

STUDY GUIDE

Food Protection Manager Training & Certification



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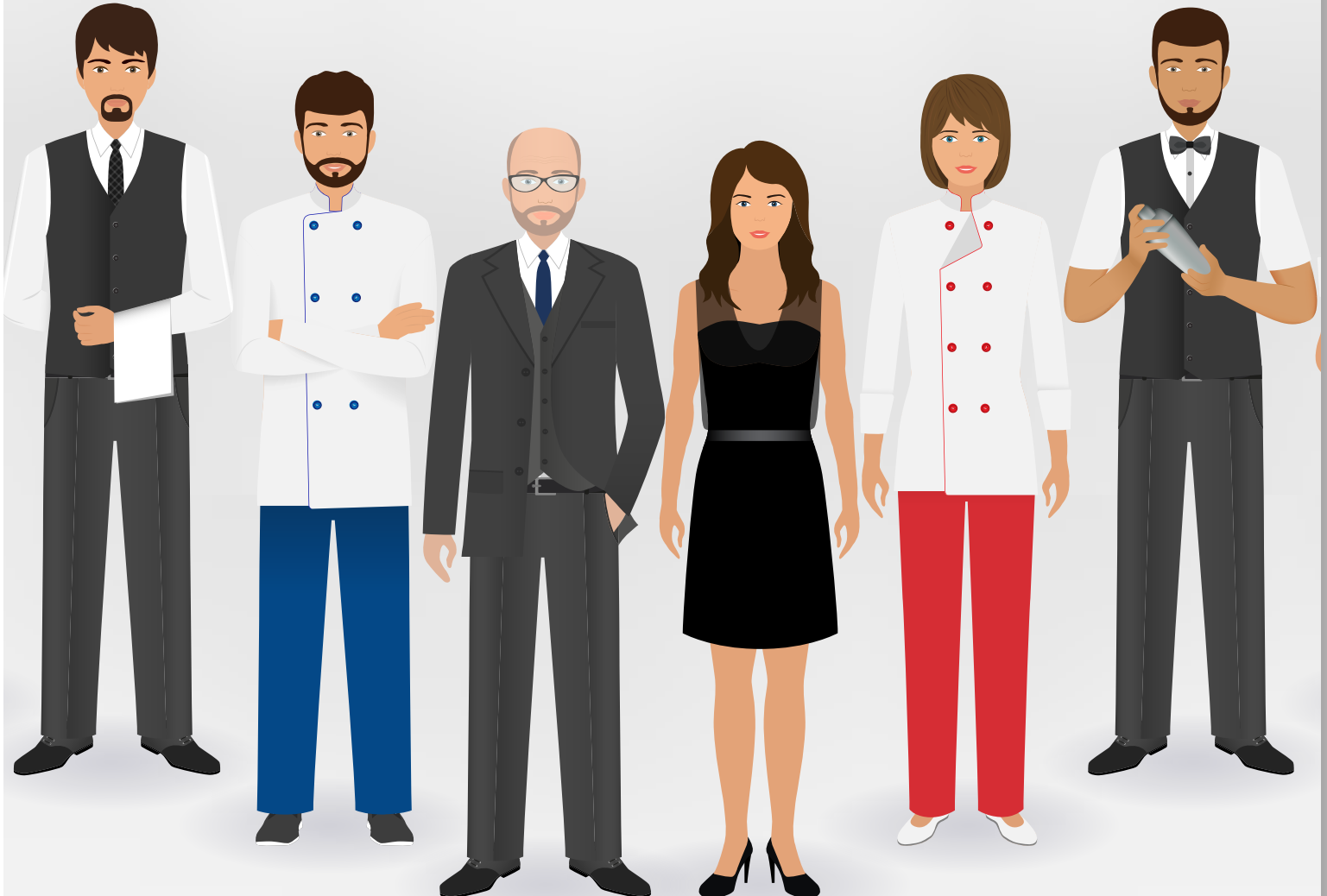
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HOW TO USE THIS FOOD SAFETY REVIEW GUIDE

- **Thoroughly read all the material presented in this study guide.**
 - **Review key information highlighted in dark bold print.**
 - **Refer to the Glossary for an explanation of unfamiliar terms.**
 - **Recognize the International Food Safety Icons.**
- **Use the Practice Exam to identify areas for additional learning.**



The International Food Safety Council's mission is to heighten the awareness and importance of food safety education throughout the restaurant and food service industries. The council envisions a future in which foodborne illness no longer exists

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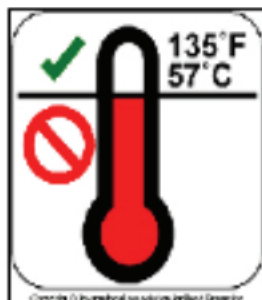
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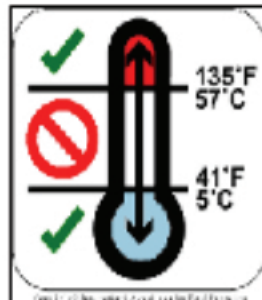
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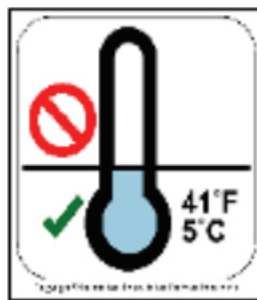
International Food Safety Icons



Hot Holding



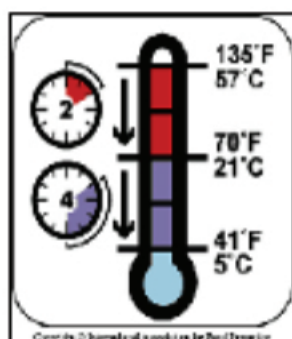
Temperature
Danger Zone



Refrigeration/
Cold Holding



Do Not Work If Ill



Cooling



Cross-
Contamination



Handwashing



No Bare-Hand
Contact



Wash, Rinse
and Sanitize



Potentially
Hazardous Food



Cooking

Section 1 - Providing Safe Food

Foodborne illness is serious business. According to a study by Michigan State and Ohio State Universities, the annual economic impact of foodborne illness in the United States is nearly \$100 billion (more than four times the combined budgets of the two primary Federal agencies responsible for food safety). Every person working in food service has a role to play in helping to keep food safe and preventing foodborne illnesses. From proper hand washing to cooking food to the required minimum internal temperatures, no single action is too small to play a part in assuring the food you serve is safe for consumption.



Food Safety Challenges

Customers expect they will be served safe food and those working in food service have a duty to protect the health of their customers by not causing or contributing to illness or injury.

Some of the challenges to providing safe food include:

- Existing and new foodborne pathogens
- Increased importation of foods from other countries
- Time and Expense
- Language and Culture / Literacy and Education
- Purchasing from unapproved suppliers
- High risk populations - elderly, preschool-aged, and immuno-compromised individuals
- Staff turnover - high turnover rates in the food service industry leave little time for proper training

The Risks Associated with Foodborne Illness:

An outbreak of foodborne illness could be disastrous for your business

Foodborne illness is a disease carried or transmitted to people by food. The Centers for Disease Control and Prevention (CDC) defines a foodborne illness outbreak as two or more people experiencing the same illness after eating the same food. A foodborne illness is confirmed when a laboratory analysis shows that a specific food is the source of the illness. FACT: Each year, millions of people are affected by foodborne illness...surprisingly, most are under-reported.

How a Foodborne Illness Can Affect Your Business:

- Causes bad reputation
- Loss of customers, sales and profit
- Increased insurance costs
- Lawsuits and legal fees
- Reduced employee morale
- Increased employee time away from work
- The cost of retraining employees

Food Safety Hazards and Contaminants

Contamination is the presence of harmful substances in food and is the usual cause of food becoming unsafe. The three categories of contamination are:

- **Biological Contamination** (pathogens/biological toxins) - most often caused by microbial contaminants, including certain bacteria, viruses, parasites and fungi, as well as certain plants, mushrooms, fish and seafood containing harmful toxins. **These biological contaminants pose the greatest threat to food safety and are responsible for the majority of foodborne illness outbreaks.**
- **Chemical Contamination** - includes pesticides, food additives, preservatives, cleaning supplies and toxic metals that leach from cookware and utensils
- **Physical Contamination** - includes foreign objects that accidentally get into food, such

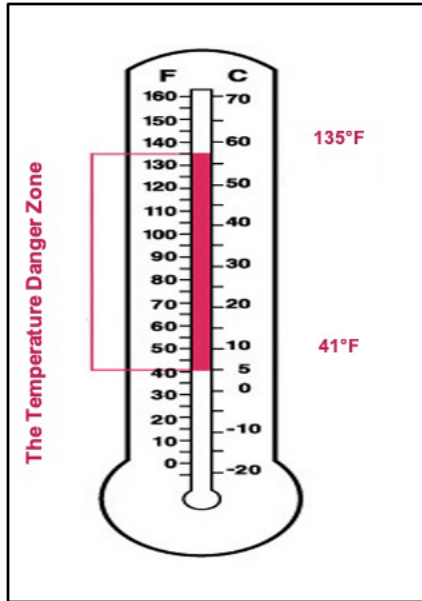
Cross-contamination occurs when pathogens, chemicals, or physical objects from one surface cross to another

as hair, dirt, insects, metal staples and broken glass. Also includes naturally occurring objects, such as bones in a fish fillet and even large pits or seed

How Food Becomes Unsafe

The Centers for Disease Control and Prevention (CDC) has identified these five **RISK FACTORS** for foodborne illness:

- **Purchasing from an unsafe source**
- **Failing to cook food adequately**
- **Holding food at an improper temperature**
- **Using contaminated equipment**
- **Poor personal hygiene**



TDZ
The Temperature Danger Zone
is 41° F (5°C) - 135°F (57°C)
Limit the time that food
spends in the TDZ

Time-Temperature Abuse occurs any time food is allowed to remain too long in the **Temperature Danger Zone of 41°F - 135°F (5° C - 57° C)**

This can occur:

- During the holding or storage of food
- If food is not cooked or reheated to the proper temperature
- If food is not cooled properly
- **Cross-contamination - occurs when microorganisms are transferred from one surface or food to another.** Examples of cross-contamination include:
 - Contaminated ingredients being added to foods that are ready to be served or eaten
 - Cooked or ready-to-eat food coming into contact with surfaces that are not cleaned or sanitized
 - Contaminated food touching or dripping onto ready-to-eat foods
 - Food handlers touching contaminated foods or surfaces and then touching ready-to-eat food without properly washing their hands and/or changing their gloves

- Contaminated clothing or unsanitized cleaning cloths coming in contact with food contact surfaces
- Employees with poor personal hygiene contaminating food, reflecting a poor image of the business and possibly causing illnesses

Foodborne illness can be caused by employees who:

- Don't properly wash their hands after using the restroom or when hands have become contaminated
- Cough or sneeze on food
- Touch or scratch sores or cuts and then touch food
- Come to work while sick

Key Practices for ensuring food safety include:

- Controlling time and temperature
- Practicing strict personal hygiene
- Preventing cross-contamination

TCS Foods

Foods requiring **"Time/Temperature Control for Safety"** are referred to as **"TCS foods."** (Previously referred to as "potentially hazardous" foods.) Keep these foods out of the Temperature Danger Zone (TDZ) for unsafe periods of time.

Time/Temperature Control for Safety Food (TCS)

- Milk and milk products
- Meat: beef, lamb, pork, veal
- Eggs (unless treated to eliminate Salmonella spp.)
- Raw sprouts and sprout seeds
- Shellfish and crustaceans
- Cooked plant foods, like rice, beans and vegetables

TCS FOODS
Foods that require
"Time and Temperature
Control for Safety"

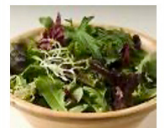
- Fish
- Poultry
- Baked potatoes
- Tofu or soy-protein food
- Sliced melons
- Untreated garlic-and-oil mixtures
- Cut tomatoes
- Cut leafy greens

Ready-to-Eat Foods

Ready-to-Eat foods are those that require no further washing, preparation or cooking. Like TCS foods, ready-to-eat (RTE) foods also need careful handling to prevent contamination. Here are some examples of RTE foods:

- Washed fruit and vegetables (whole and cut)
- Deli meats
- Bakery items
- Seasonings, spices and sugar
- Cooked foods

READY-TO-EAT FOODS
The FDA Food Code requires that Ready-to-Eat foods be handled while wearing single use gloves

Time / Temperature Control for Safety Food (TCS)			
Milk and milk products		Meat: beef, lamb, pork	
Eggs (except those treated to eliminate Salmonella spp.)		Raw sprout and sprout seeds	
Shellfish and Crustacea		Heat treated plant food, such as cooked rice, beans and vegetables	
Fish		Poultry	
Baked potatoes		Tofu or soy-protein food	
Sliced melons		Untreated garlic-and-oil mixtures	
Cut tomatoes		Cut leafy greens	

High-Risk Populations for Foodborne Illness

Extra caution should be taken when preparing or serving food to these high-risk populations:

- **Infants and preschool aged children** - have not fully developed their immune systems
- **Elderly persons** - people over the age of 55 begin to have a decrease in their immune systems
- **People being treated for illnesses that may be taking certain medications** (antibiotics and immuno-suppressants)
- **Seriously ill persons** - Those who recently had surgery, are organ transplant recipients or have chronic illnesses

Person in Charge (PIC)

The FDA Code mandates that there be a designated **Person in Charge**. That individual must:

- Be a Certified Food Protection Manager
- Be on-site during operating hours
- Be able to demonstrate required food safety knowledge

Employee Training

The Person in Charge is responsible to:

- Train staff to follow safety procedures
- One-on one job specific training allows for the learning ability of the trainee, using "demonstrate and demonstrate back" procedure
- Provide initial and ongoing training
- Provide all staff with general and specific food safety knowledge
- Retrain staff regularly using "Stop, Correct & Retrain"
- Model proper behavior



- Document training

Food Safety Regulatory Agencies

The Food and Drug Administration (FDA) inspects all food except meat, poultry, and eggs. Regulates food transported across state lines. In addition, the agency publishes the FDA Model Food Code, which provides state, local, and tribal governments with recommended food safety regulations.

Adoption of the Model Food Code is NOT MANDATORY, but as of 31 December 2022, every state (except California) and the District of Columbia have adopted some version of the Model Food code. Always seek guidance from your local health authority on the food safety regulations applicable to your establishment.

The U.S. Department of Agriculture (USDA) regulates and inspects meat, poultry, and eggs. It also regulates food that crosses state boundaries or involves more than one state.

Centers for Disease Control and Prevention (CDC) and the **U. S. Public Health Service (PHS)** conduct research into the causes of foodborne illness outbreaks and educate the public.

State and local regulatory authorities write or adopt the code that regulates retail and food service operations and enforces codes. A food service operation is most likely to have direct contact with this local agency rather than the federal agencies.

Section 2 - Forms of Contamination

Biological Contamination

Biological contamination is caused by microorganisms (small, living organisms that are only visible under a microscope.) Microorganisms are everywhere and the vast majority of them are harmless, or even helpful and necessary, to human life. **Pathogens**, however, are harmful microorganisms that can make you sick when you eat them or produce toxins that make you sick.

The FDA has identified over 40 types of pathogens, parasites and molds that can cause foodborne illness, but the majority of illness is caused by the **THE BIG SIX**, which you will explore in detailed in the pages that follow.

There are four types of microorganisms that can contaminate food and cause foodborne illnesses:

- Bacteria
- Viruses
- Parasites
- Fungi, e.g. Mold and Yeast

Microorganisms can be arranged into two groups:

Spoilage microorganisms - Food containing spoilage microorganisms, such as fungi/mold, has an unpleasant appearance, smell and taste. Spoilage microorganisms seldom causes illness.

Pathogens - such as Salmonella ssp. and Hepatitis A, cannot be seen, smelled or tasted in food and cause some form of illness when eaten.

Common Symptoms of Foodborne Illness

Common symptoms of foodborne illness:

- Diarrhea
- Vomiting
- Fever
- Nausea
- Abdominal cramps
- Jaundice—a yellowing of the skin and eyes

Onset time, how quickly symptoms appear after ingesting the food:



SYMPTOMS

Employee experiencing diarrhea, vomiting, or jaundice cannot work anywhere in the operation. They must be "excluded."

- Depend on the type of foodborne illness
- Can range from 30 minutes to six weeks

What Microorganisms Need to Grow

Use the acronym **FAT TOM** to remember the conditions that favor the growth of most foodborne microorganisms. Viruses transmitted by food are not affected by FAT TOM conditions.

F - (Food) - Proteins and carbohydrates commonly found in TCS foods such as meat, poultry, dairy products, and certain plant foods and grains.

A - (Acidity) - Pathogenic bacteria do not typically grow in alkaline or highly acidic food. They prefer food that is slightly acidic or neutral (pH of 4.6 to 7.5.)

T - (Temperature) - Foodborne microorganisms grow well at temperatures between 41°F and 135°F. Keeping foods outside the temperature danger zone (i.e., refrigeration or hot holding) does not necessarily kill the microorganisms. It will, however, slow their growth.

