contains two or more ingredients: a list of the ingredients and subingredients in descending order by weight
- List of artificial colors and flavors in the food, including chemical preservatives
- Name and place of business of the manufacturer, packer, or distributor
- Source of each major food allergen contained in the food

Date Marking

Ready-to-eat TCS food:

- Must be date marked if held longer than 24 hours
 - The label must indicate when the food must be sold, eaten, or thrown out
- Can store for only seven days if held at 41°F (5°C) or lower
 - After that date, the food must be discarded



What Do You Think?

What is the discard date of potato salad prepared on October 1?

- A. October 3
- B. October 5
- C. October 7
- D. October 9

What Do You Think?

Tuna salad was prepared on July 5 using tuna with a use-by date of July 8. What is the discard date of the tuna salad?

- A. July 5
- B. July 8
- C. July 11

What Do You Think?

Jambalaya was prepared on December 5, using shrimp with a use-by date of December 8 and sausage with a use-by date of December 10. What is the discard date of the Jambalaya?

- A. December 8
- B. December 10
- C. December 11

What Do You Think?

Is this food being stored correctly?



A. Yes

B. No

Why?

Store TCS food at an internal temperature of 41°F (5°C) or lower or 135°F (57°C) or higher.

Internal temp: 40°F (4°C)

What Do You Think?

Is food being stored correctly in this cooler?



A. Yes

B. No

Why?

Refrigerated units must have at least one air-temperature measuring device located in the warmest part of the unit.

What Do You Think?

Is food being stored correctly in this refrigerator?



A. Yes

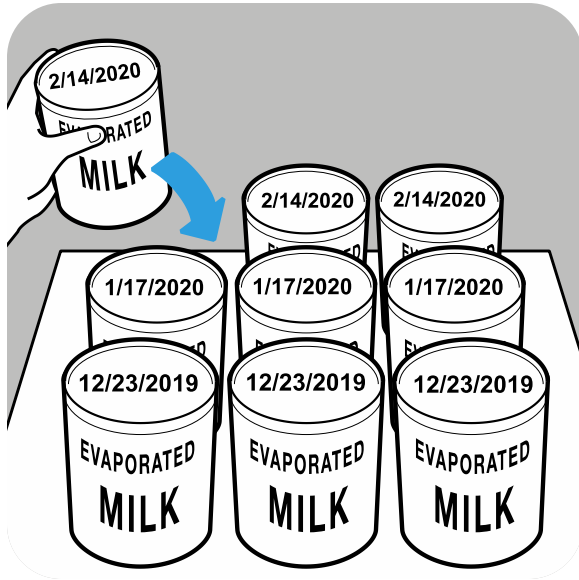
B. No

Why?

Do not overload coolers and freezers, which can prevent good airflow and make units work harder to stay cold.

What Do You Think?

Is this food being stored correctly?



The year is 2018

A. Yes

B. No

Why?

Store items with the earliest use-by or expiration dates in front of items with later dates. Then, use those stored in front first.

What Do You Think?

Is this food being stored correctly?



A. Yes

B. No

Why?

Store items away from walls and at least six inches (15 centimeters) off the floor.

What Do You Think?

Is this food being stored correctly?



A. Yes

B. No

Why?

Store food in containers intended for food.

NEVER put food in empty chemical containers. NEVER put food, equipment, utensils, linens, or single-use items in empty chemical containers.

Cleaning

Follow these guidelines:

- Clean dollies, carts, transporters, and trays often
- Store food in cleaned and sanitized containers
- Store dirty linens away from food
 - Clean nonabsorbent containers
 - Washable laundry bags

What Do You Think?

Is this food being stored correctly?



A. Yes

B. No

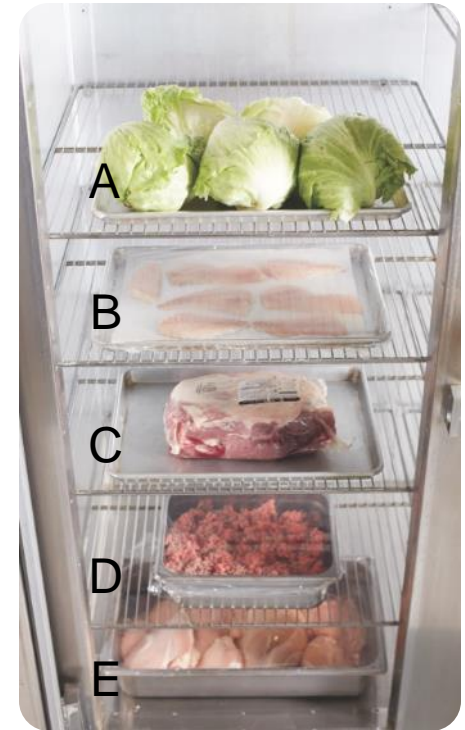
Why?

Raw meat has been stored above ready-to-eat food. Store ready-to-eat food above raw meat, poultry, and seafood.

