

INCLUDES
PRACTICE
EXAM

7th
Edition



Based on 2022 Food Code Updates

FOOD SAFETY FOR MANAGERS

Study guide for food safety certification exams by

Boston Food Safety

BOSTONFOODSAFETY.COM

Introduction to food safety

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What is foodborne illness?

An illness caused by eating contaminated foods or beverages.

Foodborne illness outbreak

If two or more people get sick after eating same food or beverage.

Sources of contamination

Sources of contamination divided into 3 categories:

Biological:

Bacteria
Viruses
Parasites
Fungi (Mushrooms,
Mold and Yeast).

Physical:

Natural objects such
as Seaweed in a
Shellfish or Bone in a
boneless chicken
breast or fish fillet.
Dirt, nails, nail-polish,
metal shavings,
broken glass, etc.

Chemical:

Pesticides, sanitizers,
detergent,

Storing acidic food in
brass, copper or zinc
containers can cause
chemical
contamination

Risk factors of foodborne illness:



CDC (Center for Disease Control & Prevention) has identified following five major risk factors that cause most foodborne illness outbreaks.

1. Purchasing food from unapproved or unsafe sources. Food safety begins at "Purchasing"
2. Failing to cook food to required minimum temperature and time
3. Improper holding time and temperature of food
4. Cross contamination/using contaminated equipment/utensils
5. Poor personal hygiene: Unwashed hands and working while sick

TCS Food: Time & Temperature Control for Safety


TCS definition: Food that requires time and temperature control to prevent the growth of bacteria is called TCS food.

TCS food characteristics: Low acid, Moisture and Protein

TCS food examples:



Dairy products, eggs, meats, poultry, fish, shellfish, tuna salad, cooked potatoes, steamed rice, bean sprouts, cut tomatoes, sliced melons.

TO GROW, BACTERIA NEED:			TO STOP BACTERIA FROM GROWING:	
				<ul style="list-style-type: none">• Control food temperature• Control the amount of time food spends in the Temperature Danger Zone (41°F-135°F)
FOOD	WARMTH	MOISTURE		

High Risk Persons:

Following population is considered high risk population because of their weaker immune system.

- Infants preschool age children (4 years and younger)
- Pregnant women
- Elderly - 65 years and older
- People with compromised immune system

High-risk population should avoid eating:

- **Undercooked animal products:** E.g., Made to order hamburger or medium to rare hamburger will not be good for a high-risk population. However a fully cooked hamburger will be ok to eat.
- Eating soft, French- style cheeses, pates
- **Sprouts:** Avoid plant TCS food
- **Unpasteurized juice & eggs:** When serving high risk population only use pasteurized juice and eggs.
- **Raw seafood:** High-risk population should avoid raw seafood such as raw oysters, sushi.

Establishment serving undercooked animal products needs to have an advisory printed on their menu warning customers.

ADVISORY: Consuming raw or undercooked meats, poultry, seafood, shellfish, or eggs may increase your risk of foodborne illness

The foodservice manager is responsible for the safety of the food in a foodservice establishment.

Manager responsibilities:

- Train employees
- Make employees understand importance of reporting illness
- Report employee illness and food borne illness outbreaks to regulatory authorities
- Cooperate and answer the inspector questions correctly during facility inspection.
- Monitor food handling practices in the operation to make sure food remains safe all the time.

Government agencies dealing with food safety



The Food & Drug Administration (FDA):

FDA developed US food code. The US food code is a guiding document for local regulatory authorities for developing laws on how they govern the food establishments.

FDA also regulates food when transported across state-lines.



U.S. Department of Agriculture (USDA):

Inspects meat, poultry, dairy, produce and eggs.

State and local regulatory authorities:

Make laws that govern the food establishments. Managers should contact state and local authorities to apply for permits or approval. Managers should also notify state and local authorities about foodborne illness outbreaks, employee sickness, making any changes in your operation such as layout changes, equipment changes.

THINGS TO REMEMBER:

Biological Food Contamination:

Biological/Microbial Hazards (Micro-organism):

These are small, living organisms that are either naturally present in the food or get introduced through poor food handling practices.

Pathogens:

Pathogens produce toxins (poison) and cause disease when infected food is consumed. Pathogens that contaminate food and cause foodborne illness are:

- Bacteria,
- Viruses
- Parasites
- Fungi: Yeast, Mold, Mushrooms

Symptoms of foodborne illness:



- Diarrhea,
- Vomiting,
- Abdominal cramps,
- Fever,
- Sore throat with fever
- Jaundice (Caused by Hepatitis A virus)

Onset times (how much time it takes to show up the symptoms):

It will depend on what kind of contamination is in the food and also on the person's immune system. It can take anywhere from 30 minutes to six weeks to show up the symptoms.

Bacteria:

Bacteria is everywhere, naturally present in most meat. Bacteria grows well under **FAT TOM** conditions.

- Food:** Bacteria gets its nutrients from the food
- Acidity:** Bacteria grow best in food that contains little or no acid ((pH value 4.6 to 7.5)
- Temperature:** Bacteria grow rapidly between 41°F & 135°F also known as temperature danger zone
- Time:** Bacteria needs time to grow, usually 4 hours in temperature danger zone
- Oxygen:** Some bacteria need oxygen to grow

Moisture: Bacteria grow well in food with high levels of moisture. Moisture means water content in a food, and it is measured as vapor pressure.