FATTOM

An acronym to help us remember the 6 conditions that pathogens need to grow and reproduce

T - (Time) - If TCS food remains in the temperature danger zone for four hours or more, pathogenic microorganisms can grow to levels high enough to make someone ill.

O - (Oxygen) - Some pathogens require oxygen to grow, while others grow when oxygen is absent (example: cooked rice and

baked potatoes grow bacteria without oxygen).

M - (Moisture) - Most foodborne microorganisms require water to grow, which is why they grow well in moist food. The amount of moisture available in food for microorganisms to grow is called its "water activity." TCS food has a water activity of .85 or higher.

Controlling the Growth of Pathogens

FAT TOM is the key to controlling growth. Time and temperature are the two most important FAT TOM conditions that you can easily control. TCS foods must be controlled using time and temperature to keep them safe.

Bacteria, Viruses, Parasites, Fungi, Toxins

Bacteria

Knowing what bacteria are and understanding how they grow is the first step in controlling them. Of all microorganisms, bacteria are the biggest concern.

Characteristics of Bacteria that Cause Foodborne Illness

- Living, single-celled organism
- Can be carried by food, water, soil, animals, humans or insects
- Can reproduce very rapidly under favorable conditions
- Some survive freezing
- Some spoil food; others cause illness
- Some produce toxins that cause illness
- Some bacteria, such as E. coli, cause illness by producing toxins as they multiply and break down
- Some change into a different form called spores to protect themselves
- While cooking destroys bacteria, it typically does not destroy the toxins produced by bacteria

Viruses



Table 2.1 – Bacterial Foodborne Infections

Bacteria	Salmonella Typhi	Nontyphoidal Salmonella	Shigella spp.	Shiga toxin-producing Escherichia coli (STEC) (E. coli)
Source:	People	People Farm animals	Human Feces	Intestines of cattle Infected people
Foods linked to bacteria	• Ready-to-eat foods • Beverages	• Poultry and eggs • Meat • Milk and dairy products • Produce	• Food easily contaminated by hands, such as salads containing TCS foods (Potato, tuna, shrimp, chicken, eggs) • Food that contacted contaminated water, such as produce	• Raw and undercooked ground beef • Contaminated produce
Most Common symptoms	• Prolonged fever, fatigue • Constipation or diarrhea • Nausea and vomiting	• Diarrhea • Vomiting	• Bloody diarrhea • Abdominal cramps and pain • Fever (Occasionally)	• Diarrhea (eventually becomes bloody) • Abdominal cramps • Severe cases can result in hemolytic uremic syndrome (HUS)
Prevention methods	• Wash hands. • Cook food to the required minimum internal temperatures. • Exclude from the operation food handlers diagnosed with an illness caused by Salmonella Typhi.	• Cook poultry and eggs to required minimum internal temperatures. • Prevent cross-contamination between raw meat/poultry and ready-to-eat foods. • Exclude from the operation food handlers diagnosed with an illness caused by the Nontyphoidal Salmonella.	• Wash hands. • Control flies within and outside the operation. • Exclude from the operation food handlers who have diarrhea or have been diagnosed with Shigella.	• Cook food, especially ground beef, to required minimum internal temperatures. • Purchase produce from approved, reputable suppliers. • Prevent cross-contamination between raw meat and ready-to-eat-foods. • Exclude from the operation food handlers who have diarrhea or have been diagnosed with hemorrhagic Colitis.
Notes	• Lives only in humans (carried in the blood and intestinal tract). • Severity of symptoms depends on a person's health. • Bacteria can be present in a person's feces for weeks after symptoms have ended.	• Nontyphoidal Salmonella is naturally occurring in some poultry.	• Easily transferred when food handlers fail to wash their hands after using the restroom.	• Bacteria is naturally occurring in cattle and can contaminate the meat during the slaughter process. • E. coli produces a toxin in an infected person's intestinal tract that makes them ill.

PREVENTING FOODBORNE ILLNESSES CAUSED BY BACTERIA
Controlling time and temperature of the food, from purchasing and all the way to serving, is the most important way to control bacterial foodborne illnesses.

Viruses are a leading cause of foodborne illness. As a manager, it is your duty to understand what viruses are, how they are spread through food, and measures you can take to prevent customers from becoming infected with viral foodborne infections. Unlike bacteria, a virus is not a complete living being. It is an infectious microbe consisting of nucleic acid, either DNA or RNA, wrapped in a protein layer. Once introduced into the host, the virus uses components of the host cell to make copies of itself.

Basic characteristics of viruses:

- Requires a living host in order to grow and reproduce
- Not killed by cooking temperatures
- Some may survive freezing
- They can be transmitted from person to person, and from people to food and food contact surfaces
- "Carriers" are persons without symptoms of illness but unknowingly carry pathogens and infect others
- They frequently contaminate food through a food handler's poor person hygiene, especially improper handwashing after using the restroom
- They can contaminate both food and water supplies

Foodborne Infections

Foodborne infections are illnesses resulting from a person consuming food containing bacteria, which then grow in the intestines. Examples of foodborne infections includes Salmonellosis and Shigellosis. Symptoms of a foodborne infection do not always appear immediately and a person can remain infected with the bacteria for weeks after symptoms subside.

Parasites

Illnesses from parasites are not as common as those caused by bacteria or viruses. Parasites are living organisms that need a host to survive. They infect many animals such as cows, chickens, pigs and fish and can be transmitted to humans. They are a hazard to both food and water.

Food Commonly Associated with the Parasite:

- Improperly treated water
- Produce (especially produce irrigated with contaminated water)
- Pork, chicken and fish
- Wild game

Most Important Prevention Measures:

- Purchase from an approved, reputable supplier
- Use properly treated water
- Wash hands properly to minimize the risk of cross- contamination
- Proper cooking of meat and freezing of fish

Table 2.1 – Viral Infections

Virus	Hepatitis A	Norovirus
Source:	Feces of infected people or contaminated water.	Feces of infected people or contaminated water
Foods linked to bacteria	• Ready-to-eat foods. • Shellfish from contaminated water.	• Ready-to-eat food. • Shellfish from contaminated water.
Most Common symptoms	• Nausea, vomiting or diarrhea. • Tiredness. • Jaundice.	• Diarrhea • Vomiting
Prevention methods	• Wash hands. • Avoid barehand contact with ready-to-eat foods. • Exclude from the operation food handlers diagnosed with Hepatitis A. • Purchase shellfish from approved, reputable suppliers.	• Wash hands. • Avoid barehand contact with ready-to-eat foods. • Exclude from the operation food handlers diagnosed with Norovirus. • Purchase shellfish from approved, reputable suppliers.
Notes	• Cooking does not destroy Hepatitis A. • Often transmitted in food service when infected food handlers with feces on their fingers touch food. • An infected individual can be contagious without showing symptoms.	• Cooking does not destroy Norovirus. • Often transmitted in food service when infected food handlers with feces on their fingers touch food. • An infected individual can be contagious without showing symptoms.

PREVENTING FOODBORNE ILLNESSES CAUSED BY VIRUSES

Practicing good personal hygiene is the most important way to control foodborne illnesses caused by viruses.

Fungi

Fungi are also pathogens. While most fungi are not toxic, some can make people sick. Fungi range in size from microscopic single-celled organisms to very large multi-cellular organisms and are found naturally in air, soil, plants, water and some food. Mold, yeast and mushrooms are forms of fungi. **NOTE: harmful fungi can look very similar to safe varieties, so only purchase mushrooms from approved suppliers.**

Mold

Some molds produce toxins such as aflatoxins. It is not necessary to discard cheese containing small molded area. The FDA recommends cutting away any moldy areas in hard cheese at least one inch around the moldy area.

Yeast

Yeasts have some basic characteristics:

- Some yeasts spoil food rapidly
- Yeasts grow well in acidic food with low water activity such as jelly, jam, syrup, honey and fruit juice
- They may produce a smell or taste of alcohol as they spoil food
- They may appear as a pink discoloration or slime and may bubble
- Foods spoiled by yeast should be discarded

Foodborne Intoxications

Foodborne intoxication occurs when a person eats food containing toxins. These toxins can result in foodborne illness. The symptoms of a foodborne intoxication appear quickly within a few hours.

The origin of the toxins may be from one of the following:

- Toxins may have been produced by pathogens on the food or be the result of a chemical contamination
- Toxins could come from a plant or an animal that was eaten

Toxins in seafood, plants and mushrooms are responsible for many cases of foodborne illness:

- These biological toxins occur naturally and are not caused by the presence of microorganisms
- Some occur in animals as a result of their diet

General symptoms of biological intoxication:

- Diarrhea or vomiting
- Neurological symptoms
- Tingling in extremities
- Reversal of hot and cold sensations
- Flushing of the face
- Difficulty breathing
- Burning in the mouth
- Heart palpitations
- Hives

Fish Toxins

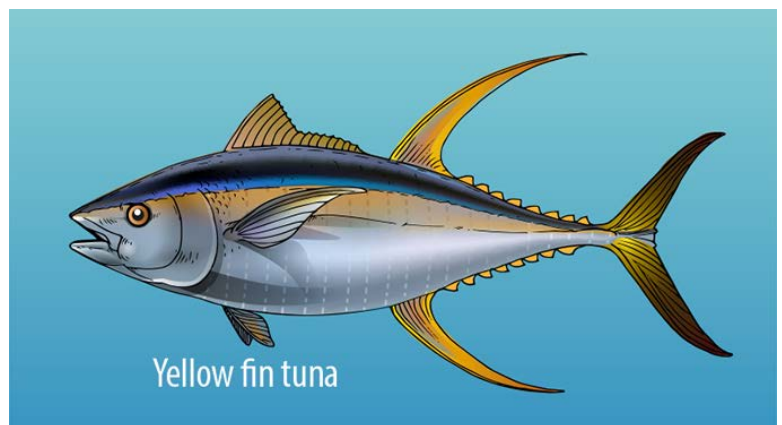
Some fish toxins are systemic (produced by the fish itself):

Puffer fish, moray eels and fresh water minnows all produce systemic toxin

- Cooking will not destroy these toxins
- Some toxins occur when predatory fish consume smaller fish that have eaten the toxic algae from the reefs

Major Foodborne Illnesses Caused by Fish Toxins. There are two types of fish toxin illnesses:

- **Scombroid poisoning** – also known as histamine poisoning. When the fish are time-temperature abused, bacteria on the fish produce histamine. It is critical to purchase scombroid fish (tuna, mackerel, bonito, mahi mahi) from approved, reputable suppliers



- **Ciguatera fish poisoning** – Ciguatera toxin is found in certain marine algae. It is commonly associated with predatory reef fish that consume smaller reef fish that have eaten the toxic algae. It is critical to purchase reef fish from approved reputable suppliers. These suppliers take steps to ensure that the fish have been harvested from safe waters

General guidelines for preventing illnesses associated with fish toxins:

- Purchase fish from an approved reputable supplier
- Check the temperature of fish upon delivery, ensure it is 41°F or colder
- Refuse deliveries of fish that have been thawed and refrozen

Chemical Contamination

Chemical contaminants include toxic metals, chemicals and pesticides

Toxic Metals

Toxic metal poisoning can occur in the following ways:

- Food is prepared with utensils or equipment containing toxic metals
- Toxic metals and equipment such as lead in a pewter pitcher, copper in a zinc pan or zinc in a galvanized bucket can be leached when they come into contact with acidic food
- Only food-grade utensils and equipment should be used to prepare food



Chemicals and Pesticides

Cleaning products, such as polishes, lubricants and sanitizers, can contaminate food if stored or used in improper ways. Beauty products, like lotions and deodorants can also pose a risk of chemical contamination.

To avoid contamination, you should do the following:

- Use only chemicals that are approved for food service use
- Purchase chemicals only from approved and reputable suppliers
- Store chemicals in a designated and secure area, **with adequate lighting to read the label**, that is away from food, utensils and equipment
- Use physical barriers to keep cleaning products and other chemicals that are in use away from food, utensils and equipment
- **NEVER store chemicals on or above food contact surfaces**
- Follow manufacturers' directions when using chemicals
- Keep the Safety data Sheet for each chemical, provided by the manufacturer, available at all times
- Chemicals that have been transferred from their original container to smaller containers must be properly labeled with the common name
- Utensils used for dispensing chemicals should never be used to handle food
- Follow all manufacturer and local regulatory guidelines when disposing of chemicals
- Pesticides should only be applied by a licensed pest control operator (PCO)

Physical Contamination

It is important to inspect food for physical contaminants and to ensure that they are not introduced to food during its flow in the operation. Physical contamination results from the accidental introduction of foreign objects into food or failure to remove naturally-occurring objects like fish bones or fruit pits.

Physical contaminants include:

- Metal shavings
- Staples
- Broken glass
- Band-Aids

PHYSICAL CONTAMINATION
results from poor housekeeping,
working carelessly or in a
cluttered environment

- Hair and fingernails
- Insects
- Bones in a fish fillet
- Fruit pits in a pie

Deliberate Contamination

This is a harmful criminal act. It is carried out intentionally to cause illness and injury. You must protect food from the following:

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

The best way to protect food is to make it as hard as possible for someone to tamper with. A food defense program should deal with the points in your operation at which food is at risk. The risk areas to consider for your food defense plan are spelled out in the FDA defense tool - **A.L.E.R.T.**

- **Assure** - Assure that products received are from safe sources and supervise deliveries
- **Look** - Monitor the security of products in the facility and train staff to spot food defense risks
- **Employees** - Know who is in your facility at all times, and know whom to call if suspicious activity is suspected.
- **Reports** - Keep food defense information accessible and conduct random food defense inspections
- **Threat** - Develop a plan for responding to suspicious activity or a threat to the operation that includes emergency contacts and how to handle product suspected of contamination



Responding to a Foodborne Illness Outbreak

The FDA recommends a **Crisis Management Plan** to assist with handling a foodborne illness outbreak.

- Create a written plan tailored to your operation that focuses on: preparation, response, and recovery
- Ask the person making the complaint for contact information and to identify the food that was eaten, a description of the symptoms and when they first got sick
- Contact the local regulatory authority if you suspect an outbreak
- Set the suspected product aside and label with **Do Not Use and Do Not Discard**
- Document suspected products (description, production date, lot number, sell-by date and pack size)
- Maintain a list of food handlers scheduled at the time of the suspected contamination and immediately interview them about their health status
- Cooperate with regulatory authorities in the investigation. Provide appropriate documentation

Food Allergens

A food allergy is the body's negative reaction to a naturally-occurring food protein in certain foods. If consumed in large enough quantities, the body produces an immune reaction to that protein. **All food service workers need to be aware of the signs of an allergic reaction and how to respond to them.** It is also important for all staff to be aware of the most common food allergens and if they are present in any of the menu items offered.

The reaction from food allergens could include some or all of the following symptoms:

- Itching in and around the mouth, face or scalp
- Tightening in the throat
- Wheezing or shortness of breath

33 MILLION AMERICANS
including 1 out of 13 children,
suffer from life threatening
food allergies. An allergic reac-
tion requiring emergency room
treatment occurs every 10
seconds. foodallergy.org

- Hives (as shown to the right)
- Swelling of the face, eyes, hands or feet
- Abdominal cramps, vomiting or diarrhea
- Loss of consciousness
- Death

The most common food allergens are referred to as **The Big Nine**. They are:



Preventing Allergic Reactions

For front of house staff:

- Ask all guests about any food allergens, listen, and take notes
- Describe how dishes are prepared, the ingredients used, and be willing to say "I don't know" if unaware of specific ingredients
- Designate a manager or specific staff member each shift to answer all allergy-related questions from customers
- Urge customers to order an item that is allergen free
- Verbally confirm the special order with the guests, provide kitchen staff with written notes when placing the order, confirm correct preparation when picking up the finished dish and deliver that dish separately from all others on the same order

For back of house staff:

- Verbally confirm allergy and special preparations with front of house staff before beginning preparations
- Review ingredients (and sub-ingredients) for any substitutions used
- Avoid **cross-contact** by washing, rinsing, and sanitizing cookware, utensils, equipment and all food-contact surfaces before preparing a dish for a customer with an allergy and after handling an allergen
- Properly wash hands and change gloves and soiled aprons, rags, etc.
- Prepare food for guests with food allergies separate from other foods
- Use separate deep fryers for food containing allergens or pan fry if that option does not exist

Section 3 - The Safe Foodhandler

How Food Handlers Can Contaminate Food

Even an apparently healthy person may be hosting foodborne pathogens. A person may be contagious before symptoms appear or may still have the illness for months after symptoms have ceased. Some people, called carriers, carry pathogens and infect others but never become ill themselves.