Storage Order

Preventing cross-contamination:

- Store food items in the following top-to-bottom order:
 - A. Ready-to-eat food
 - B. Seafood
 - C. Whole cuts of beef and pork
 - D. Ground meat and ground fish
 - E. Whole and ground poultry
- This storage order is based on the minimum internal cooking temperature of each food



Storage Location

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

- To prevent contamination, **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

Discard food that has become unsafe.

- Food missing a date mark
- Food exceeding the date mark
- Food exceeding time-temperature requirements



If this food will be returned

- Store it away from other food and equipment
- Label the food so food handlers do not use the product



6

The Flow of Food: Preparation

Let's watch a DVD...

**Some other things you
should know...**

What Do You Think?

Is this food being prepared correctly?



A. Yes

B. No

Why?

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

Additives

Food and color additives:

- Only use additives approved by your local regulatory authority
- **NEVER** use more additives than are allowed by law
- **NEVER** use additives to alter the appearance of food
- Do **NOT** sell produce treated with sulfites before it was received in the operation
- **NEVER** add sulfites to produce that will be eaten raw

Presenting Food Honestly

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

- Food additives or color additives
- Colored overwraps
- Lights

Food that was not presented honestly must be thrown out.

Corrective Actions

Food must be thrown out when it:

- Is handled by staff who have been restricted or excluded due to illness
- Is contaminated by hands or bodily fluids
- Has exceeded time and temperature requirements designed to keep food safe

What Do You Think?

Is this vacuum-packed fish being thawed correctly?



A. Yes

B. No

Why?

Fish that must remain frozen until ready to be used must be removed from the package before thawing.

Fish left in the package
and thawed in a cooler

Prepping Specific Food

If packaging fish using a reduced-oxygen packaging method, the fish must:

- Be frozen before, during, or after packaging
- Include a label that states the fish must be frozen until used



Prepping Produce

- Produce can be treated to control pathogens
 - Using chemicals or water containing ozone
 - Check with your local regulatory authority
- When soaking or storing produce in standing water or an ice-water slurry, do **NOT** mix:
 - Different items
 - Multiple batches of the same item



What Do You Think?

Does this need to be refrigerated for safety?



A. Yes

B. No

Why?

Refrigerate and hold cut tomatoes at 41°F (5°C) or lower.

What Do You Think?

Does this need to be refrigerated for safety?



A. Yes

B. No

Why?

Refrigerate and hold sliced melons at 41°F (5°C) or lower.

What Do You Think?

Does this need to be refrigerated for safety?



A. Yes

B. No

Why?

Refrigerate and hold cut leafy greens at 41°F (5°C) or lower.

Ice

- **NEVER:**
 - Use ice as an ingredient if it was used to keep food cold
 - Hold or carry ice in containers that held raw meat, seafood, or poultry, or chemicals
 - Touch ice with hands or use a glass to scoop ice
- **ALWAYS:**
 - Store ice scoops outside of the ice machine in a clean, protected location



Preparation Practices That Have Special Requirements

You need a variance if prepping food in these ways:

- Packaging fresh juice on-site for sale at a later time, unless the juice has a warning label
- Smoking food to preserve it but not to enhance flavor
- Using food additives or components to preserve or alter food so it no longer needs time and temperature control for safety
- Curing food



Preparation Practices That Have Special Requirements

You need a variance if prepping food in these ways:

- Custom-processing animals for personal use (e.g., dressing a deer)
- Packaging food using a reduced-oxygen packaging (ROP) method
- Sprouting seeds or beans
- Offering live shellfish from a display tank



Preparation Practices That Have Special Requirements

A HACCP plan may be required when applying for a variance:

- The plan must account for food safety risks
- The establishment must comply with the plan and procedures
- All associated documents must be maintained and provided upon request

Preparation Practices That Have Special Requirements

Records must show that you:

- Have procedures for monitoring Critical Control Points
- Are regularly monitoring the Critical Control Points
- Are taking the necessary corrective actions if there is a failure at a Critical Control Point
- Are verifying the effectiveness of the procedures or process

Cooking Requirements for Specific Food

Minimum internal cooking temperature:

165°F (74°C) for <1 second (instantaneous)

- Poultry—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 required minimum internal temperatures)



Cooking Requirements for Specific Food

Minimum internal cooking temperature:

155°F (68°C) for 17 seconds

- Meats that are not intact, including:
 - Ground meat—i.e., beef, pork, and other meat
 - Meat mechanically tenderized with needles or blades or by injecting it with brine or flavors (e.g., brined ham or flavor-injected roasts)
 - Meat vacuum-tumbled with marinades or other solutions
 - Meat that has been cubed or pounded
 - Ground meat from game animals commercially raised and inspected
 - Ground seafood, including chopped or minced seafood



Cooking Requirements for Specific Food

Minimum internal cooking temperature:

