



# **Certified Food Safety Manager Study Guide**

**Name:**\_\_\_\_\_ **Date of Exam:**\_\_\_\_\_

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## Food Manager Certificate

All Food Service Establishments are required to have a Certified Food Manager. Establishments that have three or more employees at one time engaged in the storage, preparation or service of food must have at least one certified manager present at all times when these activities are taking place. All other establishments (general populations or two or less employees) must have a certified manager or managers responsible for all periods of operation but the manager or managers need not be present at all times. Upon successfully passing a certification examination a certificate will be issued which is valid for 5 years.

## How to use this guide

This guide is intended to help you learn what you need to know to obtain a Food Manager certificate. You will need a score of 75% to pass. At the end of this book, you will find study questions that will help you get ready to take the exam.

### Keep this book to use as a Reference

This study guide is yours and you should keep on hand in case you have any questions. If something comes up that you cannot answer, ask the “person in charge” (PIC) or call your local county Health Department.

- Hillsborough County Health Department: (813) 307-8015
- Pasco County: NPR (727) 841-4221      LOL (813) 558-5173, ext. 4      DC (352) 521-1450, ext. 7
- Pinellas County: (727) 824-6900
- State of Florida: (850)245-4444
- Center for Disease Control: 1-800-CDC-INFO (1-800-232-4636)
- Regional Poison Control Centers: (800) 222-1222

## A “Person in Charge” is required

Someone at your restaurant must be in charge during all hours of operation. This person in charge (**PIC**) is responsible for knowing the food sanitation rules and the procedures within your establishment. This person is responsible for providing you with the information you need to perform your job.

The PIC is usually a manager or supervisor but can be anyone who can demonstrate the knowledge listed above and is given the authority to oversee other employees.

## Learning Objectives

Food Managers are expected to know this information to obtain their Food Manager certification.

The concepts of foodborne illness will be introduced. This guide will address personal hygiene, contamination, and temperature control, reinforcing the food worker’s behaviors, which can prevent foodborne illness.

## Hand Washing

1. The Food Manager will be able to identify the correct technique for hand washing:
  - Turn on the water, wet hands, apply soap, rub hands for at least **20 seconds**.
2. The Food Manager must be able to identify situations when you must wash your hands:
  - After handling raw food and raw animal products
  - After using the toilet
  - After sneezing, coughing, eating, chewing, smoking, drinking or touching a body part like your hair, your ear, or rubbing or picking your nose
  - After performing any task that may contaminate your hands – like taking out the garbage, cleaning utensils, wiping counters or using chemicals
  - Before putting on food service gloves, and after removing gloves
3. The Food Manager will know that food service gloves are capable of spreading germs and are not a substitute for proper handwashing.
4. The Food Manager will know that smoking, eating, and chewing tobacco are prohibited in food preparation areas, including food & utensil storage areas.

## Helping Prevent Foodborne Illness

1. Five major mistakes that often cause foodborne illness:
  - Inadequate handwashing
  - Employees working while they are ill
  - Cross-contamination
  - Inadequate cooking temperatures
  - Inadequate temperature control (allowing foods to be in the danger zone)
2. Activities preventing Foodborne illness include:
  - Proper hand washing every time hands may have become contaminated
  - Food Handlers only working when healthy
  - Storing and handling of food in a manner to prevent contamination
  - Cooking each animal product to its required internal temperature
  - Maintaining hot and cold temperatures (keeping foods out of the danger zone)



## Foodborne Illness

1. A Foodborne illness is an illness resulting from eating contaminated food.
2. Foodborne illness is caused by organisms (germs), chemicals or toxins.
3. Food contaminated with organisms (germs) does not always look, smell or taste different from non-contaminated food.
4. Symptoms vary and may include diarrhea, vomiting, fever, cramping, and nausea. Depending on the cause symptoms may develop in a few minutes to several days. Some symptoms may last several days and can result in death.

## Temperature Control

All Food service workers must understand why hot and cold holding temperatures are important factors in preventing illness.

1. The danger zone is any temperature between **41°F - 135°F**.
2. Food being cooled or heated must move through the danger zone as rapidly as possible.
3. Hot Foods that will not be used for immediate service or hot holding **MUST** be cooled from **135°F to 70°F with 2 hours and from 135°F to 41°F or less within 6 hours**.

## Final Cooking Temperature

Food workers understand why cooking foods to proper temperatures are important for preventing illness. Cooking foods to the recommended temperature will kill disease-causing germs.

## Contamination and Cross Contamination

1. Physical contamination is foreign objects that accidentally get introduced into food. Food items may arrive already contaminated with dirt and pebbles.
2. Cross contamination happens when microorganisms are transferred from one food or surface to another food.
3. Methods of preventing cross contamination are washing, rinsing and sanitizing utensils, work surfaces, and equipment between uses.
4. A Food Manager will be able to identify storage conditions that will minimize the potential for cross-contamination:
  - Store raw meats below and separate from ready-to-eat foods
  - Store chemicals, cleansers, and pesticides completely separate from food, utensils, and single service items. Properly label all chemicals, cleansers, and pesticides



## Your Own Health Comes First.....

If you feel sick you should not go to work. The germs you bring to work can spread when you touch food, dishes, counters, utensils and other people.