Food handlers can contaminate food when they:

- Have a foodborne illness
- Show symptoms of gastrointestinal illness

- Have infected lesions
- Live with or are exposed to a person who is ill
- Touch anything that may contaminate their hands

Simple acts and personal behaviors can contaminate food including:

- Scratching the scalp
- Wiping or touching the nose
- Touching a pimple or open sore
- Wearing a dirty uniform
- Running fingers through the hair
- Rubbing an ear
- Coughing or sneezing into the hand
- Spitting in the establishment



Managing a Personal Hygiene Program

Every food service operation should prepare, implement and enforce a personal hygiene program to help food handlers from making mistakes that contaminate food and providing the public with confidence in the cleanliness of your staff and operations. Managers should:

- Create personal hygiene policies
- Provide food handlers with initial and ongoing training
- Model correct behavior at all times
- Supervise food safety practices and take corrective action when policies are violated
- Revise personal hygiene policies when the law or science backing them changes

Proper Handwashing and Hand Care

As a manager, it is your responsibility to train food handlers on how and when to properly wash hands and then monitor them. **A hand antiseptic (sanitizer) may be used after hands are washed and dried but should never be used in place of proper hand washing. Handwashing is the most critical aspect of personal hygiene.**

Handwashing

Food handlers must wash their hands before:

- Preparing food
- Working with clean equipment and utensils
- Putting on single-use gloves

And after:

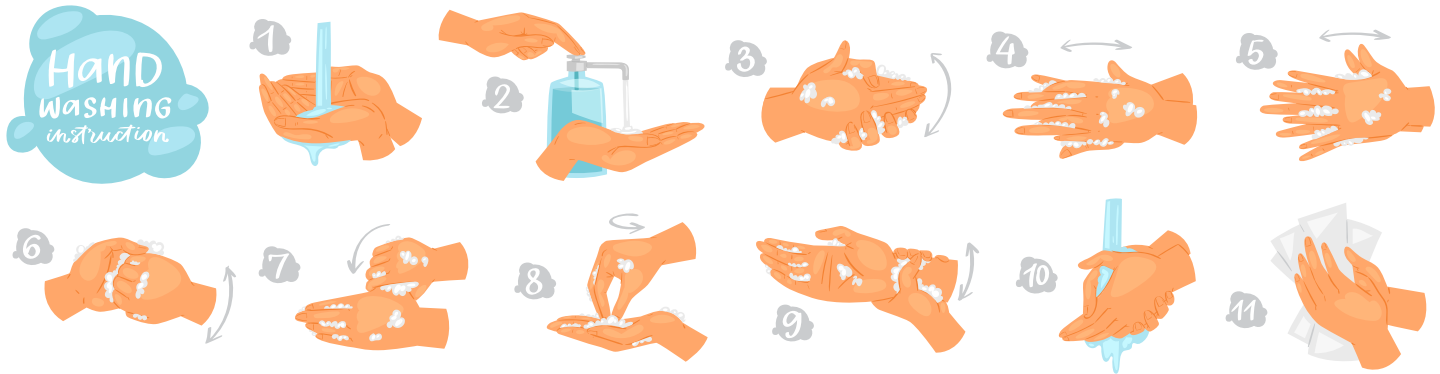
- Using the restroom
- Handling raw meat, poultry and fish (before and after)
- Touching the face, hair or body
- Sneezing, coughing or using a handkerchief or tissue
- Smoking, eating, drinking or chewing gum or tobacco
- Handling chemicals that might affect the safety of food
- Taking out garbage
- Clearing tables or busing dirty dishes
- Touching clothing or aprons
- Handling money
- Touching anything that may contaminate hands: unsanitized equipment, work surfaces, prep tables or cloths

The hand washing process should take at minimum of 20 seconds, with at least 10 seconds dedicated to scrubbing with soap.

Wash hands ONLY in sinks designated for hand washing. Consider using a paper towel to turn off faucets and

open the restroom doors. **The the entire handwashing process should take AT LEAST 20 seconds.**

- Wet hands and arms with warm running water, minimum of 85° F.
- Apply soap, enough to build up a good lather.
- Scrub hands and arms vigorously for 10 - 15 seconds. Clean fingertips, under fingernails, and between fingers.
- Rinse hands and arms thoroughly under warm running water.
- Dry hands and arms with a single use paper towel or electric hand dryer.



NEVER wash hands in sinks designated for food prep or dish washing or sinks used for discarding waste water.

Corrective Action – If food handlers have touched food or food-contact surfaces with unclean hands:

- Dispose of the contaminated food
- Clean potentially contaminated equipment and utensils
- Retrain or coach food handlers who are not following proper hand washing procedures if necessary

HAND ANTISEPTICS
are a supplement to proper
handwashing and never a
substitute for handwashing

Hand Antiseptics

- Liquids or gels used to lower the number of pathogens on skin
- Must comply with the CFR and FDA standards
- Should be used only after hand washing
- Must NEVER be used in place of hand washing
- Should be allowed to air dry before touching food or equipment

Hand Care

- Fingernails should be kept **short, clean and unpolished**
- Long, false and acrylic nails should not be worn while handling food
- Food handlers should not wear nail polish, as it can disguise dirt under the nails and flake off onto food
- Some jurisdictions allow fully intact, single-use gloves to be worn over false nails and/or nail polish



Covering Infected Wounds

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

Single-Use Gloves

Single-use gloves can help keep food safe by creating a barrier between hands and food. Gloves are an additional defense to prevent contamination and should NEVER be used in place of proper hand washing.

How to properly use gloves:

- Wash hands before putting on single-use gloves
- Select the correct glove size, large enough to allow free movement of you fingers, but snug enough to not

- ride down or fall off while in use
- Hold gloves by the end when putting them on
- **NEVER** blow into gloves, roll them up when putting them on, wash them, or reuse them

When purchasing gloves for handling food, the managers should do the following:

- Purchase a variety of glove sizes, as well as gloves made of a latex-free alternative
- Focus on safety, durability and cleanliness
- Only purchase gloves formulated for food contact. These gloves will have the NSF International mark.

Gloves may never replace hand washing and must be used properly

- Hands must be washed before putting on gloves
- Gloves used to handle food are for single-use only and should never be reused
- Gloves should be removed by grasping them at the cuff and peeling them off inside-out towards the fingers

Gloves should be changed at the following times:

- As soon as they become soiled or torn
- Before beginning a different task or when a task is interrupted, such as by a phone call
- At least every 4 hours during continual use, and more often when necessary
- After handling raw meat and before handling ready-to-eat food

Bare-Hand Contact With Ready-To-Eat Food

Bare-hand contact with ready-to-eat food should be avoided as much as possible to prevent the contamination of ready-to-eat foods by unclean hands. **NEVER handle ready-to-eat food with bare hands when you primarily serve high-risk populations!**

Exceptions:

Bare hand contact with ready-to-eat foods is acceptable if:

- The food is an ingredient in a dish that does not contain raw meat, seafood or poultry and that dish will be cooked to a minimum internal temperature of at least 135° F (i.e., putting cheese on top of onion soup)
- The food is added to a dish that does contain raw meat, seafood or poultry and that dish will be cooked to the required minimum internal temperature for the raw meat, seafood or poultry (i.e., adding chopped carrots to a beef stew)

Some jurisdictions allow bare-hand contact with ready-to-eat foods but require:

- Policies on staff health
- Training in hand washing and personal hygiene practices

Work Attire

All staff should shower or bathe before work and wear clean clothes and uniforms daily.

- Wear a clean hat or hair-restraint and avoid any hair restraints that can pose a risk of physical contamination
- Staff should not wear false eyelashes and staff with beards should wear a beard restraint
- Wear clean clothing and aprons daily, change them when they become soiled
- if possible, change into work clothes at work
- Store "street clothes" in a designated area away from food storage and prep areas
- Remove aprons when leaving food-preparation areas, do not wipe your hands on your apron, and **NEVER** wear



SINGLE USE GLOVES
A proper hand washing
is required before putting
on clean gloves



aprons into the restroom

- Wear sturdy, closed-toed shoes
- Remove rings, watches and bracelets (including medical alert bracelets) from hands and arms
- The only acceptable jewelry item is a **plain, metal ring**

Eating, Drinking, Chewing Gum and Using Tobacco Products

While eating, drinking, chewing gum, or using tobacco products, saliva can be transferred to the food-handler's hands or directly onto food. **Those small droplets of saliva can contain thousands of disease-causing microorganisms.**

Food handlers must not use tobacco products, chew gum or tobacco, or eat or drink when:

- Preparing or serving food
- They are in the food preparation areas
- In areas used to clean utensils or equipment
- Food handlers should eat, drink, chew gum or use tobacco products only in designated areas (check with your local regulatory agency for requirements)
- Some regulatory authorities allow food handlers to drink from a covered container, with a straw, while in prep and dish washing areas



Handling Staff Illnesses

Food handlers are required to report health problems to the manager before working. If the food handler becomes ill while working, they must immediately report the condition. Tell staff to let you know when they are sick.

Be prepared to show proof that you have done this, such as:

- Signed statements in which staff have agreed to report illness
- Documentation showing staff have completed training, which includes information on the importance of reporting illness
- Posted signs or pocket cards that remind staff to notify managers when they are sick before coming to work or if they become sick while working

RESPONDING TO EMPLOYEE MEDICAL CONDITIONS

SEND SERIOUSLY SICK EMPLOYEES HOME NOW

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

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 a high-risk population. The food handler can return to the operation and/or work with or around food when they have a written releases from a medical practitioner.
The food handler has persistent sneezing, coughing or a runny nose that causes discharges from the eyes, nose or mouth.	RESTRICT the food 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	EXCLUDE the food handler from the operation if you primarily serve a high-risk population. Vomiting and diarrhea Food handlers must meet one of these requirements before they can return to work: Have had no symptoms for at least 24 hours Have a written release from a medical practitioner Jaundice Food handlers with jaundice must be reported to the regulatory authority. Food handles who have had jaundice for seven days or less must be excluded from the operation. Food handlers must have a written release from a medical practitioner and approval from the regulatory authority before returning to work.
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 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 regulatory authority to determine whether the food handlers must be excluded from the operation or restricted from working with exposed food, utensils, and equipment. The medical practitioner and regulatory authority will also determine whether the employees can safely return to the operation and/or carry out their regular food handling duties.

Section 4 - The Flow of Food: An Introduction

Food flows through the operation, step by step, from purchasing to service. **Cross-Contamination** and **Time-Temperature Abuse** must be controlled at each step.



Preventing Cross-Contamination

Cross-contamination is the transfer of microorganisms from one food or surface to another

- Microorganisms can be transferred from food or unwashed hands to prep tables, equipment, utensils, cutting boards, dish towels, sponges, or other food.

Physical Barriers for Preventing Cross-Contamination

Cross-contamination can be prevented by placing physical barriers between products. This can be done in the following ways:

- Assigning specific equipment for each type of food product. Example: use one set of cutting boards, utensils and containers for poultry and another set for meat (using color-coded cutting boards is a way of creating a physical barrier)
- Cleaning and sanitizing all work surfaces, equipment and utensils after each task. For example, after cutting raw meat on a cutting board, be sure to wash, rinse and sanitize before using that cutting board for anything else

Preventing Time-Temperature Abuse

One of the biggest factors in foodborne illness outbreaks is time and temperature abuse. Disease-causing microorganisms grow and multiply at temperatures between 41°F and 135°F, which is why this range is called the "Temperature Danger Zone (TDZ)".

- **At temperatures between 70°F and 125°F, microorganisms grow faster than at any other point**
- Microorganisms also need time to grow. The longer food stays in the temperature danger zone, the more time microorganisms have to multiply and make food unsafe
- Food held in the temperature danger zone for more than four hours must be discarded. Food that has reached 70°F must be discarded regardless of time

Monitoring Time and Temperature

It is important to control time and temperature to prevent the rapid growth of microorganisms that might be in food. The thermometer may be the most important tool you have to protect food from time-temperature abuse.

The most common types of thermometers used in establishments are the bimetallic stemmed thermometer, the thermocouple, and the thermistor.

The Bimetallic Stemmed Thermometer

The bimetallic thermometer is the most common type of thermometer used in the restaurant and food service industry. **The bimetallic thermometer often has a scale measuring from 0°F to 220°F.**

If you select this type of thermometer, make sure it has:

- An adjustable calibration nut to keep it accurate
- Easy-to-read, numbered temperature markings
- A dimple to mark the end of the sensing area (which begins at the tip)
- Accuracy to within +/- 2°F
- Is regularly calibrated using the "ice point 32° F" or "boiling point 212° F" methods

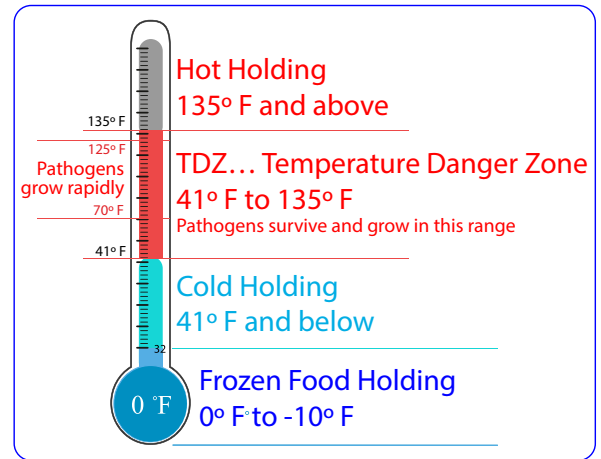
TIME-TEMPERATURE ABUSE
Food being held in the
Temperature Danger Zone (TDZ)
41°F (5°C) - 135°F 57°C
is being temperature abused

Thermocouples and thermistors

- Measure temperature through a metal probe
- Display temperatures digitally
- Come with interchangeable probes:
 - Immersion probe
 - Surface probe
 - Penetration probe
 - Air probe
- Have a sensing area on the tip of their probe

Infrared (laser) thermometers

- Used to measure the surface temperature of food and equipment
- Hold as close to the food or equipment as possible and remove anything between the thermometer and the food, such as packaging or equipment. Many jurisdictions do not allow using an infrared thermometer for taking temperature of food because this type of thermometer only records a surface temperature. be sure to check with your local regulatory authority



Commonly used thermometers, Left to right: Bimetallic stemmed thermometer, general purpose use; Digital Thermometer, general purpose use, popular due to its instant-read capabilities; Laser or Infrared, best used for measuring equipment temperatures because it only provides a surface reading; Air Temperature Thermometer, generally used inside refrigeration equipment

Maximum registering tape

- This thermometer indicates the highest temperature reached during use and is used where temperature readings cannot be continuously observed. It works well for checking final rinse temperatures inside dish washing machines

Time-temperature Indicator (TTI)

- These are tags are attached to packaging by the supplier. A color change appears in the window if the food has been time-temperature abused during shipment or storage. This color change is not reversible, so you know if the food has been abused.

General Thermometer Guidelines:

Keep thermometers and their storage cases clean. Wash, rinse, and sanitize thermometers after each use.

- Measure internal temperature of food by inserting the thermometer stem or probe into the thickest part of the product (usually the center)
- Take at least two temperature readings in different locations
- Open containers and take internal temperature
- Insert the thermometer stem or probe between two packages if they cannot be opened. As an alternative, fold packaging around the thermometer stem or probe.
- Wait at least 15 seconds for the thermometer reading to steady before recording the temperature of the food item
- Calibrate thermometers regularly to ensure their accuracy (before each shift or before each delivery or after being dropped)

Calibrating the thermometer using the "Ice Point" Method

- Fill a large container with ice and tap water
- Lock the adjusting nut in the part of the sheath if provided, or use a common wrench around the nut
- Submerge the sensing area and wait 30 seconds
- Turn the dial to adjust the thermometer so it reads 32°F (0°C)



Section 5 - The Flow of Food: Purchasing, Receiving and Storage

General Purchasing and Receiving Principals

Purchase food only from approved and reputable suppliers, who:

- Have been inspected and are in compliance with applicable local, state and federal law

RECEIVING/INSPECTION
Proper inspection during receiving is important for food quality and food safety.

Receiving and Inspecting Food

- Schedule deliveries for off-peak hours when enough trained staff are available to promptly receive them
- Make specific staff responsible for receiving
- Provide staff with the tools they need, including purchase orders, thermometers, and scales
- Starts with a visual inspection of the delivery truck; look for signs of contamination, pests and the overall condition of the vehicle. If there are signs of problems, reject the delivery
- Continue by visually inspecting of food items and that 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

- Some food service operations receive food after-hours when they are closed for business. This referred to as a key drop delivery
- The supplier is given a key or other access to the operation to make the delivery. Products are then placed coolers, freezers, and dry storage areas. The delivery must be inspected once you arrive at the operation and meet the standard receiving criteria

Temperature Criteria for Deliveries:

Cold TCS food must be receive at 41°F (5°C) or lower, unless otherwise specified below:

- Live shellfish: Live oysters, mussels, clams, and scallops can be received at an air temperature of 45°F and internal temperature of 50°F. *Must be cooled to an internal temperature of 41°F (5°C) or lower in 4 hours*
- Shucked shellfish: oysters, clams, and scallops can be received at an air temperature of 45°F . *Must be cooled to an internal temperature of 41°F (5°C) or*



lower in 4 hours

- Shell eggs: Can be received at an air temperature of 45°F (7°C) or lower. *Must be cooled it to an internal temperature of 41°F (5°C) or lower in 4 hours*
- Milk (**must be pasteurized**): Can be received at an air temperature of 45°F (7°C) or lower. *Must be cooled it to an internal temperature of 41°F (5°C) or lower in 4 hours*
- **Hot TCS foods: Must be received at 135°F (57°C) or higher**

Frozen foods must be received frozen solid.