To control the growth of bacteria in TCS food requires controlling the time and temperature of the food. Keep TCS food under refrigeration (below 41°F) or keep it hot above 135°F. Always spend less than 4 hours in the temperature danger zone.

Virus:

Virus does not depend on food for its growth, so it does not matter if the food is acidic, non-acidic, protein or no protein. It only uses food as a medium to go from one place to another.

Sources:

Food, water, or any contaminated surface and it typically enters your body through fecal-oral routes.

Destruction:

Normal cooking temperatures do not destroy viruses.

Prevention methods:

Good personal hygiene must be practiced when handling food and food-contact surfaces. Always wash your hands before handling the food. Do not allow sick person to handle the food or work in the food preparation areas. If there are any contaminated surfaces such as if someone vomits or sneezes in the food preparation areas, clean it as soon as possible.

Common Foodborne Viruses

Hepatitis A & Norovirus: Both come from human feces. Linked food is Shell-fish, ready eat food & beverages.

Norovirus causes most food borne illness cases.

Parasites:

Parasites require a host to live and reproduce.

Sources:

- Seafood
- Game animals (Venice, Rabbit, Turkey etc.)
- Food processed with contaminated water like produce

Prevention:

To avoid parasitic contamination the supplier must freeze fish that will be served raw or undercooked correctly. Game animals used in commercial establishments should be free of parasites such as ticks & fleas.

Fungi:

Mushrooms:

Mushrooms produce toxins. Buy them from approved suppliers.

Mold:

Mold grows in high acid, low moisture food such as cheese, sliced tomato.

How to control biological hazards:

- Purchase raw materials from safe and approved vendors. Vendors that are inspected licensed and follow FDA guidelines.
- **Good personal hygiene:** Only healthy workers should be allowed to handle the food or prepare the food. All workers should wash their hands properly and frequently.
- **Prevent cross-contamination:** Store foods properly. Use clean, sanitized utensils and work surfaces. Cooked and ready-to-eat food should not come in contact with raw materials.
- **Time-temperature control:** Cook foods to required minimum temperatures. Keep TCS foods at proper temperatures. Keep TCS food either below 41°F or above 135°F. Between 41°F to 135°F, spend less than 4 hours.

THINGS TO REMEMBER

- Wild game or game animals should be free of parasites such as Ticks, Fleas
- Parasites are associated with fish or seafood.
- Pathogens grow very slowly at pH levels below 4.6.
- Common symptoms associated with norovirus is vomiting or diarrhea.
- Hair, nose, throat, and infected cuts may carry Staphylococcus bacteria.
- Common symptom of hepatitis A virus is Jaundice (Yellow fever)
- Barracuda reef fish is associated with Ciguatera toxin.
- Ground beef is typically associated with Enterohemorrhagic and Shiga toxin-producing E. coli.
- The hair, nose, throat, and infected cuts of an average healthy person may carry staphylococcus.
- Norovirus and Hepatitis A are directly related to contamination from feces.

Personal Hygiene

Workers may introduce bacteria, viruses, parasites or physical contaminants into food and beverages by doing following:

- Working while sick
- Touching pimples or sores
- Touching hair
- Not wearing a band-aid and single-use gloves over cuts and wounds
- Not washing hands properly

Basics of Hand washing

Every establishment should have a designated hand-washing sink. It should be conveniently located near food preparation areas so that food handlers can wash hands quickly and easily. For proper hand washing provide soap, (liquid soap is preferred). ways to dry hands such as disposable towels, hot air dryer.

Steps of hand washing:

- The first step in hand washing is to wet your hands with warm water.
- Take the soap.
- Scrub hands for at least 10 to 15 seconds
- The total time you spend on hand washing is about 20 seconds.
- The water temperature should be at least 100°F.

When washing hands pay special attention to nails and fingers, clean them thoroughly.

Instant hand sanitizer:

Use of hand sanitizer is optional. However, use sanitizers only after proper hand washing and drying. **Only use FDA approved hand sanitizers.**

When to wash your hands:

- Before you start handling the food and utensils
- If you take a break, wash your hands when you are back from the break.
- After using the bathroom, coughing, smoking, eating, drinking, scratching
- Switching between raw and ready-to-eat food.
- During food preparation
- After handling credit cards or money, shaking hands with customers.
- After answering phone
- Before putting on gloves
- After any work that contaminates your hands

Fingernails, nail polish & artificial nails:

Fingernails, nail polish & artificial nails can be a physical hazard, so keep your nails trimmed and filed. Workers cannot wear fingernail polish or artificial fingernails unless they wear intact single-use gloves.

If the worker has an infected cut or wound on the hands, e.g., wound contains pus, restrict that food handler from working with the food and clean utensils. If the cut or wound is not infected, then use double protection. Cover affected area with a bandage or a finger cot. Then also wear single-use gloves. After wearing double protection food handler should be ok to work in all the areas.