- **Do not work if you have a fever or a sore throat**
- **Do not work if you have loose bowels (diarrhea)**
- **Do not work if you are throwing up (vomiting)**
- **Do not work if you have yellowing of the skin or dark colored urine (jaundice)**

Tell the manager if you have any of these symptoms. If the manager has questions, they can call the County Health Department (see contact numbers).

## Employee Illness

Infected food workers can spread a wide range of illnesses to consumers and co-workers through food and utensils.

Employees are required to report to the PIC when ill with any of the diseases listed below, or they live in the same household as a person with one of the diseases. An employee suffering from diarrhea, fever, vomiting, jaundice, and sore throat with a fever must also report this information to the PIC. The PIC is required to inform employees of this responsibility.

The most common illness transmitted from employees to others through Food and Utensils

		Common Symptoms				
Foodborne Illnesses*		D	F	V	J	S
1. Hepatitis A virus			F		J	
2. Salmonella Typhi			F			
3. Shigella	D	F	V			
4. E. coli 0157:H7	D					
5. Norwalk or Noroviruses	D	F	V			
6. Staphylococcus aureus	D		V			
7. Streptococcus pyogenes		F				S

**KEY:**

**J = Jaundice**

**D = Diarrhea**

**F = Fever**

**V = Vomiting**

**S = Sore throat with Fever**

Note: \*The PIC is required to notify the county health department when an employee has Hepatitis A, Salmonella Typhi, Shigella or E. coli 0157:H7.

## What to Report?

Some viral and bacterial agents are easily transferred from an infected food employee to food. The **FIVE** Foodborne illnesses that **MUST** be reported by a food employee to the PIC and the PIC MUST REPORT that illness to the proper Health Authorities.

1. **Salmonella**
2. **Shiga Toxin-producing E. Coli**
3. **Shigella**
4. **Hepatitis A**
5. **Norovirus**

Sneezing and Coughing can also cause contamination of food. "Germs" like Staphylococcus aureus (Staph) can be found in infected cuts, pimples and boils, but many HEALTHY people have Staph in their nose or throat. Sneezing or Coughing on RTE Food can transfer these germs and can make it unsafe!

Symptoms that a food employee must report to the PIC even if they are not directly related to the "Five" reportable illnesses are: Vomiting, Jaundice, Diarrhea, Sore Throat with Fever, and a Lesion or Sore that is open or infected on an exposed body part like a hand or wrist and cannot be properly covered and protected.

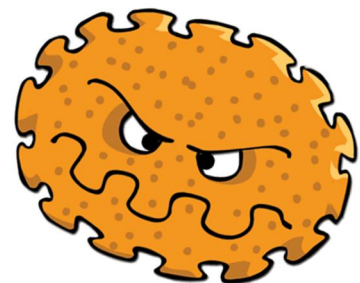
Ensure proper storage of Employee Personal Belongings. These items must be never "mixed in" with food being stored, prepared or served in a food service establishment. Medication must be stored in the locker room or properly designated area. If the medication must be refrigerated it must be inside a covered, leak-proof container that is clearly and properly labeled and in an area that has been approved for this purpose.

## Prevent the Spread of Disease

Handwashing is very important. Wash your hands often when working with food and drinks – this gets rid of germs that can make people sick. Wash your hands for approximately **20 seconds** with warm running water and soap, and then dry them with clean paper towels or an air dryer.

### Remember to always wash your hands:

- **Before** you touch anything used to prepare food.
- **Before** you touch food that will not be cooked.
- **Before** you put on latex-free gloves and after you remove them.
- **After** you work with **raw** meat, fish, and poultry.
- **After** you handle trash and take out the garbage.
- **After** you handle dirty dishes.
- **After** cleaning or using chemicals.



## Ensure Proper Handwashing

The hands of a food service worker are one of the primary sources of potential contamination of food. Contaminated hands can be a likely cause of **foodborne illness** even if the food has been properly prepared and cooked.

### How to properly wash your hands:

1. Turn on the water (as warm as you can stand)
2. Wet your hands
3. Apply Soap
4. Rub hand briskly for at least 20 seconds
5. Scrub in-between fingers and scrub fingertips
6. Scrub forearms to just below the elbows
7. Rinse forearms and hands – always rinse from the elbow down to the hands so the soap and germs rinse down into the drain and not back up your arms.
8. Dry hands and forearms (use single-use paper towels or appropriate air dryer)
9. Turn off water – preferably with a paper towel
10. If you are in an area with a closed door – use the paper towel to open the door
11. Discard the paper towel



**Hand Antiseptic can be used AFTER hand washing but NEVER a substitute for hand**

### Where to wash your hands:

1. Designated HAND SINK ONLY.
2. A **HAND SINK must not be used for any other purpose than for hand washing.**
3. A Hand Sink must be designated with a “Hand Sink” sign and must be properly supplied at all times.
  - ✓ Cold and Hot running water (100°F minimum) with adequate pressure
  - ✓ Supply of Soap
  - ✓ Way of drying hands (paper towel or air dryer)
  - ✓ Waste container
4. The Hand Sink must never be blocked by a mop bucket or speed rack. Food trays cannot be set on the edge of the hand sink. Spray bottles cannot be hung on the edge of the hand sink and a cutting board cannot be laid across the top of the hand sink!