Reject frozen food if there is evidence of time and temperature abuse or thawing and refreezing

- Fluids or water stains in case bottoms or on packaging
- Ice crystals or frozen liquids on the food or packaging
- Thawing and refreezing shows that the food was time-temperature abused

Reject packaged items with:

- Tears, holes, or punctures in packaging
- Cans with swollen ends, rust, or dents
- Bloating or leaking (ROP food)
- Broken cartons or seals
- Dirty and discolored packaging
- Leaks, dampness, or water stains
- Signs of pests or pest damage
- Expired use-by/expiration dates
- Evidence of tampering

Recalled Items or Items Suspected of Having Caused a Foodborne Illness

Immediately remove them from inventory. Do not discard them, but label them with a clear sign that says **"DO NOT USE, DO NOT DISCARD."**

- If the item is suspected in a foodborne illness case, it is important to retain this item should the local regulatory agency decide to send it to a laboratory to test for pathogens.
- Recalled items, unused or partially used, should be kept until the vendor issues instructions to return or discard the product. Under either circumstance, it is imperative that the item be secured and not used!



Required Documents

Shellfish must be received with a **shellstock identification tag**

- Tags indicate when and where the shellfish were harvested
- Must be kept on file for 90 days from the date the last shellfish was used from its delivery container
- Fish that will be eaten raw or partially cooked must have documentation that shows the fish was correctly frozen before being received. Farm raised fish must have documentation stating the fish was raised to FDA standards. This documentation may be noted on the delivery invoice.
- Keep all documents for 90 days from the sale of the fish

Assessing Food Quality

Appearance:

Reject any food that is moldy or has an abnormal color.

PERISHABLE KEEP REFRIGERATED	Name of Firm Address Address Phone # (---) -----	
	Facility Cert. # FL XXXX SS	Wholesale or AQ # XXXXXX
○	ORIGINALS SHIPPERS CERT. NO. (IF OTHER THAN ABOVE): _____	
	HARVEST DATE: _____	
	HARVEST AREA, NAME, OR #: _____	
	TYPE OF SHELLFISH: _____	
	QUANTITY OF SHELLFISH: _____	
	SELL BY: _____	
THIS TAG IS REQUIRED TO BE ATTACHED UNTIL CONTAINER IS EMPTY OR IS RETAGGED AND THEREAFTER KEPT ON FILE, IN CHRONOLOGICAL ORDER, FOR 90 DAYS.		
RETAILERS: DATE WHEN LAST SHELLFISH FROM THIS CONTAINER SOLD OR SERVED _____		

Texture:

- Reject any meat, fish, or poultry with a slimy, sticky, or dry texture, or if it has soft flesh that leaves an imprint when touched

Odor:

- Reject any food with an abnormal or unpleasant odor

General Storage Guidelines

When food is stored improperly and not used in a timely manner, quality and safety suffer. Poor storage practices can cause food to spoil more quickly.

Labeling food packaged on-site for retail sale, e.g. "Grab and Go"

- Common name of the food or a statement clearly identifying it
- Quantity of the food
- If the item contains two or more ingredients, list of the ingredients and sub-ingredients in descending order by weight
- List of artificial colors and flavors and 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

- Label all potentially hazardous food prepared on-site that will be held for longer than 24 hours with the name of the food and the date it should be sold, consumed or discarded
- All TCS ready-to-eat food that has been prepared in-house can be stored for a maximum of seven days at 41°F or lower before it must be discarded

NOTE! - When determining the seven-day period above, the day the food is prepared is considered day one. For example: food prepared on July 1 must be disposed of by July 7; food prepared on July 15 must be disposed of by July 21.

- If a dish contains multiple ingredients with varying best-by/use-by dates, the earliest of those date should be used for the entire dish
- Containers of TCS food from a vendor, that have an expiration date less than seven days, must be labeled with that date

Temperaturess

- **Store TCS food at an internal temperature of 41°F or lower or 135°F or higher**
- Store frozen food at temperatures that keep it frozen
- All storage units have at least one air temperature measuring device that is accurate to +/- 3°F or +/- 1.5°C. Place the device in the warmest part of refrigerated units, and the coolest part of hot-holding units

Rotate food to use the oldest inventory first

Use the First-In, First-Out (FIFO) method of stock rotation

- FIFO is used to ensure that refrigerated, frozen and dry products are properly rotated during storage
- First identify a product's use-by or expiration date, then store products to ensure the oldest are used first, by placing products with the earliest use-by or expiration dates in front of products with later dates
- Discard food that has passed its manufacturer's expiration date
- **Store all items away from walls and at least six inches (15 cm.) off the floor**
- Single-use items (e.g., sleeve of single-use cups, single-use gloves) must be stored in original packaging.
- Store food only in designated storage areas



Product	Tuna salad		
Date	5/3/24	Use By	5/9/24
Time	9:15	AM ☒ PM ☐	Initials BD

Ecolab® Daydots™

**UNLABELED FOODS
must be discarded if the
preparation date cannot
be verified.**

- Food products should never be stored near chemicals or cleaning supplies, in the restrooms, locker rooms, janitor closets, or under stairways or pipes
- Store dirty linens and other soiled items as far from food as possible
- Storage areas must be kept clean and dry
- Clean floors, walls, and shelves regularly and wipe or mop up any spills as quickly as possible

Prevent cross-contamination

- Store food **ONLY** in containers intended for food
- Use containers that are durable, leak proof, and able to be sealed or covered
- **NEVER** use empty food containers to store chemicals
- **NEVER** store food in empty chemical containers
- Store opened dry foods (e.g., sugar, flour, rice, beans) only in approved food safe containers with tight fitting lids and clear labels

Refrigerated Storage

Refrigerated storage is typically used to hold TCS food at 41°F or lower. The following rules apply to storing food in refrigeration:

- Set refrigerators to the proper temperature - Check the temperature of the refrigerator at least once during each shift. Place hanging thermometers in the warmest part of the refrigerator (typically near the door)
- Monitor food temperature regularly - randomly sample the internal temperature of stored food
- Do not overload the refrigerator which prevents air flow and causes the unit to work harder to maintain proper temperature
- Use open shelving to allow air to circulate around containers
- Never place hot food in the refrigerator - (they are not intended for cooling down hot food and doing so can warm the interior and put other foods into the temperature danger zone)

Produce, raw meat, poultry and fish should be stored in this top-to-bottom order in refrigerators

- Produce or any ready-to-eat food
- Whole fish
- Whole cuts of beef and pork
- Ground meat and fish
- Whole and ground poultry
- Store cooked or ready-to-eat foods above raw meat, poultry and fish to prevent cross-contamination
- Order is based on required minimum internal cooking temperatures

Frozen Storage

- Freezing does not kill all bacteria, but does substantially slow their growth
- Frozen foods must be kept at temperatures that keep them frozen solid

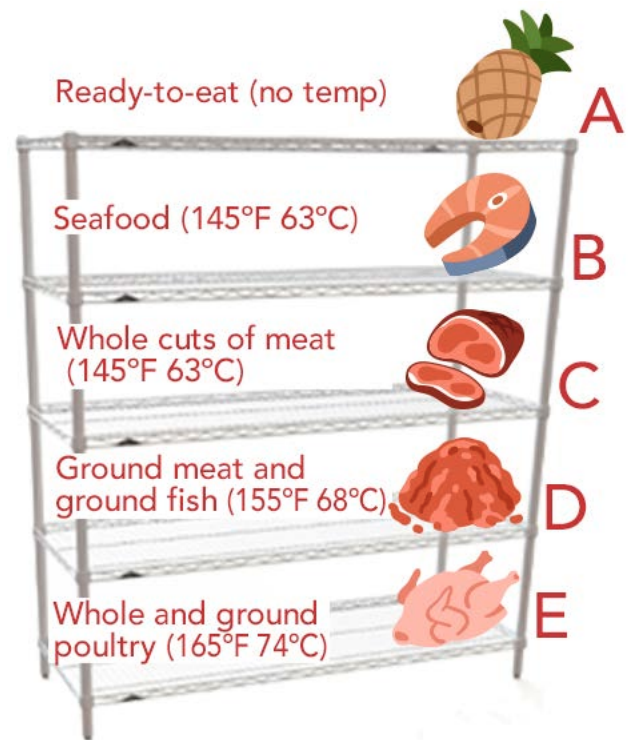
Dry Storage

- These areas should be kept between 50°F and 70°F with a relative humidity of 50 to 60 percent
- Clean the floors and walls of storage areas regularly as needed, or as specified on the Master Cleaning Schedule
- **Everything, everywhere, must be store away from walls and 6" off the floor**

Storing Specific Foods

Ice-Packed:

- Ice-packed poultry or whole fish can be stored in a refrigerator in self-draining containers. Change the ice



often. Clean and sanitize the container as required

Shellfish

Live molluscan shellfish (clams, oysters, mussels, scallops in the shell) can only be stored in a display tank under one of two conditions:

- The tank carries a sign stating the shellfish are for display only
- A variance has been granted by the local regulatory authority to serve the shellfish on display

Section 6 - The Flow of Food: Preparation

General Principles

- Before beginning preparation, make sure all work surfaces and utensils have been cleaned and sanitized.
- Work with smaller quantities of cold foods at one time to prevent time and temperature abuse
- Cook prepared foods or return them to refrigeration units as quickly as possible

Present food honestly

Present food only in the way it is described (i.e. if a menu offers "Fried Perch," another fish cannot be substituted without the customer's approval)

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

- Food additives or color additives
- Colored overwraps
- Lights

Thawing Food Properly

If food is thawed improperly, microorganisms that may be present can rapidly grow to unsafe levels. To prevent this, **NEVER thaw food at room temperature.**

There are only four acceptable methods for thawing food:

- In a refrigerator at 41° F or lower (this is the safest method)
- Submerged under **running potable water** at a temperature of **70°F or lower** that is **flowing strong enough to wash away any surface contaminants**
- In a microwave oven, only if the food will be cooked immediately after thawing
- As part of the cooking process (i.e., placing a frozen burger directly on the grill)

**PROPER THAWING
requires following
one of these four
approved methods.**

Thawing ROP (Reduced Oxygen Packaging aka Vacuum Packed) Fish

ROP Fish must be removed from its packaging:

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

Preparing Specific Food

Eggs and Egg Mixtures

Untreated eggs are considered a potentially hazardous food because they are able to support the rapid growth of microorganisms. Pooled eggs are eggs that are cracked open and combined into a common container.

- Handle pooled eggs (if allowed) with special care; bacteria in one egg can spread to the rest of the eggs
- Containers used to hold pooled eggs must be washed and sanitized before holding another batch
- Promptly clean and sanitize all equipment and utensils
- Consider using pasteurized shell eggs or pasteurized egg products. This is especially important when preparing egg dishes requiring little or no cooking

Operations that serve high-risk populations must also take special care when serving eggs

- Pasteurized eggs or egg products must be used when dishes will be served raw or undercooked
- Unpasteurized shell eggs may be used in dishes cooked all the way through (such as omelets and cakes)
- If shell eggs will be pooled for a recipe, they must be pasteurized

Produce

- Make sure produce does not come into contact with surfaces exposed to raw meat, seafood, or poultry
- Wash fruit and vegetables thoroughly (without gloves to feel dirt and grit) under running water to remove dirt and other contaminants before cutting, cooking, or combining with other ingredients
- NEVER mix multiple items or items from different batches if they will be stored in standing water or ice slurry
- Refrigerate and hold cut melons at 41°F or lower since they are potentially hazardous food
- If your establishment primarily serves high-risk populations, do not serve raw seed sprouts



Ice

- Treat ice as food
- Ice that will be consumed or used to chill food must be made from clean (potable) drinking water
- Never use ice used to chill food or beverages as a food or drink ingredient
- Use a clean, sanitized container and ice scoop to transfer ice from an ice machine to other containers
- Store ice scoops outside of the ice machine in a sanitary, protected location
- **Never** let hands come into contact with ice, and **never** use a glass to scoop ice

Preparation Practices That Require a Variance

You may need to obtain a variance to do one of the following procedures. To receive this variance, the local regulatory authority may also require you to develop a Hazard Analysis Critical Control Point (HACCP) plan (covered in Chapter 8).

- Smoking food or using food additives as a method of food preservation
- Curing food
- Custom-processing animals for personal use
- Packaging food using a reduce-oxygen packaging method (ROP)
- Prepackaging unpasteurized juices
- Serving seed or bean sprouts

Cooking Food

The only way to reduce pathogens to safe levels is to cook food to its minimum internal cooking temperature. While cooking food reduces most microorganisms to safe levels, it does not destroy any spores or toxins those organisms may have created in the food.

- The temperature at which foodborne pathogens are destroyed varies from product to product
- Minimum standards have been developed for most cooked food and are included in local and state health codes. These may vary from the FDA Model Food Code
- The internal portion of the food must reach and hold this temperature for a specific amount of time. An example is a large roasts which needs to hold its temperature for 4 minutes
- Check the temperature of cooked foods in the thickest part of the food, taking multiple readings

Partial (Par) Cooking

When partially cooking meat, seafood, poultry, or 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
- Heat the food to its required minimum internal temperature before selling or serving it
- Cool the food if it will not be served immediately or held for service

PAR COOKING
is partially cooking food during a slow period when it wouldn't be possible to fully cook at the time of service.

Minimum Cooking Temperature	Types of Food / Methods of Cooking
135° F No minimum time	• Fruits and vegetables • Grains (rice/pasta) • Legumes (beans, refried beans) that will be held for hot service • Reheated commercially processed and packaged ready-to-eat food
145° F Hold for 15 seconds *Roasts - 4 minutes	• Seafood - including fish, shellfish, and crustaceans • Steaks/chops of pork, beef, veal, and lamb • Roasts* • Commercially raised game • Shell eggs that will be served immediately
155° F Hold for 17 seconds	• Ground meat - beef, pork, other meats • Ground seafood (includes chopped and minced seafoods) • Sausage • Brined hams and flavor injected meats • Shell eggs that will be held for hot service
165° F Less than one second (Instantaneous)	• Poultry - whole or ground chicken, turkey, or duck • Stuffing - stuffed meat, fish, poultry, and pasta • Food reheated for hot holding • TCS Foods cooked in the microwave ○ Cover food to prevent surface from drying out ○ Rotate/stir halfway through cooking ○ Let stand for 2 min. after cooking to allow temperature to equalize ○ Check temperature in several places to assure thorough/even cooking • Food reheated for hot holding

Microwave Cooking

Meat, seafood, poultry and eggs cooked in a microwave oven must reach an internal temperature of 165° F.

- Cover the food to prevent drying and splattering
- Rotate and stir the food half-way through the cooking process
- Allow the food to stand with the cover on for two minutes after cooking to allow even heat distribution
- Take the temperature of the food after standing in at least two places



Consumer Advisories

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

- Note it on the menu next to any item offered raw or undercooked with an asterisk (*)
- Place a footnote at the menu bottom indicating the item is offered raw, undercooked, or contains raw or undercooked ingredients
- **The FDA and Florida approved Consumer Advisory is, “*Consuming raw or undercooked meats, poultry, seafood, shellfish, or eggs may increase your risk of foodborne illness, especially if you have certain medical conditions”**

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 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 E Coli.

Operations that serve High Risk populations should NEVER serve:

- Raw seed sprouts
- Raw or undercooked eggs, meat, or seafood
- Over-easy eggs
- Raw oysters on the half shell
- Rare hamburgers

Cooling Food

Cooked food must be cooled from 135° F to 70° F within two hours. Then from 70° F to 41° F or lower in the next four hours.