155°F (68°C) for 17 seconds

- Ratites—including ostrich and emu
- Shell eggs that will be hot-held for service

Cooking Requirements for Specific Food

Minimum internal cooking temperature:

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



Cooking Requirements for Specific Food

Alternate cooking temperature for roasts:

- 130°F (54°C) 112 minutes
- 131°F (55°C) 89 minutes
- 133°F (56°C) 56 minutes
- 135°F (57°C) 36 minutes
- 136°F (58°C) 28 minutes
- 138°F (59°C) 18 minutes
- 140°F (60°C) 12 minutes
- 142°F (61°C) 8 minutes
- 144°F (62°C) 5 minutes



Cooking Requirements for Specific Food

Minimum internal cooking temperature:

135°F (57°C) (no minimum time)

- Food from plants, including fruits, vegetables, grains (e.g., rice, pasta), and legumes (e.g., beans, refried beans) that will be hot-held for service



Partial Cooking During Preparation

If partially cooking meat, seafood, poultry, eggs, or dishes containing these items:

- **NEVER** cook the food longer than 60 minutes during initial cooking
- Cool the food immediately after initial cooking
- Freeze or refrigerate the food after cooling it
 - Stored away from ready-to-eat refrigerated food
- Heat the food to the required minimum internal temperature before selling or serving it
- Cool the food if it will not be served immediately or held for service



Manufacturer Cooking Instructions

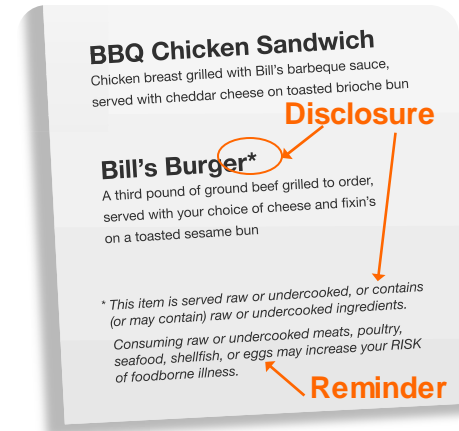
If packaged food contains manufacturer instructions for cooking:

- These instructions must be followed before using the product
- This is especially important before adding them to RTE food
- Frozen vegetables are an example
 - They frequently contain cooking instructions from the manufacturer
 - They are often intended for use only after cooking
 - If the vegetable was used to make an RTE food, such as a salad, and was not cooked, pathogens on the vegetable could multiply and cause foodborne illness

Consumer Advisories

If your menu includes raw or undercooked TCS items, you must:

- Note it on the menu next to the items
 - Asterisk the item
 - Place a footnote at the menu bottom indicating the item is raw, undercooked, or contains raw or undercooked ingredients
- Advise customers who order this food of the increased risk of foodborne illness
 - Post a notice in the menu
 - Provide this information using brochures, table tents, or signs



Children's Menus

The FDA advises against offering these items on a children's menu if they are raw or undercooked:

- Meat
- Poultry
- Seafood
- Eggs



Operations That Mainly Serve High-Risk Populations

NEVER serve:

- Raw seed sprouts
- Raw or undercooked eggs, meat, or seafood
 - Over-easy eggs
 - Raw oysters on the half shell
 - Rare hamburgers
- Unpasteurized milk or juice
- Packaged food, such as frozen vegetables, that has not been cooked according to manufacturer's instructions.



What Do You Think?

Which food will cool quicker?

A.



Mashed potatoes

B.



Refried beans

Stainless steel transfers heat away from food faster than plastic.

What Do You Think?

Which food will cool quicker?

A.



Chicken broth

B.



Refried beans

The chicken broth is less dense. The denser the food, the more slowly it will cool.

Methods for Cooling Food

When cooling TCS food, it is critical to ensure food handlers are:

- Using the correct method to cool food
- Cooling it quickly
- Regularly monitoring temperatures during cooling



Food can be cooled by adding ice or cold water as an ingredient.

- Can be used when cooling soups or stews
- The recipe is made with less water than required
- Cold water or ice is added after cooking to provide the remaining water and cool the food

Storing Food for Further Cooling

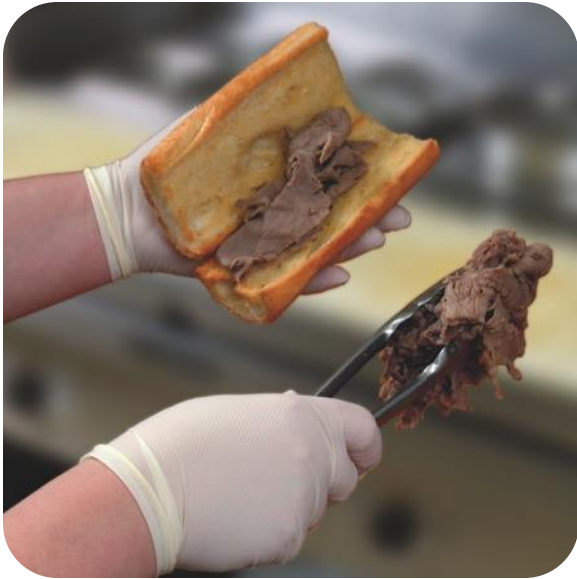
When storing food for further cooling:

- Loosely cover food containers before storing them
- Food can be left uncovered if protected from contamination
 - Storing uncovered containers above other food, especially raw seafood, meat, and poultry, will help prevent cross-contamination



What Do You Think?