## Germs are Everywhere

Germs such as **bacteria** and **viruses** are everywhere. Think of your hands and fingernails as easily “contaminated.” Just because they look clean does not mean they are clean. Germs are too tiny to see with your eyes. If you do not wash your hands in the right way and keep your fingernails trimmed short, your hands can put germs in food that will be eaten by your customers. They may get sick from these germs. This is called “**Foodborne Illness**” or “food poisoning”.

## Employee Practices

*Take care of How you Look and How you Act!*

- Do not smoke or chew tobacco while you are working or when you are near a food or dishwashing areas. Smoke only while you are on a break. After you smoke, wash your hands twice before you return to work (Double Hand Wash).
- Fingernails – Be sure to scrub underneath your fingernails. It is much easier to keep fingernails clean when they are kept short.
- Gloves can spread germs. Single –use food service gloves can also spread germs. Always wash and dry your hands before putting on gloves. Wash again when gloves are removed. Change gloves between tasks. When you wear gloves be aware that gloves can spread germs onto food that will not be cooked. Even when you wear gloves, it is best to keep fingernails short.
- Beverages – When you are thirsty while working, you may drink from a closed beverage cup with lid and straw or cup with lid and handle. This is allowed only if the food worker is careful to prevent contamination of hands, equipment, any service items, and exposed food.

## What Makes People Sick from Food?

People can get sick when the food they eat has germs. Germs cause **Foodborne Illness** or Food Poisoning. Germs grow easily in foods like meat, fish, poultry, milk, refried beans, cooked rice, baked potatoes, and cooked vegetables. These are called **Potentially Hazardous Foods**. These are all foods that are moist and they have nutrients that the germs need to grow. Germs grow well on these foods at warm temperatures between 41°F and 140°F.

Different kinds of germs can make people sick. **Bacteria** is one kind of germ. They grow fast and they may cause foodborne Illness. Some Bacteria make toxins that act like a poison. Cooking does not destroy most toxins. Almost always, the food looks and smells good, but it may have enough Bacteria or toxin to make someone sick. Toxins can occur in many foods that have not been kept cold enough or hot enough.

A **Virus** is another kind of germ that causes illness when it gets into food. You can have a virus and not know it. Even before you start feeling sick, you may be passing viruses into the food by not washing your hands after coughing, sneezing or using the toilet. This is one reason why the law requires all food workers to wash their hands using lots of soap and warm water.

**Parasites** are tiny worms that live in fish and meat. Cooking fish and meat to the right temperature will kill **parasites**.

**Chemicals** can also get people sick when they get into people food. Be sure to keep all chemicals away from food.

**Physical contamination** is when foreign objects are accidentally introduced into the food. Food items may arrive already contaminated with dirt and pebbles. Physical contamination such as broken glass can also happen at the facility.

*Discover contaminated food? Now, what? Discard contaminated food, and notify your manager right away!*

## Temperature Control

This section is about killing germs with cooking and stopping their growth by keeping the food hot or cold. This is called temperature control, and your restaurant needs at least one accurate metal stem probe (food) thermometer to check food temperatures.

## The “Danger Zone”

Germs like the bacteria need time, food and moisture to grow. The temperature between **41°F(5°C) and 135°F(57°C)** is called the **“The Danger Zone!”** When food sits on the **TDZ** bacteria can grow fast and make toxins that can make you and others sick.

## When to Discard Food

Foods left in the **“Danger Zone”** for more than 4 hours must be discarded. Reheating the food may kill the bacteria but the toxins (produced by bacteria) will remain in the product and cause illness.

## When is cooked food safe?

Remember you can choose several ways to cook food. No matter how you cook the food, it must reach the correct cooking temperature. Using a metal- stem probe thermometer is the only way to know the correct temperature of food. You must place the thermometer in the thickest part of the meat or in the center to get a true reading.

**Cold Holding** – Always keep cold food at **41°F or colder**. Fish, shellfish, poultry, milk, and red meat will stay fresh longer if you hold them at 41°F or colder.

**Hot Holding** - After the food is cooked and ready to serve, you will need to keep it warm enough to stop any germs from growing. You must turn on steam tables, soup warmers, and heated surfaces before you need them so that they will be hot enough when you put the cooked food into them. Keep hot food at **135°F or hotter**.

Keep it **Hot!** Stir food to help keep the food on top hot. A cover on the pan helps keep the heat inside.  
Keep it **Cold!** Food being held on the top section of a refrigerated preparation unit also benefits from being covered.