- Since only two hours are allowed to cool food to 70°F, potentially hazardous food is passed through the middle of the temperature danger zone (its most dangerous part) quickly and safely
- **If the food has not reached 70° F within two hours, it must be discarded or reheated to 165° F and then cooled again**
- Once food has cooled to 70°F, it can be placed in the walk-in cooler to continue cooling to 41°F or lower in the next four hours

Methods for Cooling Food

- Refrigerators should not be used to cool hot food, since most are not designed to cool it quickly enough
- Large food items can be cut into smaller pieces, or large containers of food can be divided into smaller containers to speed cooling

Safe Methods for Cooling Food

- Place food in an ice-water bath

- After dividing food into smaller containers, place them into a sink or large pot filled with ice water.
- **NOTE: Stainless steel containers transfer heat much better than plastic and are, therefore, better for cooling.**
- Stir the food frequently to cool it faster and more evenly

- **Stir the food with an ice paddle** (shown, *San Jamar Rapi-Kool Plus Cold Paddle*)

- Plastic paddles are available that can be filled with ice or with water and then frozen. Food stirred with these paddles will cool quickly
- Food cools even faster when placed in an ice-water bath and stirred with an ice paddle
- Always wash, rinse and sanitize ice paddles before and after use. Store them in an area of the freezer where they will not become contaminated

- **Place food in a blast chiller**

- Blast chillers blast cold air across food at high speeds to remove heat. They are useful for chilling large food items such as roasts
- **Use ice or cold water as an ingredient at the end of the cooking process**



Reheating Food

Food reheated for immediate service:

Can be reheated to any temperature if it was initially cooked and cooled correctly

Food reheated for hot-holding:

- Must be reheated to an internal temperature of 165° F (74° C) for 15 seconds within two hours
- Reheat commercially processed/packaged ready-to-eat food to an internal temperature of 135° F (57°C)
- **DO NOT** use hot-holding equipment to reheat food unless it is built to do so

Section 7 - The Flow of Food: Service

General Rules for Holding Food

- Check the temperature of TCS foods at least every four hours
- Checking temperatures every 1-2 hours will allow time for corrective action to be taken to heat or cool the food that is out of the temperature danger zone
- Maintain a temperature log and enforce regular temperature readings
- Throw out food not at 135°F or higher or 41°F or lower
- Establish a policy ensuring that food being held for service will be discarded after a predetermined amount of time
- Prepare food in small batches so it will be used quickly

FAILING TO COOL FOOD properly after hot holding is a leading cause of foodborne illness.

Hot Food

TCS food must be held at an internal temperature of 135°F or higher

- Only use hot-holding equipment that can keep food at the proper temperature
- Never use hot-holding equipment to reheat food if it is not designed to do so
- Stir food at regular intervals to distribute temperature evenly

Cold Food

TCS food must be held at an internal temperature of 41°F or lower

- Only use cold-holding equipment that can keep food at the proper temperature
- Do not store food directly on ice

Holding Food without Temperature Control

TCS foods can be displayed or held without temperature control for limited periods of time as long as certain conditions are met. TCS foods **CANNOT** be held without temperature control when serving high-risk populations.

Cold TCS Foods

Cold food can be held without temperature control for up to six hours if:

- It was held at 41°F or lower prior to removing it from refrigeration
- It does not exceed 70°F during the six-hour holding period
- The food is sold, served or thrown out within six hours
- The food has a label that specifies at what time it was removed from refrigeration and at what time it must be discarded, including if the food achieves a temperature of 70° F

Alternatively, cold food can reach any temperature if it is appropriately labeled and disposed of within 4 hours.

Hot food can be held for up to four hours if:

- It was held at 135°F or higher prior to removing it from temperature control
- It contains a label specifying when it should be thrown out
- It is sold, served or discarded within four hours

Serving Food Safely

- Kitchen Staff Guidelines

- Use clean and sanitized utensils for serving
- Use separate utensils for each food
- Use serving utensils with long handles
- Serving utensils can be stored in food with the handle extended above the rim of the container
- Minimize bare-hand contact with food that is ready-to-eat or cooked
- Handle food with tongs

- Serving Staff Guidelines

- Glassware and dishes should be handled properly
- The food-contact areas of plates, bowls, glasses or cups should not be touched. Dishes should be held by the bottom or the edge. Cups should be held by their handles, and glassware should be held by the middle, bottom or stem
- Glassware and dishes should not be stacked when serving
- Flatware and utensils should be held at the handle
- Minimize bare-hand contact with food that is cooked or ready-to-eat
- Use ice scoops or tongs to get ice

- Bar or Lounge Area Guidelines

- All of the above guidelines also apply to the bar area
- Fruits and garnish used in drinks should be treated as ready-to-eat food
- Milk and cream are TCS food and need time and temperature control



- Bartenders and other bar staff need to know the Big 6 Pathogens and exclusion and restriction rules

- Preset Tableware

Table settings do not need to be wrapped or covered if:

- Extra settings are removed when guests are seated; or
- Extra settings that remain on the table are cleaned and sanitized after guests have left

Re-serving Food Safely

Servers and kitchen staff should know the rules about re-serving food that has been previously served to a customer. Here are some guidelines:

- You should never re-serve:

- Menu items returned by one customer to another
- Plate garnishes
- Uncovered condiments
- Uneaten bread or rolls

- In general, only the following unopened, prepackaged food should be re-served:

- Condiment packets
- Wrapped crackers or bread sticks

- Take-home containers

Food containers can be refilled only when the containers are:

- Designed for reuse
- Provided to the guest by the operation
- Cleaned and sanitized correctly if reused for the same customer

- Take-home beverage containers can be refilled if the:

- Beverage is not a TCS food
- Container is refilled for the same guest
- Container can be effectively cleaned
- Container is rinsed with fresh, hot water under pressure before refilling
- Container is refilled by staff in the operation or by the guest using a process that prevents contamination

Self-Service Areas

Food bars and buffets should be monitored by employees trained in food safety. Here are guidelines for keeping food safe on food bars and buffets:

- Install sneeze guards 14" above the food counter and extend 7" inches beyond the food
- Keep hot food hot, 135°F or higher. Keep cold food cold, 41°F or lower
- Label all containers located on self-service areas, include food type and allergy information
- Do not allow customers to refill soiled plates or use soiled silverware at the food bar



Off Site-Service

To transport food safely, follow these procedures:

- Pack food in insulated food containers that can keep food at 135°F or higher, or 41°F or lower. These containers should include a lid that protects foods from dripping, mixing or spilling.
- Delivery vehicles should be clean.
- Label food with use-by-date and time, and reheating and service instructions

Section 8 - Food Safety Management Systems

Food safety management systems are a group of practices and procedures intended to prevent foodborne illness. The goal of a food safety management system is it actively controls risks and hazards throughout the flow of food.

Effective Food Safety Management System

For your Food Safety Management System to be effective, you must first have the necessary food safety programs in place:

- Personal hygiene
- Supplier selection specification
- Quality control and assurance program
- Food safety training
- Cleaning and sanitation
- Facility design and equipment maintenance program
- Standard operating procedures (SOPs)
- Pest control program

Active Managerial Control

A proactive approach to addressing the five most common risk factors responsible for foodborne illness, as identified by the Centers for Disease Control and Prevention (CDC).

These risk factors include:

- Purchasing food from unsafe sources
- Failing to cook food adequately
- Holding food at improper temperatures
- Using contaminated equipment
- Poor personal hygiene

The Active Managerial Control Approach

To use active managerial control to manage food safety risks, you must follow these steps:

- Consider the five risk factors as they apply throughout the flow of food and identify any issues that could have an impact on food safety
- Based on knowledge and science, develop policies and procedures that address the issues that were identified
- Regularly monitor, oversee or inspect the policies and procedures that have been developed
- If deviations from the policies or procedures are observed, take immediate corrective action
- Coach or retrain staff as needed
- Verify that the policies and procedures you have established are actually controlling the risk factor

Hazard Analysis Critical Control Point (HACCP)

A food safety management system may also include a Hazard Analysis Critical Control Point (HACCP) system to control risks and hazards throughout the flow of food. A HACCP system is based on the idea that if significant biological, chemical or physical hazards are identified at a specific point with a product's flow through the operation, they can be prevented, eliminated or reduced to safe levels.

It is documented in a written plan which is based on these **7 HACCP Principles**:

1. Conducting a Hazard Analysis

Identifying biological, chemical or physical hazards that uncontrolled may cause illness or injury

2. Determining the Critical Control Points

These are the points in the food handling process where a lack of control may results in a health risk. Cooking, cooling, or refrigerating TCS foods are examples of CCPs

HACCP
(pronounced hass-sip)
is a sophisticated food
safety system that is
required for certain
critical procedures.

3. Establish Critical Limits

These are numeric values, usually maximum and minimum values established by law or regulation, like required cooking temperatures

4. Establish Monitoring Procedures

Assuring that critical limits are met by observing or taking temperatures

5. Establishing Corrective Actions

Employees need to be trained to take corrective actions when critical limits are not met. Some examples of corrective actions are continuing to cook food that has not reached the correct temperature, rejecting an item at receiving, or discarding an item that has been time-temperature abused

6. Establish Verification procedures

It is important to verify that the system is operating according to the plan. In order to control hazards, the plan must be, and remain, scientifically sound. Managers must periodically observe employees activities, test measuring equipment, and review records

7. Establish Record Keeping Procedures

Solid record keeping helps to verify that the plan is followed as planned, and that food safety is assured. Records are kept to verify monitoring, corrective actions taken, and equipment calibration as examples

Section 9 - Safe Facilities and Pest Management

Designing a Sanitary Establishment

A well-designed food establishment must have a layout and work flow that minimizes:

- Amount of time food spends in the temperature danger zone
- Number of times food is handled
- Risks of cross-contamination
- Dirty equipment touching clean equipment or food

Equipment must be:

- Durable
- Corrosion-resistant
- Nonabsorbent
- Sufficient in weight and thickness to withstand repeated cleaning
- Smooth and easy to clean
- Resistant to pitting, chipping, scratching, scoring, distortion and decomposition

Example - cutting boards should not be made of soft woods such as pine

Sanitation Standards for Facilities and Equipment

The presence of the NSF mark on food service equipment means that it has been evaluated, tested, and certified by National Sanitation Foundation International as meeting international commercial food equipment standards. The UL EHP label, Underwriters Laboratories, Inc. for Environmental and Public Health is an alternate mark to look for. Both of these organizations have been accredited by the American National Standards Institute (ANSI) indicating that they comply with the food code. The local regulatory authority can also allow or disallow equipment selections.

Flooring

- Non-slip surfaces should be used in high-traffic areas and are best for the entire kitchen
- Rubber mats are recommended in areas where standing water may occur
- Coving is required in any establishment using resilient or hard-surface flooring materials

Coving is a curved, sealed edge placed between the floor and the wall. Coving is designed to eliminate sharp corners or gaps that would be difficult to clean.

Installing and Maintaining Kitchen Equipment

Floor-mounted equipment must be either:

- Mounted on legs at least six inches (15 centimeters) high
- Or sealed to a masonry base

Tabletop equipment should be either:

- Mounted on legs at least four inches (10 centimeters) high
- Or sealed to the counter top

Hand Washing Stations

Hand washing stations must be conveniently located so employees will be encouraged to wash their hands often.

- These stations are required in food-preparation areas, service areas, dish washing areas, and restrooms

Hand washing stations must be equipped with the following:

- Hot and cold running water which is supplied through a mixing valve or combination faucet, at 85° F
- Liquid (generally preferred), bar, or powdered soap
- A means to dry hands - many local codes require establishments to provide disposable paper towels, although a warm air dryer may provide an alternative if paper towels are depleted
- Waste container
- Signage indicating employees must wash hands before returning to work

Utilities

Water and Plumbing

- Water that is safe to drink is called potable water. Sources of potable water include:
 - Approved public water mains
 - Private water sources (well water) that are regularly maintained and tested annually with reports kept on file in the establishment
 - Bottled drinking water or water held in safe containers or storage tanks
 - Water transport vehicles that are properly maintained

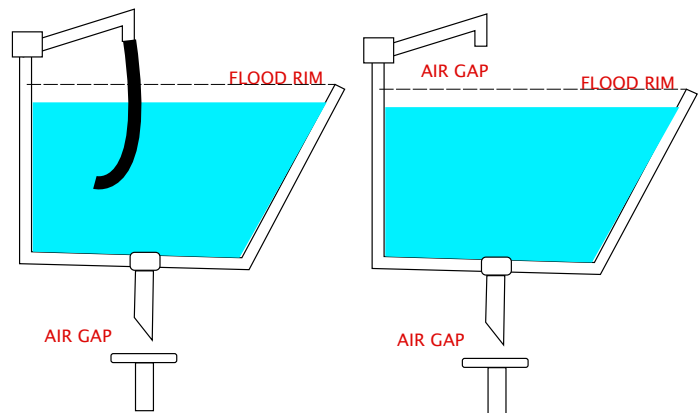
Cross-connections

A cross-connection is a link between safe and unsafe water, where contaminants from drains, sewers, or other wastewater sources can enter a potable water supply.

- A cross-connection is dangerous because it allows the possibility of backflow, the unwanted reverse flow of contaminants through a cross-connection, into a potable water supply.
- Backflow can occur when the pressure in the potable water supply drops below the pressure of the contaminated supply.
- A running faucet located below the flood rim of a sink or a running hose in a mop bucket are examples

Backflow Prevention

- The only completely reliable method for preventing backflow is creating an air gap which is an air space used to separate a water supply outlet from any potentially contaminated source
- A properly designed sink typically has two air gaps to prevent backflow - one between the faucet and the flood rim of the appliance and the other between the drain pipe of the sink and the floor drain



Grease Buildup in Pipes

Grease traps can be installed to prevent grease from blocking drains. They must be:

- Installed by a licensed plumber
- Easy to access
- Cleaned regularly

Lighting Intensity requirements

MINIMUM INTENSITY	AREAS
108 lux (10 foot candles)	Dry storage, walk-in refrigerator and freezer, all other areas while cleaning
215 lux (20 foot candles)	Reach-in refrigerator and freezer, self service area: buffet, salad bar, restroom, handwashing area, warewashing area, utensil storage
540 lux (50 foot candles)	Food prep area, area with dangerous equipment: slicer, band saw, etc.

Lighting

Good lighting generally results in easier and more effective cleaning as well as a safer work environment. Building and health codes usually set minimum acceptable levels of lighting in establishments.

Lighting intensity requirements are different for various areas in the establishment

- Generally, the brightest level is required in food prep areas
- Lighting intensity is measured in Lux or Foot Candles at 30 inches above the floor

To prevent lighting from contaminating food, use the following:

- Shatter-resistant light bulbs
- Protective covers made of metal, mesh or plastic
- Shields for heat lamps

Ventilation Systems

- Ventilation improves the air inside an operation
- Ventilation systems must be cleaned and maintained according to manufacturer's recommendations and/or local regulatory requirements
- A buildup of grease, dust and condensation on vents, walls and ceilings may indicate a lack of cleaning and maintenance in your ventilation system



Garbage Disposal

Garbage should be removed from food-preparation areas as quickly as possible to prevent odor, pests, and possible food and surface contamination

- Indoor garbage containers must be:

- Leak proof, waterproof, and pest proof
- Easy to clean
- Covered when not in use with tight-fitting lids
- Cleaned frequently inside and out, away from food, utensils, and food prep areas

- Outdoor garbage containers must have designated storage areas:

- Store waste and recyclables away from food and food-contact surfaces
- Placed on a hard surface... concrete or asphalt
- Tight-fitting lids, closed at all times
- Drain plug in place
- Storage must not create a nuisance or a public health hazard



Imminent Health Hazards: Emergencies Effecting the Facility

Hazards requiring the closure of an establishment include:

- Lack of refrigeration
- Backup of sewage into the establishment or its water supply is cause for immediate closure, correction of the problem, and thorough cleaning
- An emergency such as a building fire or flood
- Serious infestation of insects or rodents
- Interruption of electrical or water service
- Evidence of foodborne illness outbreak

Integrated Pest Management

Pests can damage food supplies and facilities and can spread diseases, including foodborne illness. Keeping your establishment clean will help prevent food from becoming contaminated. It will also keep pests from thriving because a clean establishment offers pests little in the way of food and shelter. There are three basic rules of an IPM program:

- Deny pests access to the establishment
- Deny pests food, water, and shelter
- Work with a licensed PCO to eliminate pests that do enter



Deny Pests Shelter

- Throw out garbage quickly and correctly
- Maintain garbage containers and storage areas:
 - Keep containers clean and in good condition
 - Keep outdoor containers tightly covered
 - Clean up spills around containers immediately
- Store recyclables correctly:
 - Keep recyclables in clean, pest-proof containers.
 - Keep containers as far away from the building as regulations allow.

Denying Pests Access to the Establishment

To keep pests out of the establishment, you should pay particular attention to the following:

- Deliveries
- Doors, windows, and vents
- Cracks or openings around pipes. All repairs should be tight-fitting, permanently sealed and not a temporary fix
- Floors and walls
- Install air-curtains (also called air-doors or fly-fans) above or along the sides of doors

Denying Pests Food

A clean and sanitary establishment offers pests little in the way of food and shelter. Deny pests food.

- Throw out garbage quickly and correctly
- Store all food and supplies properly and as quickly as possible
- Monitor food and supplies for signs of damage

Working with the Pest Control Operator

While you can handle most prevention measures, most control measures should be handled by a licensed Pest Control Operator (PCO). Your PCO should decide if and when pesticides should be used in your establishment.



Contact your PCO immediately if you see these or any other pest-related problems:

- Feces or droppings especially near baseboards
- Nests
- Damage to products, packaging, and the facility itself

Using and Storing Pesticides

- Purchase pesticides from an approved vendor
- Store pesticides away from food and utensils, and food preparation areas

Section 10 - CLEANING AND SANITIZING

Cleaning is the process of removing food and other types of soil from a surface, while sanitizing is the process of reducing the number of microorganisms on a clean surface to safe levels.