What temperature should a beef sandwich for immediate service be reheated to?



- A. 145°F (63°C)
- B. 165°F (74°C)
- C. Any temperature

Why?

Food that will be served immediately can be reheated to any temperature.

Reheating Food

Commercially processed and packaged ready-to-eat food:

- Reheat to an internal temperature of at least 135°F (57°C)
- This includes items like cheese sticks and deep-fried vegetables





7

The Flow of Food: Service

Let's watch a DVD...

**Some other things you
should know...**

What Do You Think?

Can the temperature gauge on a holding unit be used to check the temperature of the food inside?

A. Yes

B. No

Why?

The temperature gauge does not check the internal temperature of the food.

What Do You Think?

Can you use a hot-holding unit to reheat food?

A. Yes

B. No

Why?

Most hot-holding units will not pass food through the TDZ quickly enough. Reheat the food correctly, then move it to a holding unit.

Holding Food without Temperature Control

Cold ready-to-eat TCS food can be held without temperature control for up to six hours if:

- It was held at 41°F (5°C) or lower before removing it from refrigeration
- It does not exceed 70°F (21°C) during service
 - Throw out food that exceeds this temperature
- It has a label specifying:
 - Time it was removed from refrigeration
 - Time it must be thrown out
- It is sold, served, or thrown out within six hours



Holding Food without Temperature Control

Alternatives for holding cold ready-to-eat TCS food without temperature control:

- If discarded within four hours, the food can be allowed to reach *any* temperature
 - The food must be held at 41°F (5°C) or lower before removing it from temperature control
 - The discard time must be four hours from the time it was removed from temperature control
 - The food must be sold, served, or thrown out within four hours

Holding Food without Temperature Control

Produce that becomes TCS when cut, chopped, or sliced and hermetically sealed containers of food that become TCS when opened:

- Can have an initial temperature of 70°F (21°C) or lower
 - Must be discarded within four hours
 - Cannot exceed 70°F (21°C) within the four-hour period
 - Must be labeled with a discard time four hours from the time the product became a TCS food

Holding Food without Temperature Control

Hot ready-to-eat TCS food can be held without temperature control for up to four hours if:

- It was held at 135°F (57°C) or higher before removing it from temperature control
- It has a label specifying when the item must be thrown out
- It is sold, served, or thrown out within four hours



Holding Food without Temperature Control

To get regulatory approval:

- Prepare written procedures.
- Get written approval in advance.
- Maintain procedures.
- Make procedures available.

What Do You Think?

Is this food item being handled safely?



A. Yes

B. No

Why?

Food handlers must wear single-use gloves when handling ready-to-eat food, such as this garnish.

What Do You Think?

Are these food items being handled safely?



A. Yes

B. No

Why?

Serving utensils should be stored in the food with the handle extended above the rim of the container.

What Do You Think?

Is this food item being handled safely?



A. Yes

B. No

Why?

Utensils used to handle TCS food must be stored in the food. If serving a non-TCS item, the utensil could be stored on a clean and sanitized surface such as a plate.

Kitchen Staff Guidelines

Spoons or scoops used to serve mashed potatoes or ice cream can be stored:

- Under running water
- In a container of water maintained at 135°F (57°C) or higher

Refilling Take-Home Containers

Take-home food containers brought back by guests can be refilled if they were:

- Designed to be reused
- Provided to the guest by the operation
- Cleaned and sanitized correctly

Refilling Take-Home Containers

Take-home beverage containers brought back by guests can be refilled if:

- The beverage is not a TCS food
- The container will be refilled for the same guest
- The container can effectively be cleaned at home and in the operation
- The container will be rinsed with fresh, hot water under pressure before refilling
- The container will be refilled by staff or the guest using a process that prevents contamination

Preset Tableware

If you preset tableware:

- Prevent it from being contaminated; for example, you can wrap or cover the items

It is unnecessary to wrap or cover table settings if extra or unused settings are:

- Removed when guests are seated
- Cleaned and sanitized after guests have left



Re-serving Food

NEVER re-serve:

- Food returned by one customer to another customer
- Uncovered condiments
- Uneaten bread
- Plate garnishes

Generally, only unopened, prepackaged food in good condition can be re-served:

- Condiment packets
- Wrapped crackers or breadsticks



Self-Service Areas

To prevent contamination:

- Place food in display cases
- Package food to prevent contamination
- Stock food using the correct utensils
- **Never** use ice as an ingredient if it was used to cool food or beverages



Do not offer raw meat, seafood, or poultry unless:

- It is sushi or raw shellfish
- The portions will be cooked immediately on the premises (e.g., Mongolian BBQ)
- It is raw, frozen, shell-on shrimp or lobster

Labeling Bulk Food in Self-Service Areas

When labeling bulk food in self-service areas:

- Make sure the label is in plain view of the guest
- Include the manufacturer or processor label provided with the food
 - As an alternative, provide the information using a card, sign, or other labeling method

Labeling Bulk Food in Self-Service Areas

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

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

What Do You Think?