## Cooking Temperatures

**Cooking Temperatures** - Different raw animal foods have to reach different temperatures to be done or safe. Use a metal- stem probe food thermometer to check temperatures while cooking to make sure that it gets done all the way.

**Why Use a Food Thermometer?** Using a metal stem probe food thermometer when cooking meat, poultry, and even egg dishes is the only reliable way to know that the temperature of food is hot enough to kill harmful bacteria. Using a thermometer also helps you to avoid overcooking, giving you a safe and flavorful meal.

**Cooking Requirements for Specific Foods** – The next page shows temperatures that specific foods must reach to be safe.

**CONSUMER ADVISORY** – If RAW or undercooked items are being served, customers must be warned of the increased risk of Foodborne Illness. Consumer advisories can be posted on a menu, a place card, on the wall, or as a table tent. Check with local regulatory agency for requirements in your area.


<b>Cooking Requirements for Specific Foods</b>		
<b>Food Type</b>	<b>Minimum Internal Temperature</b>	<b>What to Know?</b>
<b>Poultry, Ground Poultry</b>	<b>165°F (74°C) for 15 seconds</b>	Stuffing should be cooked outside of poultry.
<b>Stuffing, Stuffed Meats, Casseroles, and dishes combining raw and cooked food</b>	<b>165°F (74°C) for 15 seconds</b>	Stuffing acts as an insulator, preventing heat from reaching the meat's center. Stuffing should be cooked separately.
<b>Ground or Flaked Meats hamburger, ground pork, flaked fish, ground game animals, sausage, injected and pinned meats</b>	<b>155°F (68°C) for 15 seconds</b>	Grinding meat mixes the organisms from the surface into the meat. Alternative minimum internal temperatures for ground meats: 150°F (66°C) for 1 minute 145°F (63°C) for 3 minutes
<b>Pork, Beef Steaks, Veal Lamb, Commercially Raised Game Animals, Eggs, Fish</b>	<b>145°F (63°C) for 15 seconds</b>	This temperature is high enough to destroy Trichinella larvae that may have infested pork.
<b>Beef Roast (Medium) Beef &amp; Pork Roasts &amp; Ham</b>  <b>Beef Roast (Rare)</b>	<b>145°F (63°C) 4 minutes</b>  <b>130°F (54°) 112 minutes</b>	Alternative minimum internal cooking temperatures for beef and pork roasts: <ul style="list-style-type: none"> <li>• 134°F (57°C) for 47 minutes</li> <li>• 138°F (59°C) for 19 minutes</li> <li>• 140°F (60°C) for 12 minutes</li> <li>• 142°F (61°C) for 8 minutes</li> <li>• 144°F (62°C) for 5 minutes</li> </ul>
<b>Fish, Foods containing fish, and Seafood</b>	<b>145°F (63°C) 15 seconds</b>	Stuffed fish should be cooked to 165°F (74°C) for 15 seconds.  Fish that has been ground, chopped, or minced should be cooked to 155°F (68°C) for 15 seconds
<b>Shell Eggs for immediate service</b>	<b>145°F (63°C) 15 seconds</b>	Only take out as many eggs as you need. Never stack egg flats near the grill or stove. Eggs cooked for later service must be cooked to 155°F for 15 seconds and held at 140°F.
<b>Foods cooked in Microwave Meat, Poultry, Fish, Eggs</b>	<b>165°F (74°C) 15 seconds- Then held COVERED for 2 minutes after cooking for temperature equilibrium</b>	Cover food, rotate or stir it halfway through the cooking process.





## “Is It Done Yet?”

### How to use a Food Thermometer

1. A thermometer that works best shows a range of 0°F (-18°C) to 220°F (104°C).
2. Check the internal temperature of the food toward the end of the cooking time.
3. Place the thermometer in the thickest part of the meat or in the center of the food to get a true reading. (Do not touch the bone with the stem of the thermometer to prevent a false reading).
4. When taking temperatures of a large amount of food like a big piece of meat, be sure to take the temperature in 2 or more locations
5. Compare your thermometer reading to the Required Cooking Temperatures to determine if your food has reached a safe temperature.
6. Wash and sanitize the thermometer each time you check the temperature of a food.

**Refrigerator Thermometer** – Every Refrigerator is required to have a thermometer. This thermometer must be located where it is easy to see when you open the refrigeration door. Every refrigerator should be operating at 41°F or less as indicated by the thermometer. If the thermometer reads above 41°F, then use a metal stem probe **food thermometer** to check the temperature of food inside of the refrigerator with a food thermometer (see above).