- Surfaces must first be cleaned and rinsed before being sanitized
- All surfaces in an establishment must be kept clean, however, any surface that comes in contact with food, such as knives, utensils, and cutting boards, must be cleaned and sanitized

All food-contact surfaces must be washed, rinsed, and sanitized:

- Before and after each use
- Anytime you begin working with another type of food
- After a task has been interrupted and the items may have been contaminated
- At four-hour intervals if the items are in constant use

Cleaning Agents

Cleaning agents are chemical compounds that remove food, soil, rust, stains, minerals and other deposits. Cleaning agents must be safe, stable and noncorrosive.

When using cleaning agents:

- Follow manufacturers' instructions carefully
- Never combine cleaners or attempt to create cleaning agents
- Do not substitute one type of detergent for another unless the intended use is stated clearly on the label

Detergents/Degreasers

- Detergents are mildly alkaline, and are used with hot water to lift soil away from surfaces so the soil can be rinsed away. The detergent used in the first bay of the 3-bay pot sink is an example.
- Degreasers are stronger cleaning agents used to remove grease from areas like the kitchen floor, or cleaning the exhaust hoods

Delimers/Acid Cleaners

Delimers remove mineral deposits that burn onto heating elements. You would run two or three cycles weekly in the dish machine to remove these deposits.

Abrasive Cleaners

Abrasive cleaners contain fine particles of various minerals that scrape burned on soil from pots and pans, or equipment surfaces. Be sure to rinse thoroughly after using an abrasive cleaner!

Sanitizing

There are two methods used to sanitize surfaces - heat sanitizing and chemical sanitizing.

Heat Sanitizing

One way to sanitize utensils, tableware and equipment is to immerse the items in hot water for at least 30 seconds. The water must be at least 171°F, which is not possible in most operations without a hot water booster at the 3-bay pot sink. An alternative method for heat sanitizing is a high-temperature dishwashing machine which uses a 180° hot

water rinse to sanitize utensils, tableware and other items.

Chemical Sanitizing

When hot water sanitizing is not possible, chemicals can be used to sanitize utensils, tableware and equipment.

The three most common types are:

- Chlorine
- Iodine
- Quaternary ammonium compounds (quats)

Food-contact surfaces can be sanitized by immersing them in a specific concentration of sanitizing solution for a specific amount of time, or rinsing, swabbing, or spraying them with a specific concentration of sanitizing solution.

Sanitizer Effectiveness

Several factors influence the effectiveness of chemical sanitizers. The most critical include:

- Concentration: Chemical sanitizers are mixed with water until the proper concentration (ratio of sanitizer to water) is reached. Concentration is measured using a sanitizer test kit and is expressed in parts per million (ppm). The test kit should be designed for the sanitizer you are using and is usually available from the manufacturer or your supplier. If the sanitizing solution is mixed incorrectly, too weak, sanitizing is not taking place. If the solution is too strong, it may be harmful to the guests. A sanitizing solution must be changed when visibly dirty or when the concentration has dropped below the level required.

- Temperature: Follow the manufacturer's requirements for the correct temperature of the solution for the product you are using.

- Contact time: This is the minimum time the item being sanitized must be in contact with the sanitizer. It varies depending on the chemical used. Follow the manufacturer's recommendations.

- Water Hardness: Water hardness, the amount of minerals in the water, can determine the effectiveness of the sanitizing solution. After getting this information from your local water company, work with your chemical supplier to determine the proper concentration.

- pH: The level of acidity or alkalinity of your water can effect sanitizing. Again, work with your chemical supplier to determine the proper concentration.

Concentration range and contact times for various chemical sanitizers:

Chlorine (Bleach): 50 - 99 ppm for at least 7 seconds.

Iodine: 12.5 - 25 ppm for at least 30 seconds.

Quaternary Ammonium Compounds (Quats): PPM per manufacturer's recommendations, for at least 30 seconds.

Machine Dishwashing

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

- Clean the machine as often as needed, checking it at least once a day
- Pre-soak items with dried-on food
- Load dish racks so the water spray will reach all surfaces. Never overload dish racks
- Do not remove wet dishware from dishwasher until it has completely dried
- Never use a towel to dry items. They could become re-contaminated
- For heat sanitizing, the temperature of the final rinse in a high temperature machine must be at least 180°F

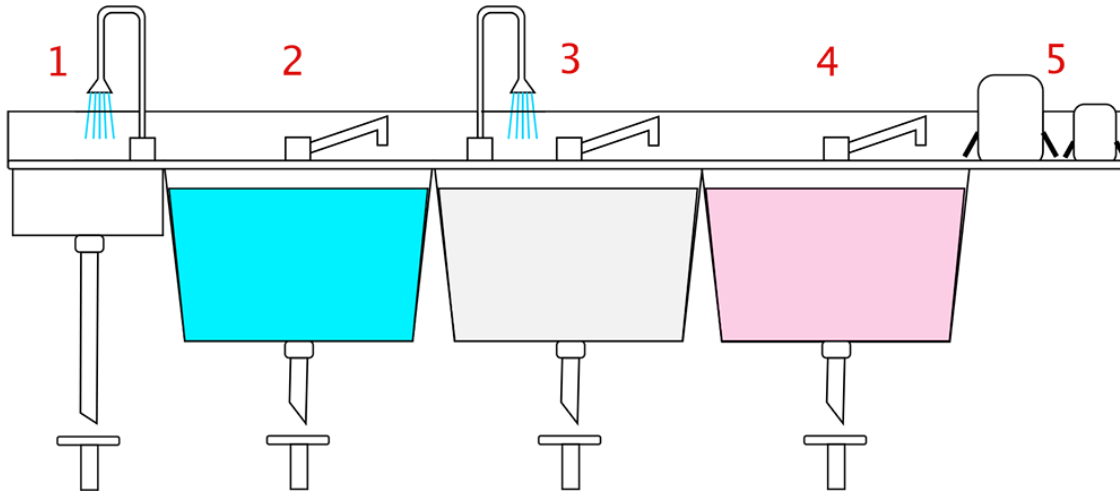


Cleaning and Sanitizing in a Three Compartment Sink

The three compartment sink is used to wash and sanitize utensils, pots and pans, If you do not have a dishwashing machine you may use a three-compartment sink to wash and sanitize plates, glassware and utensils as well. **Never use this sink for washing cleaning tools, filling or emptying the mop bucket, or handwashing!**

The proper step for a manual dishwashing station includes:

- Thermometer to measure water temperature.
- Clock with a second hand allowing employees to time how long items have been immersed in the sanitizing sink



Prior to cleaning and sanitizing items in a three-compartment sink, each sink and all work surfaces must be cleaned and sanitized.

STEP 1 - Rinse, scrape or soak items to prepare for washing.

STEP 2 - Wash items in the first sink in a detergent solution at least 110°F. Use a brush, cloth or nylon scrub pad to loosen the remaining soil. Water should be changed when the suds are gone or the water is dirty.

STEP 3 - Immerse or spray-rinse items in the second sink. Remove all traces of food and detergent. If using the immersion method, replace the rinse water when it becomes cloudy or dirty.

STEP 4 - Immerse items in the third sink in hot water or a chemical sanitizing solution. If hot water is used, it must be at least 171°F and the items must be immersed for thirty seconds. A heating device may be needed to maintain this temperature. If chemical sanitizing is used, the sanitizer must be mixed at the proper concentration and the water temperature must be correct; follow the manufacturer's directions.

STEP 5 - Air-dry items, upside down. Do not wipe dry, which risks re-contamination.

Cleaning and Sanitizing Equipment

All surfaces must be kept clean. This includes floors, walls, ceilings, storage shelves, cooking appliances, and garbage containers. However, any surface that touches food (food contact surfaces) such as knives, stockpots, cutting boards or prep tables, must be cleaned and sanitized.

- Scrape or remove food bits from the surface. Use the correct cleaning tool such as a nylon brush or pad, or a paper towel
- Wash: Prepare the cleaning solution with an approved detergent. Wash the surface with the correct cleaning tool such as a cloth towel
- Rinse: Using clean water, rinse the surface completely removing any detergent residue
- Sanitize: Prepare the sanitizing solution using the proper concentration per manufacturer requirements. Use the correct tool, such as a cloth towel, to sanitize the surface. Make sure the entire surface has come in contact with the sanitizing solution
- Allow the surface to air-dry. Drying with a cloth or rag may recontaminate the items

Wet wiping cloths:

- For wiping counters and other surfaces
- Store in sanitizer solution between uses
- Change the solution when necessary
- Keep cloths that contact raw meat, fish, and poultry separate from other cleaning cloths



Noble Products, webrestaurantstore.com

Dry wiping cloths:

- Used to wipe food spills from tableware
- Must be kept dry while in use
- Must NOT contain food debris or be visibly dirty

Cleaning up after people who get sick:

- Diarrhea and vomit must be cleaned up correctly
- They can carry Norovirus, which is highly contagious
- Correct cleanup can prevent:
 - Contamination of food
 - Spreading illness to others

Operations must have procedures for cleaning up vomit and diarrhea:

- Procedures must be specific.
- Employees must be trained on these procedures.

Tools for Cleaning

Cleaning tools and chemicals should be placed in a storage area away from food and food-preparation areas.

The storage area should provide:

- Utility or service sink for filling buckets and washing cleaning tools
- Never clean mops, or other tools in sinks designated for handwashing or dishwashing.
- Floor drain for dumping dirty water
- Hook for hanging mops, brooms and other cleaning tools allowing them to air-dry

Storing Utensils, 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. Tableware and utensils should be protected from dirt and moisture.

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



Developing a Cleaning Program

To develop a cleaning program, the needs of the establishment must first be identified and a **master cleaning schedule** must be created.

A master cleaning schedule would include:

- What should be cleaned
- Who should clean it
- When it should be cleaned
- How it should be cleaned

Train your staff and monitor the cleaning program:

- Supervise daily cleaning routines
- Check cleaning tasks against the master schedule every day
- Change the master schedule as needed
- Ask staff for input on the program, but once established, employee participation is mandatory

Glossary

A

Abrasive cleaners- Cleaners containing a scouring agent used to scrub off hard-to-remove soils. These cleaners may scratch some surfaces.

Acid cleaners- Acid cleaners are used on mineral deposits and other alkaline cleaners cannot remove, such as scale, rust and tarnish.

Acidity- Level of acid in a food. An acid substance has a pH below 7.0. Foodborne microorganisms typically do not grow in highly acidic food, while they grow best in food with a neutral to slightly acidic pH.

Active managerial control- Proactive approach for addressing the five most common risk factors responsible for foodborne illness as identified by the CDC. Managers must continuously monitor and verify the procedures responsible for controlling the risks.

Air curtain- Devices installed above and alongside doors that blow a steady stream of air across an entryway, creating an air shield around open doors. Insects avoid them. Also called air doors or fly curtains.

Air gap- Air space used to separate a water supply outlet from any potentially contaminated source. A properly designed and installed sink has air gaps to prevent backflow. The air space between the floor drain pipe of a sink is an example. An air gap is the only completely reliable method for preventing backflow.

Alkalinity- Level of alkaline in food. An alkaline substance has a pH above 7.0. Most food is not alkaline.

Allergy- Occurs when a person's immune system reacts to substances in the environment that are harmless to most people. These substances are known as **allergens** and are found in dust mites, pets, pollen, insects, ticks, molds, foods, and medicinal drugs.

American with Disabilities (ADA)- Federal law requiring reasonable accommodations for access to a facility by patrons and employees with disabilities.

Aseptically packaged food- Food that has been sealed under sterile conditions, usually after UHT-pasteurization.

B

Backflow- Unwanted reverse flow of unwanted contamination through a cross-connection into a potable water system. It occurs when the pressure in the potable water supply drops below the pressure of the contaminated supply.

Bacteria- Living, single-celled microorganisms that can cause food spoilage and illness. Some form a spores that can survive freezing and very high temperatures.

Bacterial growth- Reproduction of bacteria by splitting in two. When conditions are favorable, bacterial growth can be rapid, doubling the population as often as every twenty minutes. Their growth can be broken down into 4 phases: lag phase, log phase, stationary phase and death phase.

Bimetallic stemmed thermometer- The most common and versatile type of thermometer, measuring temperature through a metal probe with a sensor in the end. Most can measure temperatures from 0°F to 220°F (-18°C to 104°C) and are accurate to +2°F (+1°C). They are easily calibrated.

Biological hazard- Pathogenic microorganisms that can contaminate food, such as certain bacteria, viruses, parasites and fungi, as well as toxins found in certain plants, mushrooms, and fish.

Boiling-point method- Method of calibrating a thermometer based on the boiling of water.

Booster heater- Water heater attached to hot water lines leading to ware-washing machines or sinks. Raises water to temperatures required for heat sanitizing of tableware and utensils (180°F).

C

Calibration- Process of ensuring that a thermometer gives accurate readings by adjusting it to a known standard, such as the freezing point or boiling point of water.

Cantilever-mounted equipment- Equipment that is attached to a wall with a bracket, allowing for easier cleaning behind and

underneath.

Carrier- Persons without symptoms of illness who unknowingly carry pathogens and infect others.

Center for Disease Control and Prevention (CDC)- Agency of the U.S. Public Health Services that investigates foodborne illness outbreaks, studies the causes and control of disease, publishes statistical data, and conducts the Vessel Sanitation Program.

Chemical hazard- Chemical substances that can contaminate food, such as pesticides, food additives, preservatives, cleaning supplies, and toxic metals that leach from cookware and equipment.

Chemical sanitizing- Using a chemical solution to reduce the number of microorganisms on a clean surface to safe levels. Items can be sanitized by immersing in a specific concentration of sanitizing solution for a required period of time, or by rinsing, swabbing or spraying the items with a specific concentration of sanitizing solution.

Chemical toxins- Poisons found in some cleaning agents and pesticides, as well as the by-products of toxic-metal reactions.

Ciguatera poisoning- Illness that occurs when a person eats fish that has consumed the ciguatera toxin. This toxin occurs in certain predatory tropical reef fish, such as amberjack, barracuda, grouper and snapper.

Clean- Free of visible soil. It refers only to the appearance of a surface.

Cleaning- Process of removing food and other types of soil from a surface.

Cleaning agents- Chemical compounds that remove food, soil, rust, minerals, or other deposits from surfaces.

Cold-holding equipment- Equipment specifically designed to keep cold food at an internal temperature of 41°F (5°C) or lower.

Contact spray- Spray used to kill insects on contact. Usually used on groups of insects, such as clusters of roaches and nests of ants.

Contamination- Presence of harmful substances in food. Some contaminations occur naturally, while others are introduced by humans or the environment.

Corrective actions- Predetermined step taken when food does not meet a critical limit.

Coving- Curved, sealed edged placed between the floor and wall to eliminate sharp corners or gaps that would be impossible to clean. Coving also eliminates hiding places for pests and prevents moisture from deteriorating walls.

Critical control points (CCP)- In a HACCP system the points in the process where you can intervene to prevent, eliminate, or reduce identified hazards to safe levels.

Critical limit- In a HACCP system, the minimum or maximum limit a critical control point (CCP) must meet in order to prevent, eliminate, or reduce a hazard to an acceptable level.

Cross-connection- Physical link through which contaminants from drains, sewers, or other waste water sources can enter a potable water supply. A hose connected to a faucet and submerged in a mop bucket is an example.

Cross-contamination- The transfer of microorganisms from one surface or food to another.

D

Death phase- The phase in bacterial growth in which the number of bacteria dying exceeds the number growing, resulting in a population decline.

Demonstration- Process of illustrating a skill or task in front of another person or group.

Detergent- Cleaning agent designed to penetrate and soften soil to help remove it from a surface.

Dry storage- Storage used to hold dry and canned food at temperatures between 50°F and 70°F (10°C and 21°C) and at a relative humidity of fifty to sixty percent.

E

Environmental Protection Agency (EPA)- Federal agency that sets standards for environmental quality- and regulates pesticide use and waste handling.

Evaluation- Judging the performance of training participants against learning objectives.

F

FAT TOM- Acronym for the conditions needed by most foodborne microorganisms to grow: Food, Acidity, Temperature, Time, Oxygen, Moisture.

FDA Food Code- Science-based reference for retail establishments on how to prevent foodborne illness. These recommendations are written by the FDA to assist state health departments in developing regulations for a food service inspection program.

Feedback- Evaluation given to employees about their performance, including constructive criticism given to correct a mistake, or praise to reinforce proper performance of a skill or procedure.

Finger cot- Protective covering used to cover a properly bandaged cut or wound of the finger.

First in, First out (FIFO)- Method of stock rotation in which products are shelved based on their used-by or expiration dates, so oldest products are used first.

Flood rim- Spill-over point of a sink.

Flow of food- Path food takes through an establishment, from purchasing and receiving, through storing, preparing, cooking, holding, cooling, reheating, and serving.

Food allergy- The body's negative reaction to a particular food protein.