Always wear single use gloves when handling ready to eat food. Change your gloves:

- When gloves get dirty or tear
- Before beginning of a new task
- Every 4 hours, when in continuous use. These 4 hours rule also applies to utensils, change, replace or sanitize utensils after 4 hours of continuous use.

Food handlers working in the food preparation areas or preparing food should wear hair restraint. They should also wear clean, right fit clothes. Workers are not allowed to wear anything on their hands except plain metal band or ring. Even medical information bracelets or watch should be removed when you are preparing the food or working in the food preparation areas.

Reporting foodborne illness

If a worker is diagnosed with one of the following foodborne illnesses, the Manager must report it to the local health department:

- Hepatitis A: Virus that causes jaundice (yellow skin & fever): Needs to be reported within 30 days.
- Norovirus: Should be reported in 48 hours
- E. coli O157:H7
- Salmonella Typhi
- Shigella spp.

Once notified, your local health department will try to reach out to your customers and advise them what prevention measures can be taken by customers to avoid illness.

When an employee gets sick, you need to either “**exclude**” or “**restrict**” the worker.

Excluding a worker:

Excluding a worker meaning send home or ask worker to not to come to work.

When to exclude a worker:

If establishment serves general population and if the worker has following symptoms:

- Vomiting or diarrhea
- Jaundice
- Has been diagnosed with Salmonella Typhi, Shigella, Shiga-toxin producing E. coil, Hepatitis A virus, or Norovirus.
- Establishment serving high risk population such as kindergarten, nursing homes.
- Food handler with sore throat with fever

When can an excluded person come back to work?

- For vomiting & Diarrhea: 24 hours of symptom free.
- All other things ask worker to get a letter from the doctor or an approval from local regulatory authority.

Restrict a worker:

Restricting a worker means, a worker can come to work or continue to work in a restricted manner. Restricted person cannot handle food, clean utensils, unwrapped single service or single use items.

However restricted person can handle packaged food, wrapped single service or single use items, soiled food equipment or utensils, cleanups etc. Restricted person can also work as cashier, office work etc.

When to restrict a worker:

If serving the general population, workers with a sore throat with fever can come to work in a restricted manner.

Other Policies for workers:

No one should be allowed to:

- Smoke
- Chew gum
- Eat food

In the food preparation areas. Why? Because saliva can be transferred to hands, and it could contaminate food. Workers can drink from a container that has spill proof lead and a straw. Drinking from soda cans, coffee mugs, water bottles is not allowed.

THINGS TO REMEMBER

- Correct hygiene practice: Wear bandage on a hand cut under disposable gloves.
- Food handler who is experiencing diarrhea and vomiting should not report to work until at least 24 hours after symptoms have ended.
- Contact regulatory authorities if a food handler is diagnosed with an illness caused by *Shigella* spp. Or Norovirus
- Employees should wash their hands after shaking hands with a customer.
- Employees should not eat food behind the cooking line or in food preparation areas. Training should be provided where food handlers can eat or drink.
- If a food handler has a cut or wound on their hand that is infected (e.g., contains pus), RESTRICT the food handler from working in food preparation areas.
- A food establishment MUST have specific procedures for employees to follow when cleaning up vomit and diarrhea

Purchasing, Receiving and Storage

Food safety begins at purchasing. Always purchase raw materials from safe and approved vendors that are properly licensed, inspected and follow FDA guidelines.

Home-prepared food cannot be used or served in a food establishment.

When receiving deliveries check the transportation vehicles for cleanliness and proper temperature control.

Most important thing when you receive TCS food, e.g., raw meat, poultry, eggs, fish, dairy and milk is the temperature of the food. Receiving person should check the temperature of the TCS food upon delivery with a properly calibrated (accurate to +/-1.8°F) thermometer.

Inspect all produce boxes for insects and quality. Delivery should be rejected if any pest infestation is found.

Packaged food should be received in undamaged conditions. Check expiry date, torn packages, water stains, rusty cans should be rejected.

Receiving temperatures:

- Shellfish/Shell Eggs/Milk: 45°F or below
- Dairy products other than milk 41°F or below
- Raw fish/meat/chicken 41°F or below
- Ready to eat cold TCS 41°F or below
- Hot TCS food 135°F or above

Frozen food should be received frozen without any sign of time temperature abuse. Meaning it should not be thawed and re-frozen. If you see ice crystals inside the frozen food packaging it indicates product has been thawed and refrozen. Reject it.



Meat, fish, and poultry: Must have USDA inspection stamp on the package.

Milk: Only Grade A pasteurized milk should be used.

Shellstock Tags:

- Do not accept shellfish without the proper identification tags
- Shellfish can be received at 45°F, cool it down to 41°F or less within 4 hours
- Keep shellfish tags on file for 90 calendar days from the date the container was emptied.



- Tags should contain harvesting date.
- Write the date on the tag when the last fish in the container was sold.

Recalled food:

Recalled food items should be isolated, labelled “DO NOT USE” and discarded or returned as per manufacturers or supplier’s instructions.

Storage:

There are 3 kinds of storage

- Refrigeration
- Freezer
- Dry storage: We store following items in dry storage area:
 - Food
 - Cleaned & equipment
 - Chemicals

Food and chemicals should be stored away from each other to avoid chemical contamination.