Basic Temperature Control Devices	Speed	Placement
<div>Digital Thermocouple</div> <div><p>Most models can be calibrated</p></div>	<div><b>2-5 Seconds</b></div> <ul style="list-style-type: none"><li>• Has greater temperature range than Bi-metallic</li><li>• Is typically faster and more accurate than the Bi-metallic</li><li>• Temperature is displayed numerically</li><li>• Typically has different tips that can be interchanged with the body of the device</li></ul>	<div>¼" or deeper in the food as needed</div> <div>Temperature is measured from the tip</div>
Thermistor/Digital Stem	10 Seconds	At least 1/2" deep in the food

 <p>Some models can be calibrated</p>	<ul style="list-style-type: none"> <li>• Has greater temperature range than Bi-metallic</li> <li>• Is typically faster and more accurate than the Bi-metallic</li> <li>• Temperature is displayed numerically</li> </ul>	<p>Temperature is measured from the tip</p>
<p><b>Bi-metallic Stem</b></p> 	<p><b>15-20 Seconds</b> Measures from 0°F to 220°F</p> <ul style="list-style-type: none"> <li>• Must be calibrated frequently</li> <li>• Must be calibrated if dropped</li> <li>• Must be calibrated if used for extreme temperature readings</li> </ul>	<p>2 – 2 ½" Deep Temperature is not measured from the tip of the stem but from the "dimple" that is about 1" from the tip</p>
<p><b>Infrared (IR) Thermometer</b></p> 	<ul style="list-style-type: none"> <li>• Has greater temperature range than Bi-metallic</li> <li>• Is typically faster and more accurate than the Bi-metallic</li> <li>• Measures the SURFACE temperature of food item</li> <li>• Cannot be used for measuring internal cooking temperatures</li> <li>• Needs a period of adjustment between Hot and Cold temperatures readings</li> </ul>	<p>Measures the temperature without making physical contact with the food</p>
<p><b>Single Use "Melt" Devices</b></p> 	<p>"T-Stick" &amp; Temperature Label" are examples</p> <ul style="list-style-type: none"> <li>• Each unit is made to measure one temperature one time</li> <li>• Device will change color or display a number when reaches temperature</li> </ul>	<p>Can be used in sanitizing water</p> <p>One time check of a food item cooking</p> <p>Temperature of the air in a refrigerated truck</p>

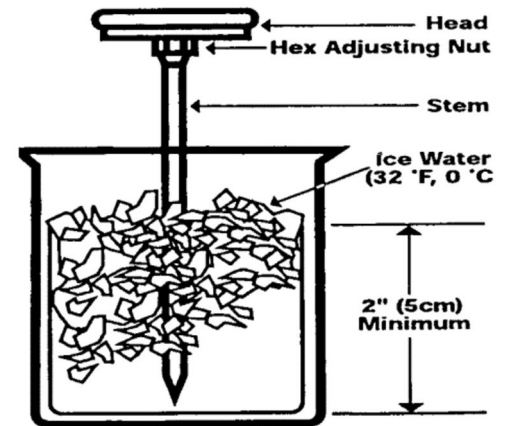
Refer to manufacturer instructions to find out if your thermometer can be calibrated. Check the web or your food supplier to obtain the best thermometer for your establishment.

Calibrate your **Food Thermometer** at regular intervals and whenever it is bumped or dropped.

## Calibrating a Food Thermometer

When you use a food thermometer you need to make sure the temperature it gives you is accurate. An easy way to do this is to use ice and water.

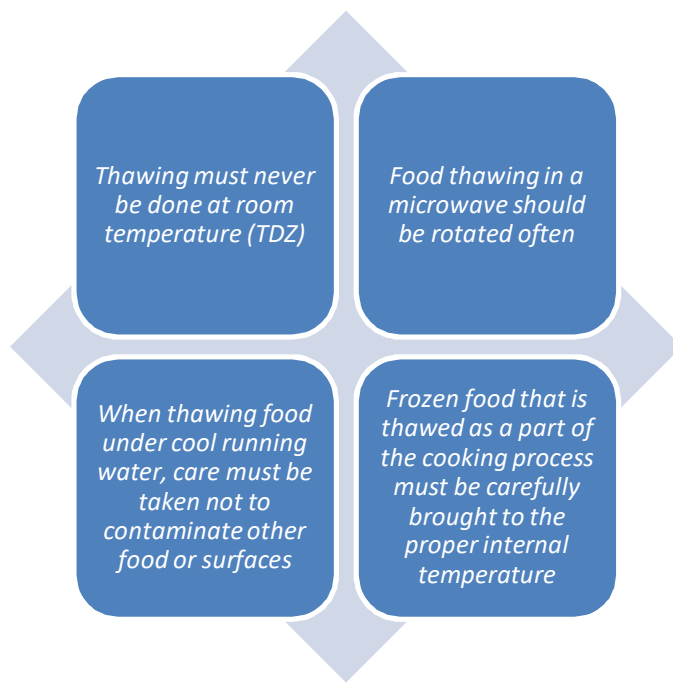
- Pack a large cup to the top with crushed ice and water
- Put the thermometer at least 2" into the ice slurry. After 30 seconds, read the dial. It should read 32°F (0°C).
- If it does not read 32°F after 30 seconds, you need to:
  1. Leave it in the ice slurry. Add ice as it melts.
  2. Use pliers or a wrench and turn the nut on the back of the thermometer until the needle reads 32°F.
  3. Wait 30 seconds. Keep repeating these steps until the thermometer reads 32°F (0°C).