Food and Drug Administration (FDA)- The federal agency that writes the Food Code. FDA also inspects food service operations that cross state borders (interstate establishments such as food manufacturers and processors, and planes and trains). In addition, the FDA shares responsibility with the USDA for inspection food-processing plants.

Food bar- Self-service buffet at which patrons can choose what they want to eat as they serve themselves.

Food-contact surface- Surface that comes into direct contact with food, such as a cutting board.

Food-grade sealant- Nontoxic sealant used to seal equipment to a counter top or a masonry base.

Food irradiation- Process of exposing food to an electron beam or gamma rays to reduce pathogenic and spoilage microorganisms. Also known as cold pasteurization.

Food Safety and Inspection Service (FSIS)- Agency of the USDA that inspects and grades meat, meat products, poultry, dairy products, egg and egg products, and fruit and vegetables shipped across state boundaries.

Food Safety Management System- Group of programs and procedures designed to control hazards throughout the flow of food.

Food security- The prevention or elimination of the deliberate contamination of food.

Foodborne illness- Disease carried or transmitted to people by food.

Foodborne-illness outbreak- According to the CDC, an incident in which two or more people experience the same illness after eating the same food.

Foodborne infection- Result of a person eating food containing pathogens, which then grow in the intestines and cause illness. Typically, symptoms of a foodborne infection do not appear immediately.

Foodborne intoxication- Result of a person eating food containing toxins that cause an illness. The toxins may have been produced by pathogens found on the food or may be the result of a chemical contamination. The toxins might also be a natural part of the plant or animal consumed. Typically, symptoms of foodborne intoxication appear quickly, within a few hours.

Foodborne toxin-mediated infection- Result of a person eating food containing pathogens, which then produce illness-causing toxins in the intestines.

Foot-candle- Unit of lighting equal to the illumination one foot from a uniform light source.

Frozen storage- Storage typically designed to hold food at 0°F (-18°C) or lower. Some types of food require a different temperature.

Fungi- Ranging in size from microscopic, single-celled organisms to very large, multi-cellular organisms, fungi most often cause food spoilage. Molds, yeasts, and mushrooms are examples of fungi.

G

Galvanized- Metal coated with zinc to prevent rust. Not food contact safe.

Gastrointestinal illness- Illness relating to the stomach or intestine.

Glue board- Pest-control device in which mice are trapped by glue and then die from exhaustion or lack of water or air. They are also used to identify the type of cockroaches that might be present.

H

HACCP plan- Written document based on HACCP principles describing procedures a particular establishment will follow to ensure the safety of food served.

Hair restraint- Device used to keep a food handler's hair away from food and to keep the individual from touching it.

Hand sanitizer- Liquid used to lower the number of microorganisms on the skin surface. Hand sanitizer should be used after proper hand washing, not in place for it.

Hand washing station- Sink designed for hand washing only. Hand washing stations must be conveniently located in restrooms, food-preparation areas, service areas, and ware-washing areas.

Hard water- Water containing minerals such as calcium and iron concentrations higher than 120 parts per million (ppm).

Hazard analysis- Process of identifying and evaluating potential hazards associated with food in order to determine what must be addressed in the HACCP plan.

Hazard Analysis Critical Control Point (HACCP)- System designed to keep food safe throughout its flow through an establishment. HACCP is based on the idea that if hazards are identified at specific points in a food's flow, the hazards can be prevented, eliminated, or reduced to safe levels.

Health inspector- City, country, or state employee who conducts food service inspections in most states. Inspectors generally are trained in food safety, sanitation, and public health principles and methods. Also called sanitarians, health officials.

Heat sanitizing- Using heat to reduce the number of microorganisms on a clean surface to safe levels. The most common way to heat-sanitize tableware, utensils, or equipment is to submerge them in or spray them with hot water.

Heat-treated- Food that has been cooked, partially cooked, or warmed.

Hepatitis A- Disease-causing inflammation of the liver. It is transmitted to food by poor personal hygiene or contact with contaminated water.

High-risk population- People susceptible to foodborne illness due to the effects of age or health on their immune systems, including infants and preschool-age children, pregnant women, older people, people taking certain medications, and those with certain diseases or weakened immune system.

Histamine- Biological toxin associated with temperature-abused Scombroid fish that causes Scombroid poisoning.

Host- Person, animal, or plant on which another organism lives and takes nourishment.

Hot-holding equipment- Equipment such as chafing dishes, steam tables, and heated cabinets specifically designed to hold potentially hazardous food at 135°F (57°C) or higher.

Hygrometer- Instrument used to measure relative humidity in storage areas.

I

Ice paddle- Plastic paddle that can be filled with water and frozen. When used to stir hot food, it cools the food quickly.

Ice-point method- Method of calibrating thermometers based on the freezing-point of water.

Ice-water bath- Methods of cooling food in which a container holding hot food is placed into a larger container of ice water. The ice water surrounding the hot food container disperses the heat quickly.

Immune system- The body's defense system against illness. People with a compromised immune system are more susceptible to foodborne illness.

Infection lesion- Wound or injury contaminated with a pathogen.

Infestation- Situation that exists when pests overrun or inhabit an establishment in large numbers.

Integrated Pest Management (IPM)- Program using prevention measures to keep pests from entering an establishment and control measures to eliminate any pests that do get inside.

Iodine- Sanitizer effective at low concentrations and not as quickly inactivated by soil as chlorine. It might stain surfaces and is less effective than chlorine.

J

Jaundice- Yellowing of the skin and eyes that could indicate a person is ill with hepatitis.

Job aids- Materials or visual reminders used to deliver training content to employees.

L

Lag phase- Phase in bacterial growth in which bacteria are first introduced to a new environment. In this phase, bacteria go through an adjustment period in which their numbers are stable as they prepare to grow. To control the growth of bacteria, prolong the lag phase as long as possible.

Log phase- Phase in bacterial growth in which conditions are favorable for bacteria to multiply very rapidly. Food quickly becomes unsafe during this phase.

M

Master cleaning schedule- Detailed schedule that lists all cleaning tasks in an establishment, when and how they are to be performed and who will do the cleaning.

Material Safety Data Sheets (MSDS)- Sheets supplied by the chemical manufacturer listing the chemical and its common names, its potential physical and health hazards, information about using and handling it safely, and other important information. OSHA requires employers to store these sheets so they are accessible to employees.

Microorganisms- Small, living organisms that can be seen only with the aid of a microscope. Four types of microorganisms with the potential to contaminate food and cause foodborne illness are: bacteria, viruses, parasites, and fungi.

Minimum internal temperature- Required cooking temperature the internal portion of food must reach-specific to the type of food being cooked-in order to sufficiently reduce the number of illness-causing microorganisms that might be present.

Modified Atmosphere Packing (MAP)- Packing process by which air is removed from a food package and replaced with gases, such as carbon dioxide and nitrogen, to help extend the product's shelf life.

Mold- Type of fungus that causes food spoilage. Some produce toxins that can cause foodborne illness.

Monitoring- In a HACCP system, the process of analyzing whether critical limits are being met and things are being done right.

N

National Marine Fisheries Service (NMFS)- Agency of the U.S Department of Commerce that provides a voluntary inspection program that includes product standards and sanitary requirements for fish processing operations

NSF International- Organization that develops and publishes standards for sanitary equipment design. They also assess and certify that equipment has met these standards. Restaurants and foodservice managers should look for an NSF International mark (or UL EPH product mark) on commercial foodservice equipment.

O

Off-site service- Service of food to someplace other than where it is prepared or cooked including catering and vending.

P

Parasite- Organism that needs to live in a host organism to survive. Parasites can live in many animals that humans use for food, including cows, chickens, pigs, and fish.

Pathogens- Disease-causing microorganisms.

Personal hygiene- Sanitary health habits that include keeping body, hair, and teeth clean, maintaining good health, wearing clean cloths, and washing hands regularly, especially when handling food and beverages.

Pest Control Operator (PCO)- Licensed professional who used safe, up-to-date methods to prevent and control pests.

Pesticide- Chemical used to control pests, usually insects.

Ph- Measure of a food's acidity or alkalinity. The Ph scale ranges from 0 to 14.0. A pH above 7.0 is alkaline, while a pH below 7.0 is acidic. pH of 7.0 is neutral. Pathogenic bacteria grow well in food with a pH between 4.6 and 7.5 (slightly acidic to neutral).

Physical hazard- Foreign objects that can accidentally get into food and contaminate it, such as hair, dirt, metal staples, and broken glass, as well as naturally occurring objects, such as bones in fillets.

Plant toxins- poisons found naturally in some plants such as mushrooms.

Pooled eggs- Eggs that have been cracked open and combined in a common container.

Porosity- Extent to which water and other liquids are absorbed by a substance. Term usually used in relation to flooring material.

Potable water- Water that is safe to drink or use as an ingredient in food.

Potentially hazardous food- Food in which microorganisms can grow rapidly. Potentially hazardous food has a history of being involved in foodborne illness outbreaks, has potential for contamination due to production and processing methods, and has characteristics that generally allow microorganism to grow rapidly. Potentially hazardous food is often moist, contains protein, and has a neutral or slightly acidic pH.

Q

Quaternary Ammonium Compounds (QUATS)- Group of sanitizers all having the same basic chemical structure. They work in most temperature and pH ranges, are noncorrosive, and remain active for short periods of time after they have dried. However, quats may not kill certain types of microorganisms and they leave a film on surfaces.

R

Ready-to-eat food- Properly cooked food, as well as raw washed whole or cut fruit and vegetables (including those that have had their rinds, peels, husks, or shells removed).

Reasonable care defense- Defense against a food-related lawsuit stating that an establishment did everything that could be reasonably expected to ensure that the food served was safe.

Record keeping- In a HACCP system, the process of collecting documents that allow you to show you are continuously preparing and serving food.

Reduced oxygen packing (ROP)- Also known as Vacuum-packed food- Food processed by removing air from around it while sealed in a package. This process increases the product's shelf life.

Refrigerated storage- Storage used for holding potentially hazardous food at an internal potentially hazardous food at internal temperature of 41°F (5°C) or lower. Some jurisdictions allow food in refrigerators to be held at an internal temperature 45°F (7°C) or lower. Check with the local regulatory agency for specific regulations.

Regulations- Laws determining standards behavior. Restaurant and food service regulations are typically written at the state level and based on the FDA Food Code.

Resiliency- Ability of a surface to react to a shock without breaking or cracking, usually used in relation to a flooring material.

S

Sanitary- State that exists when the number of pathogens on a clean surface has been reduced of safe levels.

Sanitizer- Compound used to reduce the number of pathogens on a clean surface to safe levels.

Sanitizing- Process of reducing the number of microorganism on a clean surface to safe levels.

Scombroid poisoning- Illness that occurs when a person eats a Scombroid fish that has been time-temperature abused. Scombroid fish include tuna, mackerel, bluefish, skipjack, and bonito.

Service sink- Sink used exclusively for cleaning mops and disposing of waste water. At least one service sink or one curbed drain area is required in an establishment.

Shelf life- Recommended period of time food may be stored and remain suitable for use.

Shell-stock identification tag- Tag that accompanies each container of live, molluscan shellfish, on which the delivery date must be written. Tags are to be kept on file for ninety days after the last shellfish was used.

Single-use gloves- Disposable gloves designed for one-time use that provide a barrier between hands and the food they come in contact with.

Single-use item- Disposable tableware or packaged food designed to be used only once, including plastic flatware, paper or plastic cups, plates, and bowls, as well as single-serve food and beverages.

Single-use paper towel- Paper towel designed to be used once, then discarded.

Slacking- Process of gradually thawing frozen food in preparation for deep frying.

Sneeze guard- Food shield used on food bars. They are usually placed fourteen inches above the food and extended seven inches beyond the food.

Solvent cleaners- Alkaline detergents, often called degreasers, that contain a grease-dissolving agent.

Sous vide food- Food vacuum-packed in individual pouches, partially or fully cooked in a water bath, and then chilled. This food is often heated for service in the establishment.

Spoilage microorganism- Foodborne microorganism that causes food to spoil, but typically does not cause foodborne illness.

Spore- Alternative form for some bacteria, with a thick wall to protect it from adverse conditions, such as high and low temperatures, low moisture, and high acidity. Capable of turning back into a vegetative microorganism when conditions again become favorable.

Stationary phase- Phase of bacterial growth in which just as many bacteria are growing as are dying. Follows the log phase of bacterial growth.

T

TCS (Temperature Control Source foods) - Food in which microorganisms can grow rapidly and therefore requires temperature control to prevent the growth of pathogens. TCS food has a history of being involved in foodborne-illness outbreaks. TCS food is often moist, contains protein, and has a neutral or slightly acidic pH.

Temperature Danger Zone (TDZ)- Temperature range between 41°F and 135°F (5°C to 57°C) within which most foodborne microorganisms rapidly grow and reproduce.

Temporary unit- Establishment operating in one location for no more than fourteen consecutive days in conjunction with a special event or celebration. They usually serve prepackaged food or food requiring only limited preparation.

Thermometer- Device for accurately measuring the internal temperature of food, the air temperature inside a freezer or colder, or the temperature of equipment.

Time-temperature abuse- Allowing food to remain too long at temperatures favorable to the growth of foodborne microorganisms.

Time- temperature indicator (TTI)- Time and temperature monitoring device attached to a food shipment to determine if the products has exceeded safe limits during shipment or subsequent storage.

Toxic-metal poisoning- Illness caused when toxic metals are leached from utensils or equipment containing them.

Toxins- Poisons produced by pathogens, plants, or animals. Most occur naturally and are not caused by the presence of microorganisms. Some occur in animals as a result of their diet. Many chemicals are also toxic.

Tumble chiller- Equipment designed to cool food quickly. Prepackaged hot food is placed into a drum rotating inside a reservoir of chilled water. The tumbling action increases the effectiveness of the chilled water in cooling the food.

Two-stage cooling- Criteria by which cooked food is cooled from 135°F (57°C) to 70°F (21°C) within two hours and from 70°F (21°C) to 41°F (5°C) or lower in an additional four hours, for a total cooling time of six hours.

U

Ultra-high temperature (UHT) pasteurization- Process of heat-treating food at a very high temperature for a short time to kill microorganisms. The food is often then packaged under sterile conditions.

Underwriters Laboratories (UL)- Provides sanitation classification listings for equipment found in compliance with NSF International standards. Also lists products complying with their own published environmental and public health standards.

U.S Department of Agriculture (USDA)- Federal agency responsible for the inspection and quality grading of meat, meat products, poultry, dairy products, eggs and egg products, and fruit and vegetables shipped across state lines.

V

Vacuum breaker- Device used for preventing the backflow of contaminants into a potable water system.

Vegetative microorganisms- Bacteria in the process of reproducing (growing) by splitting in two.

Verification- In a HACCP system, the process of confirming that critical control points and critical limits are appropriate, that monitoring is alerting you to hazards, that corrective actions are adequate to prevent foodborne illness from occurring, and that employees are following established procedures.

Virus- Smallest of the microbial food contaminants, viruses rely on a living host to reproduce. Some survive freezing and cooking temperatures. They usually contaminate food through a food handler's improper personal hygiene.

W

Water activity- Amount of moisture available in food for microorganisms to grow. Potentially hazardous food items typically have water-activity values of 0.85 or above.

Y

Yeast- Type of fungus that causes food spoilage.

Practice Exam

Section 1... Providing Safe Food

1. What is a foodborne-illness outbreak?

- A. When two or more food handlers contaminate multiple food items
- B. When an operation serves contaminated food to two or more people
- C. When two or more people have the same symptoms from eating the same food
- D. When the CDC receives information on two or more people with the same illness

2. Which is a ready-to-eat food?

- A. Uncooked rice
- B. Raw deboned chicken
- C. Sea salt
- D. Unwashed green beans

3. Why are preschool-age children at a higher risk for foodborne illnesses?

- A. They have not built up strong immune systems.
- B. They are more likely to spend time in a hospital.
- C. They are more likely to suffer allergic reactions.
- D. Their appetites have increased since birth.

4. Which is a TCS food?

- A. Bread
- B. Flour
- C. Sprouts
- D. Strawberries

5. Which is a common risk factor for foodborne illness?

- A. Reheating leftover food
- B. Serving ready-to-eat food
- C. Using single-use, disposable gloves
- D. Purchasing food from unsafe sources

6. Raw chicken breasts are left out at room temperature on a prep table. What is the risk that could cause a foodborne illness?

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

7. What is TCS food?

- A. Food requiring thermometer checks for security
- B. Food requiring trustworthy conditions for service
- C. Food requiring training commitments for standards
- D. Food requiring time and temperature control for safety

8. Which government agency is responsible for regulating and inspecting meat, poultry, and eggs?

- A. Food and Drug Administration (FDA)
- B. U.S. Department of Agriculture (USDA)
- C. The Centers for Disease Control and Prevention (CDC)
- D. The Public Health Service (PHS)

Section 2... Forms of Contamination

9. What are the most common symptoms of a foodborne illness?

- A. Diarrhea, vomiting, fever, nausea, abdominal cramps, and dizziness
- B. Diarrhea, vomiting, fever, nausea, abdominal cramps, and headache
- C. Diarrhea, vomiting, fever, nausea, abdominal cramps, and jaundice
- D. Diarrhea, vomiting, fever, nausea, abdominal cramps, and tiredness

10. How does most contamination of food happen?

- A. Through contaminated water
- B. Through contaminants that are airborne
- C. Through mistakes made by food handlers
- D. Through the use of contaminated animal products

11. What is the most important way to prevent a foodborne illness from bacteria?

- A. Control time and temperature.
- B. Prevent cross-contamination.
- C. Practice good personal hygiene.
- D. Practice good cleaning and sanitizing.