Item _____	Intls: _____	OH
Date _____	Time _____	AM PM
Use By _____	Time _____	AM PM

Date marking or labeling:

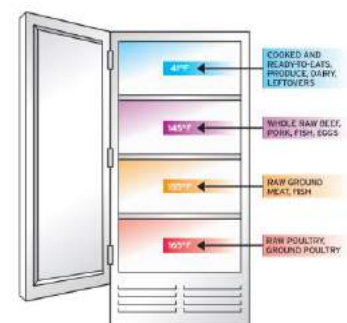
If food is prepared or cooked in the establishment and if it is held for more than 24 hours, they must be date marked or labeled with

- Date of preparation
- Use by date: Use by date will be 7 days from the day it is prepared. Counting begins on the day food is prepared.

Any onsite-packaged food should be labeled with all the ingredients in descending orders. Label should also include the last day of use.

Refrigeration storage:

Store refrigerated food in the proper order. From top to bottom, store food in this order: ready-to-eat food, seafood, whole cuts of beef and pork, ground meat and seafood, and whole and ground poultry. This order is based on minimum internal cooking temperatures. Higher the cooking temperature, goes to the bottom shelf.



Dry storage:

Store food and clean utensils 6 inches off the floor and away from the wall. Food removed from its original packaging must be labeled with the common name of the food. e.g., Salt, Sugar



Ready to eat cold TCS food temperatures:

- Maintain 41°F or below.
- If not maintaining 41°F use it or throw it within 6 hours or when food exceeds 70°F.



Hot TCS food temperatures:

- Maintain 135°F or above.
- If not maintaining 135°F use it or throw it within 4 hours.

Preparation

Many times, we need to thaw frozen food. Following are the safe thawing methods:

- in the refrigerator (best way, because food is always in safe temperature zone, stays below 41°F during thaw)
- as a part of cooking process
- in the microwave oven followed by cooking
- Under cold, running water. The water temperature should be 70°F or less.

Washing Produce:

You can wash the produce and fruits with your bare hands. Wash raw fruits and vegetables in warm water before using them.

Cooking Temperatures:

FOOD	TEMP	TIME
Poultry, stuffed foods & casseroles	165°F	For <1 second (Instantaneous)
Ground meats and injected meats	155°F	17 seconds
Whole pieces: pork, beef, veal, lamb, fish	145°F	15 seconds
Plant foods and commercially processed food	135°F	No minimum time
Scrambled eggs for immediate service	145°F	15 seconds

Scrambled eggs for hold holding or steam tables	155°F	15 seconds
Animal food cooked in Microwave	165°F	15 seconds
Reheating food for steam tables/buffet stations	165°F	15 seconds

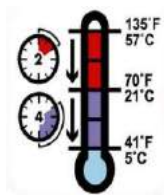
Microwave Cooking

If you cook raw animal foods in microwave, follow the guidelines below:

- * Rotated or stirred during cooking.
- * Covered to retain surface moisture.
- * Heated to at least 165°F
- * Allowed to stand covered for two minutes after cooking.

Cooling Potentially Hazardous Foods

Cooling happens in 2 stages. Do not put hot food in refrigerators, it will increase temperature inside the refrigerator. First bring food to room temperature and then put it in the refrigerator. Cooling happens in 2 stages.



Total cooling time 6 hours

First 2 hours: From 135°F to 70°F

Next four hours: From 70°F to 41°F

There is one alternate to 2 stage cooling is to use a blast chiller. You can put hot food in a **blast chiller** to cool faster.

Safe Cooling Methods

- Place food in shallow pans
- Cut into small portions
- Divide in to smaller containers
- Put food in metallic container and an Ice water bath and stir it
- Add ice as an ingredient.
- Use ice paddles to stir

Reheating food for hot holding stations

- Reheat food to 165°F for 15 sec.
- If reheating in microwave: 165°F for 15 sec.

Total reheat time should not be more than 2 hours.

THINGS TO REMEMBER

- Maximum receiving temperature for: Shell eggs, Shellfish, Milk: 45°F
- Cold TCS food, e.g., diced tomatoes must be transported to the serving site at 41°F or below.
- A label on foods prepared and packaged onsite for retail sales must list all ingredients used in descending order by weight.
- Allergic reactions best avoided by having a staff member on duty at all times who is knowledgeable about menu items and ingredients.
- Cross-contamination at self-service areas can be prevented by requiring customers to use a new plate for each trip.
- Food stored in cooler for more than 24 hours should be date marked for: date of preparation and use by date. Unmarked food should be discarded.
- Previously cooked food that was hot held for service must be reheated to minimum internal temperature of 165°F for at least 15 seconds.
- Ready-to-eat food stored without temperature control must be discarded after: COLD FOOD: 6 Hours | HOT FOOD: 4 Hours
- Recalled food items should be: Isolated, labeled DO NOT USE, Discard as per instructions from supplier or distributor.
- Self-service area maintain food temperatures at: COLD FOOD: 41°F (or below), HOT FOOD: 135°F (or above)
- Cooling TCS food: 135°F to 70°F in 2 hours, 70°F to 41°F in next 4 hours
- Food has been honestly presented if it contains only fresh ingredients. Food that has not been honestly presented must be thrown out. Using food coloring to make ground beef appear fresher is not allowed by regulatory authorities.
- Shellstock identification tags should be kept for 90 days after the last item is sold, served, or thrown out.
- Correct food thawing methods: As part of cooking process | Under cold running water (temp 70 °F or less)

Cleaning and Sanitizing

Cleaning

Cleaning is the process of removing food and other soils.