## Thawing

Thawing is a process that, if not done properly could make food unsafe. There are four accepted methods of thawing.

1. In a refrigerated unit held at a temperature of 41°F (5°C) or below
2. As part of the cooking process
3. Under **cool** running water (**70°F** (21°C) or less) with the water draining away from the product
4. In a microwave, if it is part of the continuous cooking process. The cooking process may be completed in the microwave or immediately transferred to a conventional cooking process



## Cooling Hot Foods

When cooling of foods, it's important to move the food temperature through the **"Danger Zone"** as quickly as possible to keep food safe. Improper cooling procedures can cause foodborne illness.

**Fresh is Best** – You always take a chance that bacteria can grow and produce toxins when you cool food. It is safest to make food fresh each day, just before you serve it.

**Speed is Important with Cooling** – If you must make food in advance or save leftover food, cool it as fast as you can to prevent bacteria growth and toxin production. **Reheating will not destroy toxins.**

## Cooling Solid Foods

When cooling solid cooked foods such as roast, turkey, and solid cuts of meats, be sure to:

1. Cut large roasts and turkeys into smaller portions. This will help them to cool faster.
2. Put all meats and other hot food in the refrigerator.

**Cooling Soft/Thick Foods** Examples of soft/thick foods are refried beans, rice, potatoes, stews, chili, thick soup or thick sauces.

You can cool soft/thick foods by pouring food into a shallow metal pan. Use a sheet pan for very thick foods like refried beans. Cooling thick food is not easy. Whenever possible use a flat pan and spread the food out as shallow as you can speed up the cooling.

When cooling food in shallow metal pans, be sure to:

1. Pour hot food into shallow metal pans. The shallower the pan the faster the food will cool.
2. Stirring food speeds up cooling time
3. Once food cools to 41°F, you can place food in a large container and cover it.

**Air Movement** – Air in the refrigerator must be able to move around the food. The pans and dishes need to have space between them; do not crowd them. Do not stack pans on each other. Do not cover the food while it is cooling. A cover may be put on after the food has fully cooled.

**Cooling Liquid Foods** – You can use shallow metal pans or you can use the ice and water bath to cool thin soup and sauces. When cooling food with an ice bath, be sure to:

1. Close the drain in a large sink. Place the metal pot or pan of hot food in the sink. The sink drain must be indirectly plumbed.
2. Fill the sink with ice and cold water up to the level of food in the pot or pan.
3. Stir the soup or sauce often so that it cools all the way to the center. Ice paddles or cooling wands can be used to speed up the cooling process.
4. Add more ice as it melts.
5. The food must reach 41°F

**Remember** – You can choose several ways to cool food. No matter how you cool the food, it must drop from:

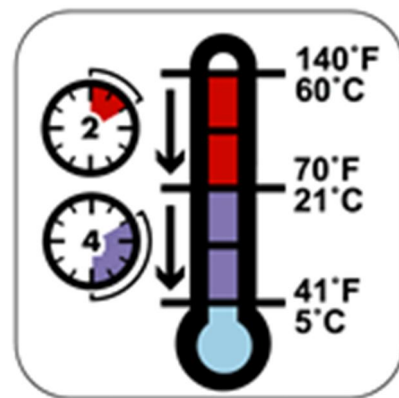
Hot Food that will not be used for immediate service or hot holding **MUST** be cooled from **135°F to 70°F within 2 hours** and from **135°F to 41°F or less within 6 hours**

Use a food thermometer to check the temperature while it's cooling. If it isn't cooling fast enough you will need to do something else to speed up cooling.

PHF/TCS (**P**otentially **H**azardous **F**ood/**T**ime-Temperature **C**ontrol for **S**afety Food) prepared from items such as canned tuna or reconstituted foods that are at room temperature **MUST** be cooled to 41°F (5°C) or less within 4 hours of preparation.

## Recommended Methods for Cooling

- Blast Chillers
- Walk-in Coolers – with item loosely covered
- Transfer food into multiple smaller containers
- Reduction in size (Slicing beef roast)
- Use shallow pans so food is 3" or less
- Properly place in an Ice Bath
- Add ice to product as ingredient
- Use containers that help transfer heat quickly (stainless steel)
- Stir while cooling; stir with ice wand



## Hot Holding

**PHF/TCS Food must be HOT held at 135°F (57°C) or above – Out of TDZ (Temperature Danger Zone): 41°F (5°C) -135°F (57°C)**

## Cold Holding

**PHF/TCS Food must be COLD held at 41°F (5°C) or below – Out of TDZ (Temperature Danger Zone): 41°F (5°C) -135°F (57°C)**

### Re-Heating

PHF/TCS food that is to be re-heated has already passed through the TDZ during the cooking process and again during the cooling process. Re-Heating brings the food through the TDZ for the 3<sup>rd</sup> time.