12. What is the most important way to prevent a foodborne illness from viruses?

- A. Control time and temperature.
- B. Prevent cross-contamination.
- C. Practice good personal hygiene.
- D. Practice good cleaning and sanitizing.

13. Parasites are commonly linked with what type of food?

- A. Rice
- B. Bread
- C. Seafood
- D. Canned food

14. A guest had a reversal of hot and cold sensations after eating seafood. What most likely caused the illness?

- A. Parasites
- B. Allergic reaction
- C. Biological toxins
- D. Chemical contamination

15. How should chemicals be stored to prevent chemical contamination?

- A. Away from prep areas
- B. On the floor between uses
- C. On the work surface of prep tables
- D. With food supplies below prep tables

16. To prevent the deliberate contamination of food, a manager should know

- A. when to register with the EPA.
- B. how to fill out an incident report.
- C. where to find Safety Data Sheets in the operation.
- D. who is in the facility at all times.

17. What should back of house staff do to prevent cross-contact?

- A. Clean surfaces, utensils, and equipment
- B. Cook food to the appropriate minimum internal temperature
- C. Store cold food at 41°F (5°C) or lower
- D. Label chemical containers correctly

18. What step should be taken if a manager suspects a foodborne-illness outbreak?

- A. Reheat the suspected product to safe temperatures.
- B. Provide as little information as possible to the regulatory authority.
- C. Deny that the operation has anything to do with the foodborne-illness outbreak.
- D. Set aside the suspected product and label it with "do not use" and "do not discard."

Section 3... The Safe Food Handler

19. A food handler who has just used their cell phone must do what before handling food?

- A. Change apron
- B. Wash hands
- C. Put disposable gloves back on
- D. Wipe hands on a cloth towel

20. As part of handwashing, food handlers must scrub their hands and arms with soap for at least

- A. 3 seconds
- B. 5 seconds
- C. 10 seconds
- D. 20 seconds

21. To work with food, a food handler with an infected hand wound must

- A. cover the wound with an impermeable cover and wear a single-use glove.
- B. cover the wound with an impermeable cover and limit contact with food.
- C. wash hands and bandage the wound with an impermeable cover.
- D. apply ointment and bandage the wound with an impermeable cover.

22. How should food handlers keep their fingernails?

- A. Short, clean and unpolished
- B. Short and polished
- C. Long and unfiled
- D. Long and unpolished

23. Which piece of jewelry is a food handler allowed to wear?

- A. Diamond ring
- B. Leather-band watch
- C. Medical bracelet
- D. Plain-band ring

24. What must food handlers do after touching their body?

- A. Wash their hands
- B. Rinse their gloves
- C. Change their aprons
- D. Use a hand antiseptic

25. Where should personal items, like a coat, be stored in the operation?

- A. On a shelf, above food
- B. On a shelf, below food
- C. In a designated area, away from food.
- D. In a kitchen, away from moving equipment.

26. After handling raw meat and before handling lettuce, what should food handlers do with their gloves?

- A. Clean and sanitize them
- B. Continue working with them
- C. Set them aside if working with meat again later
- D. Wash hands and change them

27. After prepping food, what must food handlers do before using the restroom?

- A. Take off their aprons
- B. Change their gloves
- C. Take off their hats
- D. Wash their hands

28. What action should a manager take when a food handler reports having diarrhea and being diagnosed with a foodborne illness caused by *Shigella* spp.?

- A. Keep the food handler away from duties that involve food.
- B. Exclude the food handler from the operation.
- C. Make sure the food handler is supplied with disposable gloves.
- D. Make sure the food handler washes hands often.

Section 4... The Flow of Food: An Introduction

29. Using one set of cutting boards for raw poultry and another set of cutting boards for ready-to-eat food reduces the risk of

- A. cross-contamination.
- B. time-temperature abuse.
- C. physical contamination.
- D. toxic-metal poisoning.

30. Pathogens are likely to grow well in a meat stew that is

- A. below freezing temperature.
- B. at refrigeration temperatures.
- C. between 41°F and 135°F (5°C and 57°C).
- D. cooked to the correct internal temperature.

31. What is the calibration nut on a bimetallic stemmed thermometer used for?

- A. Keep it accurate
- B. Mark its sensing area
- C. Measure air temperature
- D. Measure temperatures through glass

32. Which probe should be used to check the temperature of a pork roast?

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

33. What do time-temperature indicators do?

- A. Measure temperature through a probe with a sensor at the end
- B. Measure the length of time that food should be cooked
- C. Show if food has been cross-contaminated during preparation
- D. Show if food has been time-temperature abused during shipment

34. When using the ice-point method to calibrate a thermometer, to what temperature should the thermometer be adjusted?

- A. 0°F (-18°C)
- B. 32°F (0°C)
- C. 41°F (5°C)
- D. 212°F (100°C)

Section 5... The Flow of Food: Purchasing, Receiving, and Storage

35. What must a manager do with a recalled food item in the operation?

- A. Combine the item with non-recalled items during preparation.
- B. Record the names of customers who purchase the item.
- C. Store the recalled item separately from other food.
- D. Sell all recalled items within 24 hours.

36. Large ice crystals in a case of frozen food are evidence that the product may have been

- A. received at 6°F to 10°F (-14°C to -12°C).
- B. stored at 6°F to 10°F (-14°C to -12°C).
- C. thawed and refrozen.
- D. shipped correctly.

37. What factor is most important when choosing an approved food supplier?

- A. It has a HACCP program or other food safety system.
- B. It has documented manufacturing and packing practices.
- C. Its warehouse is close to the operation, reducing shipping time.
- D. It has been inspected and complies with local, state, and federal laws.

38. What are the packaging criteria for accepting nonfood items?

- A. Soiled but intact
- B. Clean and no more than 2 tears or punctures
- C. Soiled and no more than 2 tears or punctures
- D. Intact, clean, and protected from contamination

39. Supplies should be stored away from the walls and at least _____ off the floor.

- A. 2 inches (5 centimeters)
- B. 4 inches (10 centimeters)
- C. 5 inches (13 centimeters)
- D. 6 inches (15 centimeters)

40. Ready-to-eat TCS food must be date marked if it will be held for longer than

- A. 12 hours.
- B. 24 hours.
- C. 36 hours.
- D. 48 hours.

41. Which item is stored correctly in the cooler?

- A. Macaroni salad stored above raw salmon
- B. Raw ground pork stored below raw poultry
- C. Raw poultry stored above raw pork roast
- D. Sliced pineapple stored below raw steaks

42. A food item that is received with an expired use-by date should be

- A. rejected.
- B. used immediately.
- C. accepted but labeled differently.
- D. accepted but kept separate from other items.

43. What is the maximum amount of time that ready-to-eat TCS food can be stored in a cooler at 41°F (5°C) before it must be sold, served, or thrown out?

- A. 2 days
- B. 5 days
- C. 7 days
- D. 9 days

44. At what internal temperature should most cold TCS food be received?

- A. 41°F (5°C) or lower
- B. 45°F (7°C) or lower
- C. 51°F (10°C) or lower
- D. 55°F (13°C) or lower

Section 6... The Flow of Food: Preparation

45. A variance from the local regulatory authority is needed for

- A. preserving food by smoking it.
- B. developing a crisis-management plan.
- C. using TCS leftovers to make salads.
- D. using ice to cool food.

46. What is one way that food should NEVER be thawed?

- A. In a microwave
- B. At room temperature
- C. In a cooler
- D. As part of the cooking process

47. What food item would the FDA advise against offering on a children's menu?

- A. Rare cheeseburgers
- B. Cheese pizza
- C. Peanut butter and jelly sandwiches
- D. Fried shrimp

48. When checking the internal temperature of food, where should the thermometer be inserted?

- A. In the thinnest part of the food
- B. In the thickest part of the food
- C. On the bottom of the food
- D. On the top of the food

49. What is the required minimum internal cooking temperature for a chicken breast?

- A. 135°F (57°C)
- B. 145°F (63°C) for 15 seconds
- C. 155°F (68°C) for 17seconds
- D. 165°F (74°C) for <1 second

50. What is the required minimum internal cooking temperature for ground beef?

- A. 135°F (57°C)
- B. 145°F (63°C) for 15 seconds
- C. 155°F (68°C) for 17 seconds
- D. 165°F (74°C) for <1 second

51. What must you do immediately after thawing food in a microwave?

- A. Hold it.
- B. Cook it.
- C. Cool it.
- D. Freeze it.

52. A consumer advisory should be provided for menu items that contain TCS food that

- A. is very spicy.
- B. contains gluten.
- C. is raw or undercooked.
- D. is made with a non-big nine allergen.

53. Food must be cooled from 135°F to 70°F (57°C to 21°C) within ____ hours and then from 70°F to 41°F (21°C to 5°C) or lower in the next ____ hours.

- A. two, four
- B. four, two
- C. two, six
- D. six, two

54. When reheating turkey chili for hot-holding, what is the minimum temperature that the chili must reach?

- A. 135°F (57°C) for 15 seconds within two hours
- B. 145°F (63°C) for 15 seconds within two hours
- C. 155°F (68°C) for 15 seconds within two hours
- D. 165°F (74°C) for 15 seconds within two hours

Section 7... The Flow of Food: Service

55. What is the minimum temperature that must be maintained when holding hot chicken soup for service?

- A. 100°F (38°C)
- B. 120°F (49°C)
- C. 135°F (57°C)
- D. 155°F (68°C)

56. What is the maximum allowable internal temperature when cold-holding TCS food?

- A. 41°F (5°C)
- B. 45°F (7°C)
- C. 51°F (10°C)
- D. 55°F (13°C)

57. A catering employee removed a 135°F (57°C) tray of lasagna from hot-holding for service in a hotel conference room at 11:00 a.m. By what time must the lasagna be thrown out?

- A. 12:00 p.m.
- B. 2:00 p.m.
- C. 3:00 p.m.
- D. 4:00 p.m.

58. Which food item may be handled with bare hands?

- A. Sliced cheese for sandwiches
- B. Boiled egg slices for salad
- C. Chopped carrots for stew
- D. Parsley for garnish

59. Which part of a glass should a food handler avoid touching when serving customers?

- A. Rim
- B. Middle
- C. Bottom
- D. Stem

60. Which item may be re-served to another customer?

- A. A partially used cup of salsa
- B. Unopened condiment packets
- C. Uneaten bread from a bread basket
- D. An uneaten pickle used as a plate garnish

61. Which action could contaminate food at a self-service area?

- A. Keeping hot TCS food at 135°F (57°C)
- B. Allowing customers to reuse plates
- C. Labeling all containers and handles
- D. Taking food temperatures every hour

62. Food for off-site service should be labeled with reheating and service instructions and a(n)

- A. list of ingredients.
- B. use-by date and time.
- C. date of preparation.
- D. inspection stamp.

Section 8... Food Safety Management Systems

63. What is the primary purpose of a food safety management system?

- A. Keep all areas of the facility clean and pest-free.
- B. Lock-out and tag-out faulty equipment within the facility.
- C. Prevent foodborne illness by controlling risks and hazards.
- D. Maintain correct purchasing and receiving records for auditors.

64. What is a manager's responsibility to actively control risk factors for foodborne illnesses called?

- A. Active managerial control
- B. Food safety management
- C. Quality control and assurance
- D. Hazard analysis critical control point (HACCP)

65. A manager asks a dishwasher to rewash dishes after determining they were not sanitized properly. This is an example of which step in active managerial control?

- A. Identifying risks
- B. Monitoring
- C. Corrective action
- D. Re-evaluation

66. A manager walks around the kitchen every hour to verify policies, procedures, and corrective actions are followed. This is an example of which step in active managerial control?

- A. Management oversight
- B. Corrective action
- C. Re-evaluation
- D. Identify risks

67. One way for managers to demonstrate a knowledge of food safety is to

- A. conduct self-inspections.
- B. take cooking temperatures.
- C. monitor employee behaviors.
- D. become certified in food safety.

Section 9... Safe Facilities and Pest Management

68. The water supplied to a handwashing sink must be at least

- A. 65°F (18°C).
- B. 75°F (24°C).
- C. 85°F (29°C).
- D. 95°F (35°C).

69. What features are important to food safety when selecting flooring, wall, and ceiling materials?

- A. Absorbent and durable
- B. Hard and durable
- C. Porous and durable
- D. Smooth and durable

70. A handwashing station has soap, running water at the correct temperature, and a warm-air hand dryer. What required item is missing?

- A. Single-use gloves for handling ready-to-eat food
- B. A timer to monitor how long hands are being washed
- C. Signage telling staff to wash hands before returning to work
- D. Hand antiseptic to reduce pathogens on hands to safe levels

71. Which part of a sink prevents backflow of dirty water?

- A. The air gap
- B. The supply lines
- C. The P-Trap
- D. The tailpiece

72. Grease and condensation buildup on surfaces can be avoided with correct

- A. garbage disposal.
- B. lighting.
- C. sanitizing.
- D. ventilation.

73. Where should garbage cans be cleaned?

- A. Away from prep areas
- B. Next to prep areas
- C. In dishwashing areas
- D. In food storage areas

74. When the garbage can was full, an employee placed the full garbage bag on a prep table and tied it securely. Then he carried it to the dumpster and disposed of it. What was done incorrectly?

- A. The employee waited until the garbage was full.
- B. The bag was disposed of in a dumpster.
- C. The bag was placed on a prep table.
- D. The employee tied the bag shut.

75. Sewage backs up in a food storage area and there is a significant risk of contamination to the food stored there. What should be done?

- A. Execute a HACCP plan
- B. Reduce the hours of operation
- C. Stop service and notify the regulatory authority
- D. Continue service, but notify the regulatory authority

76. What is one way to keep an operation pest-free?

- A. Deny pests access to the operation.
- B. Keep outdoor garbage containers open.
- C. Clean up food spills at the end of each shift.
- D. Store food and supplies one inch off the floor in storage.

77. Which individual should apply pesticides in a restaurant or foodservice operation?

- A. Pest control operator
- B. Owner/operator
- C. Operational director
- D. Line cook

Section 10... Cleaning and Sanitizing

78. A food-contact surface must be cleaned and sanitized

- A. before working with a different type of food.
- B. every 6 hours.
- C. only if the food handler changes gloves.
- D. at the end of the food handler's shift.

79. What is the correct way to clean and sanitize a prep table?

- A. Remove food from surface, clean, rinse, sanitize, air-dry
- B. Remove food from surface, rinse, clean, sanitize, air-dry
- C. Sanitize, remove food from surface, clean, rinse, air-dry
- D. Air-dry, remove food from surface, rinse, sanitize, clean

80. To make sure that the chemical sanitizer being used on a food-prep surface is at the correct strength,

- A. rinse it from the surface and then apply it a second time.
- B. test the surface first to confirm that there are no pathogens.
- C. heat it to the temperature recommended by the manufacturer.
- D. use a test kit to check the sanitizer's concentration when mixing it.

81. In a heat-sanitizing dishwashing machine, what is the required minimum temperature for the final rinse?

- A. 152°F (67°C)
- B. 180°F (82°C)
- C. 192°F (89°C)
- D. 200°F (93°C)

82. The first step in cleaning and sanitizing items in a three-compartment sink is

- A. air-drying items.
- B. washing items in detergent.
- C. immersing items in sanitizer.
- D. rinsing, scraping, or soaking items.

83. Which surfaces must be both cleaned and sanitized?

- A. Walls
- B. Cutting boards
- C. Storage shelves
- D. Garbage containers

84. Which feature is most important for a chemical storage area?

- A. Good lighting
- B. Single-use towels
- C. Low humidity
- D. Absorbent flooring

85. What is the correct way to store mops in between uses?

- A. Propped in a corner
- B. In a clean bucket
- C. In a utility sink
- D. On a hook

86. A buser poured some cleaner from its original container into a smaller, working container. What else does the buser need to do?

- A. Label the working container with the chemical's common name
- B. Read the safety data sheet (SDS) for the cleaner
- C. Use a new wiping cloth when first using the working container
- D. Note on the original container that some cleaner was put into a working container

87. What step must managers take after creating a master cleaning schedule?

- A. Train staff to follow the program.
- B. Determine who should do each task.
- C. Time staff on how long they take to clean.
- D. Determine what should be cleaned.

ANSWER KEY

Section 1... Providing Safe Food

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Section 9... Safe Facilities and Pest Management

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77	A	40

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84	A	15
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86	A	class discussion
87	A	44

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