All non-food-contact surfaces should be just cleaned, no need to sanitize them.

Examples of non-food contact surface: Kitchen floor, Trash cans, Mops, Buckets

Cleaning agents are divided into 4 categories

Detergent: Washing pot and pans

Solvent Cleaners (degreasers): Grease dissolving agent. Used on grills, backsplashes, oven doors & range hoods

Abrasive Cleaners: Used to remove baked on food on pots & pans

Acid Cleaners (delimers): Used on mineral deposits & other soils

Sanitizing

Sanitizing is the process of reducing the number of microorganisms to a safe level. Sanitizing is done only after cleaning the object.

All food-contact surfaces should be first cleaned and then sanitized.

Examples of food contact surfaces: Utensils, cutting boards, slicers, countertops.

There are 2 ways to sanitize equipment and utensils.

Heat: Such as Hot water or Steam

Chemicals:

Chemical	Concentration	Contact time
Chlorine	50 to 120 PPM	≥ 7 Sec
Iodine	12.5 to 25 PPM	≥ 30 Sec
Quats (Quaternary ammonia)	As per manufacturers recommendation	≥ 30 Sec

Sanitizer concentration is measured using a test kit and expressed in PPM (Parts Per Million).

Storing chemicals

Keep all chemicals away from the food, direct heat or on an empty shelf below food or utensils. In between use, store sanitizing cloth in the sanitizing bucket/solution.

Chemicals taken from bulk containers and transferred to individual containers such as spray bottles must be labeled with the common name. **OSHA** requires a **Material Safety Data Sheet (MSDS or SDS)** for all chemicals stored on premises.

SDS includes information on:

How to use

Safety precautions

First aid

Long term health effects

Dish washing machines

High temperature machines

Final sanitizing rinse must be 180 °F or hotter.

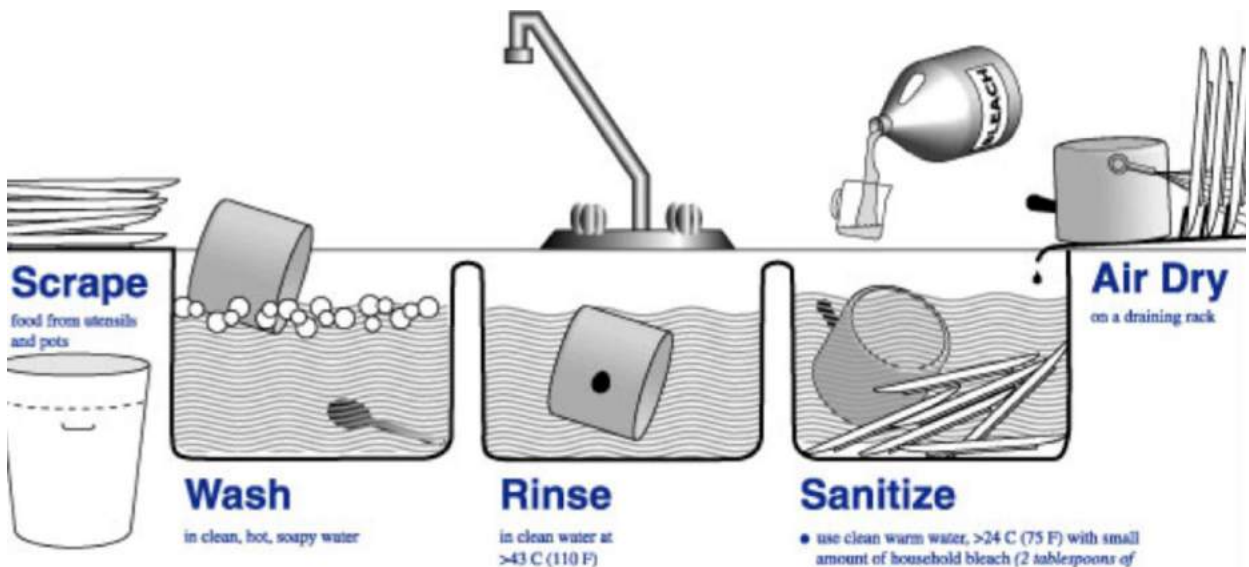
Measure the water temperature at the manifold.

Chemical sanitizing machines

Wash water 120 °F or hotter.

Rinse water 75 °F to 120 °F.

Three-compartment sink



Sinks must be equipped with correctly sized drain boards.

Wash: Minimum water temperature 110 °F

Rinse: Minimum water temperature 110 °F

Sanitize: Minimum water temperature 171 °F or properly prepared chemical solution

Air-dry: Do not use wipes to make them dry.

Measuring Sanitizer Strength

Frequently check concentration of the chemical sanitizer using test kit (strips).

The effectiveness of the chemical sanitizer depends on **water hardness** and **pH value**. Hard water will not remove detergents from the utensils making sanitizer solution less effective.