- Re-Heating food for HOT holding: The food **MUST** be brought to a temperature of at least **165°F (74°C) for 15 seconds within 2 hours**
- Re-Heating food that has been commercially processed and packaged and it **Ready-to-Eat (RTE)**, for Hot Holding: The Food **MUST** be brought to a temperature of at least 135°F (57°C) for 15 seconds with 2 hours
- Re-Heating food that has been properly cooked and cooled or that has been commercially processed and packaged and is RTE, for immediate service does not have a re-heating requirement
- Re-Heating may only be done with an approved equipment such as an oven, stove top, steamer, microwave oven or other similar equipment. A steam table, chafing dish or a hot holding box are NOT FDA Food Code approved for re-heating PHF/TCS food. If PHF/TCS food is in a steam table, chafing dish or hot holding box and is found to be in the TDZ it **MUST** be removed and reheated to 165° (74°C) or higher with an approved equipment or discarded.

### Safe Storage Practices

You want all the food you use to be healthy and safe. This section talks about how to safely store and handle food.

#### Cold Holding and Cold Storage

Keeping cold food cold and out of the TDZ of 41°F (5°C) - 135°F (57°) is the requirement that applies to most foods and complies with the FDA Food Code.

Cold temperatures help extend the shelf life of many PHF/TCS foods by slowing down the growth of pathogens and bacteria that cause spoilage.

## General Guidelines & Recommendations for Maintaining “Freshness” in Cold Storage:

Whole Cut Meat/Meat Products:	Fresh 41°F (5°C) for 3-7 days 28°F - 32°F (28°C - 32°C) up to 3 weeks	Longer when frozen Relative humidity should be 85%-90%
Ground Meat:	Fresh 41°F (5°C) for 1-2 days	Longer when frozen
Luncheon Meats (unopened)	41°F (5°C) for 1-2 weeks Keep track of “use by dates”	When kept in storage after opened always note the date, these products are RTE and must be store with that in mind
Poultry	Fresh 41°F (5°C) for 2 days Cooked 41°F (5°C) for 1-2 days	Longer when frozen Relative humidity should be 75%-85% to control sliminess
Eggs	Whole, undamaged shells 41°F (5°C) up to 2 weeks Hard Boiled 41°F (5°C) for 1 week	34°F-38°F (1°C-3°C) will help maintain maximum quality
Fish and Shellfish	Fresh 41°F (5°C) for 1-2 days Cooked 41°F (5°C) for 3-4 days Smoked 41°F (5°C) for 10 days	More perishable, more sensitive to temperature abuse that meats or poultry
UHT and Aseptically Packaged Food	Once package is open store at 41°F (5°C) or lower If not aseptically packaged unopened packages should be stored at 41°F (5°C) or lower	Ultra High Temperature (UHT) treated food that is aseptically (free of microorganisms) packaged may be stored at room temperature

## Date Marking

Ready-to-eat potentially hazardous foods must be date marked with either preparation date, use-by date, or the date the commercial package was opened.

- **7 Days** The food can be stored for 7 days when the refrigerator maintains 41°F or colder. Food older than 7 days must be discarded.
- **1 Day** Food used within 1 day is not required to be date marked.

## Frozen Storage

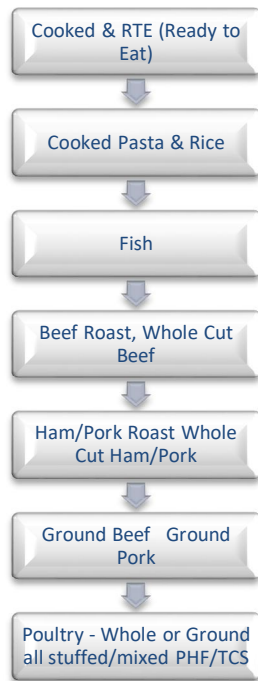
- Keep food solidly frozen – recommended temperature 0°F (18°C).
- Don’t overload; use open shelving. Maintain internal thermometer.
- Allow for proper defrost cycles. Watch for signs that a product has thawed and re-frozen like large ice crystals or a water line.
- A product that is removed for the purpose of thawing or “slacking” must be labeled with the date that it is removed from the freezer.

## Cold Storage

Zone Storage is keeping Potentially Hazardous Food/Time-Temperature Control for Safety Food (PHF/TCS) in the “Right Zone” and free of Cross Contamination (cXc)

PHF/TCS food must be at 41°F or below – out of the **TDZ**. 41°F - 135°F.

All products in the cooler should be properly labeled and dated. If a product has been cooked and placed in the cooler for “cooling” it must be properly documented, labeled and dated. Always watch for damaged packaging or product that may be leaking.



**Cooked** and **Ready To Eat (RTE)** are always the top dish. Cooked meat products, washed vegetables, cut leafy greens, sliced tomatoes, Cakes and RTE/pre –cooked lunch meats, etc.

The next dish is always the **FISH**. Live shellfish in its original container can be held at 45°F or below. Retain shellstock ID tags for 90 days.

Under the FISH is the next seat, we place the **Roast, Chops** and Whole cuts of Meat.

The MEAT can sit alongside or it can look Down at Porky Pig that clown.