Is this food being delivered safely?



A. Yes

B. No

Why?

Food should be delivered in insulated, food-grade containers designed to stop food from mixing, leaking, or spilling.

Off-Site Service

When delivering food off-site:

- Label food with a use-by date and time, and reheating and service instructions
- Clean the inside of delivery vehicles regularly
- Check internal food temperatures



Off-Site Service

When delivering food off-site:

- 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
- Store raw meat, poultry, and seafood, and ready-to-eat items separately



Vending Machines

To keep vended food safe:

- Check product shelf life daily
 - Refrigerated food prepped on-site and not sold in seven days must be thrown out
- Keep TCS food at the correct temperature
- Dispense TCS food in its original container
- Wash and wrap fresh fruit with edible peels before putting it in the machine



What Did I Do Wrong?



8

Food Safety Management Systems

Food Safety Management Systems

Food safety management system:

- Group of practices and procedures intended to prevent foodborne illness
- Actively controls risks and hazards throughout the flow of food

Food Safety Programs

These are the foundation of a food safety management system:



Personal hygiene program



Food safety training program



Supplier selection and specification program



Quality control and assurance program

Food Safety Programs

These are the foundation of a food safety management system:



Cleaning and sanitation program



Standard operating procedures (SOPs)



Facility design and equipment maintenance program



Pest control program

What Do You Think?

A cook forgot to wash his uniform before starting work. Could this cause a foodborne illness?



A. Yes

B. No

Why?

This employee is practicing poor personal hygiene. This is a common risk for foodborne illness.

What Do You Think?

A chicken breast was cooked to 165°F (74°C). Could this cause a foodborne illness?



A. Yes

B. No

Why?

Failing to cook food correctly is a risk for foodborne illness. But, this chicken was cooked to the correct temperature.

What Do You Think?

A cook served rice at 120°F (49°C) from a holding unit. Could this cause a foodborne illness?



A. Yes

B. No

Why?

The rice should be held at 135°F (57°C) or higher. Holding food at incorrect temperatures is a risk for foodborne illness.

What Do You Think?

**A manager bought steaks raised and sold from a private home.
Could this cause a foodborne illness?**



A. Yes

B. No

Why?

The steaks are not from an approved source. Purchasing food from unsafe sources is a risk for foodborne illness.

What Do You Think?

A cutting board was used to prep fish and then fruit salad. Could this cause a foodborne illness?



A. Yes

B. No

Why?

The cutting board may have become contaminated with pathogens from the fish. Using contaminated equipment is a risk for foodborne illness.

Active Managerial Control

Focuses on controlling the five most common risk factors for foodborne illness:

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

Active Managerial Control

There are many ways to achieve active managerial control in the operation:

- Training programs
- Manager supervision
- Incorporation of standard operating procedures (SOPs)
- HACCP

Active Managerial Control

To keep food safe:

- Practice active managerial control throughout the flow of food
- Anticipate potential foodborne-illness risk factors and control or eliminate them
- Apply what you have learned in ServSafe
- Monitor the flow of food
- Provide staff with the proper tools to make sure food is safe (e.g., procedures and training)

Implementing Active Managerial Control

To implement active managerial control:

1. Identify risks
2. Monitor
3. Corrective action
4. Management oversight
5. Training
6. Re-evaluation

Active Managerial Control

1. Identify Risks:

- Find and document potential foodborne illness risks in the operation
- Identify the hazards that can be controlled or eliminated

2. Monitor:

- Food will be safe if managers monitor critical activities
- Identify where employees must monitor food safety requirements
 - When temperatures must be taken
 - How often sanitizer concentrations should be tested

Active Managerial Control

3. Corrective Action:

- Take appropriate steps to correct improper procedures or behaviors
 - If a sanitizer level is too low, increase the concentration level

4. Management oversight:

- Verify that all policies, procedures, and corrective actions are followed

Active Managerial Control

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

The FDA provides recommendations for controlling the common risk factors for foodborne illness:

- Demonstration of knowledge
- Staff health controls
- Controlling hands as a vehicle of contamination
- Time and temperature parameters for controlling pathogens
- Consumer advisories



The HACCP approach:

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

To be effective, a HACCP system must be based on a written plan:

- It must be specific to each facility's menu, customers, equipment, processes, and operations
- A plan that works for one operation may not work for another



9

Safe Facilities and Pest Management

Let's watch a DVD...