Storing Cleaned and Sanitized Items

Store clean sanitized utensils in clean, dry location, not exposed to splash, dust, or other contamination. At least 6 inches above the floor, in a self-draining position, covered or inverted.

THINGS TO REMEMBER

Facilities and equipment

Kitchen equipment

Floor mounted equipment should have 6 inches legs at the bottom.

Tabletop equipment, either seal it to the table or should have 4 inches legs. Food prep equipment and utensils must be designed and constructed to be durable.

All food service equipment should be certified by:

- **NSF** - **N**ational **S**anitary **F**oundation
- **UL** - **U**nderwriters **L**aboratories
- **ANSI** - **A**merican **N**ational **S**tandards **I**nstitute

Before cleaning and sanitizing electrical appliances unplug and disassemble them. Scratch out the food particles or any other contaminants from equipment. Spray the sanitizing solution and let it air dry.

Thermometers

Use bi-metallic stem digital or analog thermometers to check the internal temperature of the food. It should be accurate to +/- 1.8 °F.

Calibrate thermometers before each shift and if you drop it to the ground for accuracy. Thermometers should have numbers on the dial to record accurate temperatures.

Infrared thermometers should only be used to measure temperature of equipment, not food.

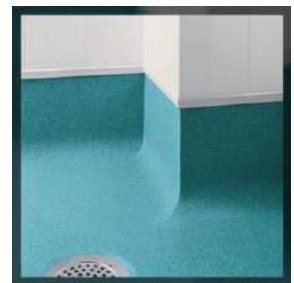
e.g., Use infrared thermometer to check the temperature of a Flat grill.

Ventilation

Ventilation in a food prep area should remove heat, fumes and moisture. Maintain ventilation system to avoid dust build-up, grease build-up in your kitchen.

Kitchen floor

The kitchen floor should be smooth, nonabsorbent, easy to clean and durable. The floor should use **coving** (avoid sharp corners), so it is easy to clean.



Utilities and Building Systems

Water and plumbing

Always use safe drinkable water for everything you do such as washing hands, making ice, washing utensils and during food preparation. When water is safe to drink it is called **potable**. Rainwater is **NOT** potable so cannot be used. Buy commercially bottled water if the water supply is interrupted.

Electrical power loss:

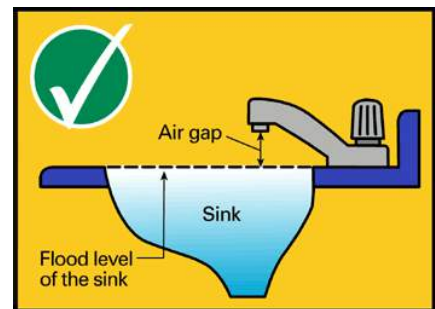
Electrical power loss for longer periods is an imminent health hazard. If you lose electrical power for a very long time, approval from regulatory authority is needed to reopen.

Cross connection & backflow

Cross-connection: Cross connection is a physical link between safe water and dirty water. Cross connection will contaminate drinkable water supply.

Backflow: Backflow is the reverse flow of contaminants into a drinkable water supply. **Air gap** and **Vacuum breakers** prevent backflow.

Air gap: Air gap is a guaranteed method to prevent backflow into system. There should be two air-gaps in the system. One between the flood rim of the sink and second between drain pipe and floor drain.



Lighting

Lighting requirements are usually measured in units called **foot-candles** or **lux**. All lights should have **shatter-resistant** lightbulbs or **protective covers**. These products prevent broken glass from contaminating food or food-contact surfaces.

Garbage

Keep garbage containers away from prep or food-storage areas. Indoor containers-leak proof, waterproof, and pest proof. Liners for containers-Line with plastic or wet-strength paper bags.

Outdoor containers-place on a smooth, nonabsorbent surface with tight-fitting lids covered at all times.

Maintaining the Facility

Clean the operation on a regular basis. Create master cleaning schedule and keep record. Review master cleaning and maintenance schedule and make changes if necessary. Revise cleaning schedule after a new piece of food-prep equipment is installed or state adopts the most current model FDA Food Code

Facility cleaning

- Dispose of mop water only in **Service Sink or Utility Sink** to avoid cross contamination
- Clean tools after use
- Hang mop on the hook to dry.

THINGS TO REMEMBER

Pest control

Always use licensed **Pest Control Operator (PCO)**. Restricted use pesticides should be only applied by PCO. Store pesticides in their original containers and keep MSDS for all on site.

Things you can do to control pest:

- Keep facility clean
- Deny entry
- Deny food
- Deny shelter
- Check all deliveries routinely to control entry of pest into the operation
- Install screens on windows and doors
- Install air-curtains on the doors
- Cover pipe surroundings with concrete

Food safety plan

As a Food Safety Manager your biggest goal is that no one should get a foodborne illness after eating or drinking at your establishment. To achieve this goal, use managerial control.

Elements of Active Managerial Control:

Written Standard Operating Procedures (SOPs)

Plans for monitoring and keeping records

Worker training

Intentional food contamination

Food contamination could be natural, lack of knowledge or intentional. There could be unhappy employee, competitor or terrorist who can contaminate food. Stay ALERT to avoid intentional food contamination.

- A Assure:** Make sure deliveries are safe
- L Look:** Monitor kitchen & Storage
- E Employees:** Know your staff
- R Reports:** Keep information
- T Threats:** Response to emergency

Do not allow any unauthorized person to enter into kitchen and food storage areas. A person could intentionally contaminate food. It is called food tampering. Create a food defense plan to avoid any intentional contamination to the food.

Hazard Analysis Critical Control Point (HACCP)

This system is a process that uses a combination of proper food handling procedures, monitoring techniques, and record keeping to help ensure that the food you serve is safe. Hazards are biological, chemical, or physical agents likely to cause illness or injury if they are not controlled.

You need a HACCP plan if you:

- Vacuum package food / Reduce oxygen packaging (R.O.P)
- Service of raw meats
- Package fresh squeezed orange juice
- Serve shellfish directly from a tank
- Curing or smoking food for preservation.

In addition to HACCP plan, obtain variance from health department for curing and smoking of meats and serving shellfish from the tank. Smoking used for flavoring of meats does NOT require HACCP or Variance.

7 HACCP Principles

1. Conduct a hazard analysis

In simple words think of what could go wrong in the entire process, right from purchasing to serving the food to the customer. Look at your menu and identify items that are TCS foods. then, determine where food safety hazards are likely to occur for each TCS food.

2: Determine Critical Control Points (CCPs)

Find the points in the process where the identified hazards can be prevented, eliminated, and/or reduced to safe levels.

Examples of CCP: Receiving, Storage, Cooking

3: Establish critical limits

For each CCP, establish minimum or max limits. these limits must be met to prevent or eliminate the hazard, or to reduce it to a safe level.

Examples: Maximum critical limit to receive raw chicken is 41°F
Minimum critical limit to cook chicken is 165°F

4: Establish monitoring procedures

Determine the best way for your operation to check the critical limits. MAKE SURE the limits are CONSTANTLY met.

Examples:

Check temperature at buffet (hot holding) stations every 2 hours. It should be 135°F or above.

5: Establish corrective actions

Identify steps that MUST be taken when a critical limit is not met.

Example: Raw chicken received at temperature greater than 41°F should be rejected. “Rejecting the delivery” is corrective action.

6: Establish verification procedures

Verify That the System Works Make sure the plan is working as intended.

Evaluate on a regular basis. Correct the training and operating procedures as required.

7: Establish record keeping

Establish Procedures for Record Keeping and Documentation. Maintain your HACCP plan and keep all documentation created when making it. Keep records of all the following actions:

- monitoring activities
- taking corrective action
- validating equipment (check for good working conditions)

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Practice test

1. A power outage has left hot TCS food out of temperature control for six hours. What must be done with the food?
 - A. Cool the food to 41°F (5°C) or lower.
 - B. Serve the food immediately.
 - C. Cook the food 165°F (74°C).
 - D. Throw the food away.

2. What is the best way to protect food from deliberate tampering?
 - A. Make it as difficult as possible for someone to tamper with it.
 - B. Allow former employees into the operation.
 - C. Perform spot inspections on new vendors.
 - D. Use the USDA A.L.A.R.M. system.

3. After handling raw meat and before handling produce, 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.

4. How should chemicals be stored?
 - A. Above food
 - B. Away from prep areas
 - C. In food storage areas
 - D. With kitchenware

5. What is the only jewelry that may be worn on the hands or arms while handling food?
 - A. Plain-band ring
 - B. Medical ID bracelet
 - C. Leather-band watch
 - D. Diamond ring

6. One way for managers to show that they know how to keep food safe is to
 - A. become certified in food safety.
 - B. take cooking temperatures.
 - C. monitor employee behaviors.
 - D. conduct self-inspections.

7. After which activity must food handlers wash their hands?
 - A. Clearing tables
 - B. Putting on gloves
 - C. Serving customers
 - D. Applying hand antiseptic

8. Which method is a safe way to thaw food?
 - A. As part of the cooking process
 - B. Under running water at 125°F (52°C) or higher
 - C. Submerged in a sink of standing water at 70°F (21°C)
 - D. On the counter at room temperature

9. Hot TCS food being hot-held for service must be at what temperature?
 - A. 70°F (21°C) or above
 - B. 125°F (52°C) or above
 - C. 135°F (57°C) or above
 - D. 155°F (68°C) or above

10. Supplies should be stored away from the walls and at least ____ off of the floor.
 - A. 2 inches (5 centimeters)
 - B. 4 inches (10 centimeters)
 - C. 5 inches (13 centimeters)
 - D. 6 inches (15 centimeters)

11. What should a food handler do when working with an infected cut on the finger?
 - A. Cover the wound with a bandage.
 - B. Stay away from food and prep areas.
 - C. Cover the hand with a glove or a finger cot.
 - D. Cover the wound with an impermeable bandage or finger cot and a glove.

12. Ice crystals on a frozen food item indicate
 - A. time-temperature abuse.
 - B. cross-contamination.
 - C. poor cleaning and sanitizing.
 - D. poor personal hygiene.