**Some other things you
should know...**

What Do You Think?

Should you consult with the local regulatory authority before making changes to your facility or equipment?

A. Yes

B. No

Interior Requirements for a Safe Operation

Floors, walls, and ceilings:

- Must be regularly maintained
 - Replace missing or broken ceiling tiles
 - Replace missing or broken flooring
 - Repair holes in walls
- Glue coving tightly to walls
- Remove standing water immediately after spraying or flushing floors during cleaning



What Do You Think?

You see the logo below on a piece of equipment. What does it mean?



- A. It is safe for use with food.
- B. It is approved by the FDA.

Equipment Selection

Food equipment must be:

- Smooth
- Easy to clean
- Durable
- Resistant to damage

Equipment Selection

Some organizations:

- Develop standards for sanitary design and construction of equipment
- Certify equipment meeting these standards
- Must be accredited by ANAB

Other organizations:

- Classify equipment meeting standards developed by others
- Must be accredited by ANAB

Equipment Selection

When purchasing equipment look for the:

- NSF mark
- UL EPH classified mark
- ETL sanitation mark

Installing and Maintaining Equipment

When installing equipment:

- Follow the manufacturer's recommendations
- Check with the regulatory authority for requirements

Once equipment has been installed:

- It must be maintained regularly
- Only qualified people should maintain it
- Set up a maintenance schedule with your supplier or manufacturer
- Check equipment regularly to make sure it is working correctly



Dishwashing Machines

Dishwashers must be installed:

- So they are reachable and conveniently located
- In a way that keeps utensils, equipment, and other food-contact services from becoming contaminated
- Following the manufacturer's instructions



Dishwashing Machines

When selecting dishwashers, make sure:

- The detergents and sanitizers used are approved by the local regulatory authority
- They have the ability to measure water temperature, water pressure, and cleaning and sanitizing chemical concentration
- Information about the correct settings is posted on the machine



What Do You Think?

Is this handwashing station being used correctly?



A. Yes

B. No

Why?

Handwashing stations must be available at all times. They should not be blocked.

What Do You Think?

Is this handwashing station being used correctly?



A. Yes

B. No

Why?

Handwashing sinks must be used only for handwashing and not for any other purpose, such as dishwashing.

What Do You Think?

Is this handwashing station being used correctly?



A. Yes

B. No

Why?

Handwashing sinks must have adequate barriers or spacing to prevent splashing onto food or food-contact surfaces.

What Do You Think?

Is this handwashing station being used correctly?



A. Yes

B. No

Why?

It's missing a garbage can and a sign telling employees to wash hands before returning to work.

Handwashing Stations

Handwashing stations must have:

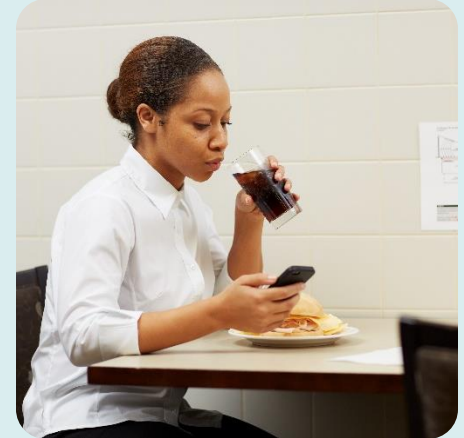
- Running water at a temperature of least 85°F (29°C)
 - Water must be potable (drinkable)
 - Supplied through a mixing valve or combination faucet
- Liquid, bar, or powdered soap
- A way to dry hands
 - Disposable towels or continuous towel system
 - Hand dryer with warm air or room-temperature air delivered at high velocity
- Garbage container
- Signage



Break Areas

Break areas must be carefully located to protect the following from contamination:

- Food
- Equipment
- Linens
- Single-use items



Utilities and Building Systems

Utilities:

- Water, electricity, gas, sewage, and garbage disposal

Requirements for utilities:

- There must be enough to meet the needs of the operation
- Utilities and systems must work correctly to minimize the risk of contamination

What Do You Think?

Is it OK to install plumbing yourself?

A. Yes

B. No

Why?

Plumbing that is not installed or maintained correctly can allow potable and unsafe water to mix. Have only licensed plumbers install plumbing.