13. An imminent health hazard, such as a water supply interruption, requires immediate correction or
 - A. a HACCP plan.
 - B. closure of the operation.
 - C. evaluation of the situation.
 - D. normal operating procedures.

14. What should be done to ready-to-eat TCS food that will be prepped on-site and held for longer than 24 hours?
 - A. Date mark it.
 - B. Sell it.
 - C. Throw it away.
 - D. Serve it within the next hour.

15. The purpose of a food safety management system is to
 - A. keep all areas of the facility clean and pest-free
 - B. identify, tag, and repair faulty equipment within the facility
 - C. prevent foodborne illness by controlling risks and hazards
 - D. use the correct methods for purchasing and receiving food.

16. When may food handlers wear plain-band rings?
- A. At any time
 - B. When not handling food
 - C. Only if wearing gloves
 - D. Only if washing dishes
17. A manager asks a chef to continue cooking chicken breasts after seeing them cooked to an incorrect temperature. This is an example of which step in active managerial control?
- A. Identifying risks
 - B. Monitoring
 - C. Corrective action
 - D. Re-evaluation
18. Which food is associated with parasites
- A. Seafood
 - B. Beef
 - C. Poultry
 - D. Pork
19. Soup on a buffet should be labeled with the
- A. name of the food.
 - B. prep date.
 - C. soup's ingredients.
 - D. use-by date.
20. In addition to other criteria, how many people must have the same symptoms in order for a foodborne illness to be considered an outbreak?
- A. At least 1
 - B. At least 2
 - C. At least 10
 - D. At least 20
21. An operation must be closed immediately in the event of a
- A. Person entering the pre area unauthorized
 - B. Health inspection
 - C. Foodborne illness complaint
 - D. Rodent infestation
22. The purpose of a detergent is to
- A. Kill viral growth
 - B. Remove food and grease
 - C. Destroy bacterial toxins
 - D. Sterilize the utensils and dishes
23. When washing hands properly, which other body part must also be cleaned
- A. Arms from the elbow up
 - B. Face and arms
 - C. Exposed parts of forearms
 - D. Exposed parts of legs

24. A non-food contact surface must be
- Underwriters Laboratories (UL) certified
 - Nonabsorbent
 - Occupational Safety and Health Agency (OSHA) approved
 - Color coded
25. Storing raw fish in ice that is continuously draining helps prevent which type of contamination?
- Biological
 - Physical
 - Chemical
 - Cross contamination
26. Cups and glasses are taking too long to air dry. This could be caused by
- incorrect timing of the wash cycle.
 - an improper use of chemical sanitizer.
 - the water temperature being too high.
 - the ventilation system not working properly.
27. Cross-contact is most likely to occur when
- drainage pipes are not separated by a backflow device
 - raw beef and raw poultry are prepped together on the same surface
 - different types of food are corked in the same fryer oil
 - sauces are made with stocks made from scratch
28. Which HACCP principle is in action when a cook checks the temperature of beef stew being reheated for hot-holding?
- Conducting a hazard analysis
 - Taking a corrective action
 - Record-keeping
 - Monitoring.

Answers:

1	D
2	A
3	D
4	B
5	A

6	D
7	A
8	A
9	C
10	D

11	B
12	A
13	B
14	A
15	C

16	A
17	C
18	A
19	A
20	B

21	A
22	B
23	C
24	B
25	A

26	D
27	B
28	D

About ServSafe Food Protection Manager Examination

The ServSafe Manager Certification verifies that a manager or person-in-charge has sufficient food safety knowledge to protect the public from foodborne illness. Individuals that successfully pass the 90-question, multiple-choice exam will receive a ServSafe Manager Certification.

The ServSafe Manager Certification is accredited by the American National Standards Institute (ANSI) under the Conference for Food Protection Standards.

FAQs:

What is the passing score for the ServSafe Food Protection Manager Examination?

A passing score is 70% or higher. This is obtained by answering at least 56 out of 80 questions correctly. The exam has 90 questions; however, there are 10 pilot questions that are for research purposes only.

What is the format of the exam questions?

All exams are multiple choice with one correct answer for each question.

What languages is the ServSafe exam available in?

The ServSafe Food Protection Manager Certification Examination (ServSafe Manager Exam) is available in:

Online: English, Spanish and Chinese.

Print: English, Spanish/English, Korean/English, Chinese/English, French

What can I do if I do not pass the ServSafe Food Protection Manager Certification Examination and need to retest?

You can retest only if you did not pass the examination, or if your current certification is expiring. You will need to purchase a new exam each time you need to retest.

Number of Items (By Content Area) on the ServSafe® Examination, based on the 2016 ServSafe® Food Protection Manager Job Task Analysis

1. Management of Food Safety Practices (11.25%, 9 questions)
2. Hygiene and Health (17.5%, 14 questions)
3. Safe Receipt, Storage, Transportation and Disposal of Food (16.25%, 13 questions)
4. Safe Preparation and Cooking of Food (18.75%, 15 questions)
5. Safe Service and Display of Food (10%, 8 questions)
6. Cleanliness and Sanitation (13.75%, 11 questions)
7. Facilities and Equipment (12.5%, 10 questions)

TOTAL: 80 questions plus 10 pilot questions

FAQ Source: ServSafe.com