Water and Plumbing

Potable water:

- Water that is drinkable
- Only potable water can be used to prepare food and come in contact with food-contact surfaces

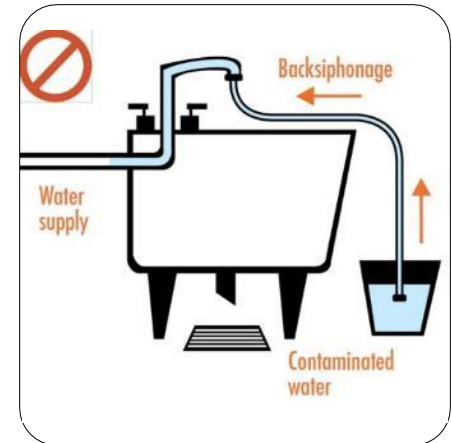
Water and Plumbing

Backflow:

- Reverse flow of contaminants through a cross-connection into the potable water supply

Backflow can be the result of:

- Pressure pushing contaminants back into the water supply
- A vacuum in the plumbing system created when high water use in one area of the operation sucks contaminants back into the water supply (backsiphonage)



What Do You Think?

What is the best way to prevent backflow?

- A. Install a vacuum breaker
- B. Install a reduced pressure zone backflow preventer
- C. Avoid creating a cross-connection

Backflow Prevention

Mechanical devices for preventing backflow:

- Vacuum breaker
- Double check valve
- Reduced pressure zone backflow preventer (RPZ)

Backflow prevention devices must be checked periodically for proper function:

- By a trained and certified technician
 - The work must be documented
- According to local requirements and manufacturers' recommendations

Lighting

Monitor the lighting in the facility:

- Replace bulbs that have burned out
- Make sure bulbs are the correct size



What Do You Think?

There is a buildup of grease and condensation on the walls and ceilings. What is the problem?

- A. Staff has not been cleaning adequately
- B. The ventilation system is not working correctly
- C. The grill is not being operated at a high enough temperature

Ventilation

Ventilation systems:

- Improve the air inside an operation
- Remove heat, steam, and smoke from cooking lines
- Must be cleaned and maintained according to manufacturer's recommendations

What Do You Think?

Is this garbage being handled correctly?



A. Yes

B. No

Why?

The food handler may contaminate the prep table. Staff must be careful when removing garbage so they do not contaminate food or food-contact surfaces.

Garbage

Waste containers:

- Must be covered when not in constant use (indoor containers)
 - Women's restrooms must include a covered receptacle for sanitary napkins
- Must be stored separately from food and food-contact surfaces (waste and recyclables)
 - Storage must not create a nuisance or a public health hazard



Maintaining the Facility

To prevent food safety problems:

- Clean the operation regularly
- Make sure building systems work and are checked regularly
- Make sure the building is sound
 - No leaks, holes, cracks
- Control pests
- Maintain the outside of the building

Emergencies That Affect the Facility

Imminent health hazard:

- A significant threat or danger to health
- Requires immediate correction or closure to prevent injury

Possible imminent health hazards:

- Electrical power outages and refrigeration breakdowns
- Fire and flood
- Sewage backups
- Unauthorized people inside the facility
- Threats to the potable water supply (e.g., broken mains, terrorist contamination)

Emergencies That Affect the Facility

How to respond to a crisis affecting the facility:

- Determine if there is a significant risk to the safety or security of your food
- If the risk is significant
 - Stop service
 - Notify the local regulatory authority
- Throw out spoiled food, contaminated food, and food with packaging that is not intact

Emergencies That Affect the Facility

Correcting problems may include:

- Establishing time-temperature control of TCS food
- Cleaning and sanitizing surfaces in the operation
- Reestablishing the physical security of the operation
- Verifying that the water supply is drinkable
- Gaining approval of the local regulatory authority

Emergencies That Affect the Facility

Service *may* be allowed after water/electrical interruptions if the operation:

- Has a pre-approved written emergency operating plan
- Takes immediate corrective action
- Notifies the regulatory authority when the plan is implemented

Pests vs. PCOs...



10

Cleaning and Sanitizing

Let's watch a DVD...

**Some other things you
should know...**

Cleaners

Cleaners must be:

- Stable
- Noncorrosive
- Safe to use
- Available

What Do You Think?

Is it okay to use machine dishwashing detergent to clean other food-contact surfaces?

A. Yes

B. No

Why?

Only use cleaners for their intended purpose. NEVER use one type of cleaner in place of another unless the intended use is the same.

Sanitizers

Sanitizers:

- Are regulated by state and federal EPAs
- Must be available to staff during all hours of operation



Guidelines for the Effective Use of Sanitizers

Chlorine

| | | |
|--------------------------------------|---|--|
| Water temperature | $\geq 100^{\circ}\text{F}$ (38°C) | $\geq 75^{\circ}\text{F}$ (24°C) |
| Water pH | ≤ 10 | ≤ 8 |
| Water hardness | As per manufacturer's recommendations | |
| Sanitizer concentration range | 50–99 ppm | 50–99 ppm |
| Sanitizer contact time | ≥ 7 sec | ≥ 7 sec |

Guidelines for the Effective Use of Sanitizers

| | Iodine | Quats |
|--------------------------------------|---|---|
| Water temperature | 68°F (20°C) | 75°F (24°C) |
| Water pH | ≤5 or as per manufacturer's recommendations | As per manufacturer's recommendations |
| Water hardness | As per manufacturer's recommendations | ≤500 ppm or as per manufacturer's recommendations |
| Sanitizer concentration range | 12.5–25 ppm | As per manufacturer's recommendations |
| Sanitizer contact time | ≥30 sec | ≥30 sec |

How and When to Clean and Sanitize

How to clean and sanitize:



1. Scrape or remove food from the surface



2. Wash the surface



3. Rinse the surface



4. Sanitize the surface



5. Allow the surface to air-dry

What Do You Think?

Must a cutting board be cleaned and sanitized between preparing raw asparagus and lettuce?



A. Yes

B. No

Why?

Food-contact surfaces need to be cleaned and sanitized after handling different raw TCS fruits and vegetables.

How and When to Clean and Sanitize

Cleaning and sanitizing stationary equipment:

- Unplug the equipment
- Take the removable parts off the equipment
 - Wash, rinse, and sanitize them by hand or run the parts through a dishwasher if allowed
- Scrape or remove food from the equipment surfaces
- Wash the equipment surfaces



How and When to Clean and Sanitize

Cleaning and sanitizing stationary equipment:

- Rinse the equipment surfaces with clean water
- Sanitize the equipment surfaces
 - Make sure the sanitizer comes in contact with each surface
- Allow all surfaces to air-dry
- Put the unit back together



How and When to Clean and Sanitize

Clean-in-place equipment:

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

What Do You Think?

Silverware contains dried-on food. What's the best thing to do before washing it?

A. Scrape them

B. Rinse them

C. Soak them

Scrape items before washing them. If necessary, items can also be rinsed or presoaked. The same is true when washing items manually.

Dishwasher Operation

Operations using high-temperature dishwashing machines must provide staff with:

- An easy and quick way to measure surface temperatures of items being sanitized
- An irreversible record of the highest temperature reached during the sanitizing rinse
 - Ensures the dishwasher can reach correct sanitizing temperatures
 - Maximum registering thermometers or heat-sensitive tape are good tools for doing this



Manual Dishwashing

Setting up a three-compartment sink:

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



What Do You Think?

Is it okay to rinse items after sanitizing them?



A. Yes

B. No

Why?

NEVER rinse items after sanitizing them. This could contaminate their surfaces.

What Do You Think?

Have these cups been stored correctly?



A. Yes

B. No

Why?

Glasses and cups should be stored upside down on a clean and sanitized shelf or rack.

What Do You Think?

Has this silverware been stored correctly?



A. Yes

B. No

Why?

Flatware and utensils should be stored with handles up so staff can pick them up without touching food-contact surfaces.

What Do You Think?

Is this a safe practice?



A. Yes

B. No

Why?

It is safe to use a dry wiping cloth to wipe food spills from tableware, as long as the cloth is not visibly dirty during use or does not contain food debris.

Cleaning and Sanitizing in the Operation

Cleaning up after people who get sick:

- Diarrhea and vomit in the operation must be cleaned up correctly
 - It can carry Norovirus, which is highly contagious
- Correct cleanup can prevent food from becoming contaminated and keep others from getting sick

Cleaning and Sanitizing in the Operation

To be effective operations must:

- Have written procedures for cleaning up vomit and diarrhea
 - Address specific actions employees must take to minimize contamination and exposure to food, surfaces, and people
- Train employees on these procedures

What Do You Think?

Is this a safe practice?



A. Yes

B. No

Why?

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

What Do You Think?

Is this a safe practice?



A. Yes

B. No

Why?

Mops should be placed in a position to air-dry without soiling walls, equipment, or supplies.

Using Foodservice Chemicals

Chemical use:

- Never keep chemicals that are not required to operate or maintain the establishment
- Always cover or remove items that could become contaminated before using chemicals
- Make sure to clean and sanitize equipment and utensils after using chemicals
- Always follow the law and manufacturer's directions when using chemicals

Using Foodservice Chemicals

Storing chemicals:

- Keep them separate from food, equipment, utensils, and linens
 - By spacing chemicals apart from other items
 - By partitioning off chemicals from other items stored in the same area
- Chemicals must always be stored below food, equipment, utensils, and linens

Using Foodservice Chemicals

Storing chemicals:

- Chemicals stored in their original containers must have a manufacturer's label
 - Must include directions for use
 - Must be clear enough to read
- Working containers must be labeled with the common name of the chemical



Creating a Master Cleaning Schedule

When creating a cleaning program:

- List all cleaning jobs in one area or in the order performed
 - Include food and nonfood surfaces
- List cleaning tools and chemicals by name
 - Post cleaning instructions near each item
 - Follow manufacturer's instructions when cleaning equipment



Creating a Master Cleaning Schedule

When monitoring a cleaning program:

- Supervise daily cleaning routines
- Check cleaning tasks against the master schedule daily
- Change the master cleaning schedule based on changes in menu, procedures, and equipment
- Ask staff during meetings for input on the program