Pork and Beef can ham it up and look all around because they will always be above the PORK and BEEF that is GROUND.

## Dry Storage

Rooms must be appropriate for food storage. Construction materials must be smooth and easy to clean. Do not use mechanical, toilet, locker rooms, etc.

- No exposure to overhead plumbing or other sources of potential contamination
- Temperature 50°F Humidity 50%-60% with adequate air circulation
- Open shelving with the bottom shelf at least 6” off the floor away from walls. Inverted milk crates, bread trays or soda cases should not be used as storage or dunnage racks.
- Always use **First In First Out (FIFO)**. Products must be labeled and have proper codes and dates.
- Bulk items and items transferred from original containers must go into food approved food grade containers, in good condition and properly labeled and dated. Containers not on wheels, need to be stored, at least 6” off the floor. Keep food and non-food items separated.
- Inspect for damaged goods at the time of delivery, including dented cans, torn packaging, water or pest damage. If damage is found you should reject the delivery.

## A Clean Workplace is Safer

It takes more than soap and water to keep a food business clean and safe. You will likely be using detergents and sanitizers.

Follow these important rules.

- Keep chemicals away from food and clean utensils. If chemicals must be stored in the same room, be sure they are stored in their own area. The area should be below food and utensils, so there is no chance of chemicals splashing onto the food and utensils.
- Keep all chemicals in the bottles or boxes they come in. If you put them in a different container, label them clearly.

## Cross Contamination

The transfer of pathogens (harmful microbes) from RAW Food to food that is Cooked and/or **Ready-to-Eat (RTE)**. This can happen when there is physical contact between the RTE food and Raw Food or a food handler touches Raw Food and does not properly wash their hands before touching RTE food. cXc also happens when the same utensils or cutting boards are used for RAW food and then RTE without properly cleaning and sanitizing the items in-between uses.

## Keep foods safe from cross contamination

As a food worker, you must prevent cross contamination. Here are some important ways you can prevent cross-contamination.

- Store raw meat, fish, and poultry on the lower shelves of the refrigerator. Don't let raw meats; beef, pork lamb, fish or poultry drip onto foods that will not be cooked before serving. Keep different types of raw food away from ready-to-eat food. Wash your hands after handling raw meat and foods that will not be cooked before eating.
- Wash your hands before handling food. Wash, rinse and **sanitize** the cutting surface and all the utensils and knives every time you finish a job or between preparing different foods.
- Use clean utensils instead of hands for dispensing food.
- Store foods away from cleaning chemicals and poisons.

## Contamination

The presence of a substance (biological-physical-chemical) in the food that can be harmful to people. Food can become contaminated many ways as it moves from the "Farm to the Fork".

**Biological Hazards** are the cause of the greatest number of foodborne illnesses. The different types of Biological Hazards are Bacteria, Viruses, Fungi/Mold, Allergens, and Parasites. Pathogenic (disease-causing) Bacteria is responsible for more foodborne illness than any other biological hazard.

**Physical Hazards** are the unintended presence of a foreign body such as a fingernail, staple, piece of bone, wire, insect, rodent dropping or glass in food.

**Chemical Hazards** are the unintended presence of an unwanted chemical in food. The chemical could be a naturally occurring chemical like a toxin from a mushroom or a man-made chemical like sanitizer.

## Spore Forming Bacteria

Spore Forming Bacteria is a special group that has unique concerns we must be aware of. Cooking PHF/TCS Food the proper temperature is one of the main ways we keep food safe. The formation of spores allows some bacteria to survive the cooking process, freezing, and other procedures. Examples of spore forming bacteria are; *Bacillus cereus*, *Clostridium botulinum*, and *Clostridium perfringens*. If the spore stays in the TDZ too long the protective shield will break down and the spore becomes an active or vegetative bacterium again. The bacterium can produce a toxin that will stay in the food even if re-heating or freezing occurs.

## Food Allergen Control Plan

Allergens cause people to have allergic reactions and are different from microbes that cause foodborne illness. Cleaning and Sanitizing many not be enough to remove all the traces of an allergen. An “Allergen Control Plan” may be needed to help foodservice workers understand what needs to be done or what to tell customers.

Cross Contact is when a food allergen is transferred from one food to another food that is allergen free. Cross Contact must also be prevented.

## The BIG EIGHT Food Allergens:

**Milk, Eggs, Wheat proteins, Fish, Shellfish, Peanuts, Tree Nut and Soy.** These cause most food allergy reactions and are found in about 90% of all food ingredients. Staff must be trained to avoid cross contamination and properly answer questions about food ingredients. Food allergies can be serious and even life-threatening.

### **NO Barehand cXc**

*Protect buffet tables and self-service areas. Prevent bare hand contact by supplying utensils. Utensils must be stored on a clean & sanitized FCS or in the food with the handle fully up & out of the food.*

## Storage of Cleaning Supplies and Toxic Materials

Cleaning products, sanitizers, and pesticides are toxic chemicals and must be kept separate from food, food contact surfaces, utensils, storage containers, single service items, wiping clothes and other items.

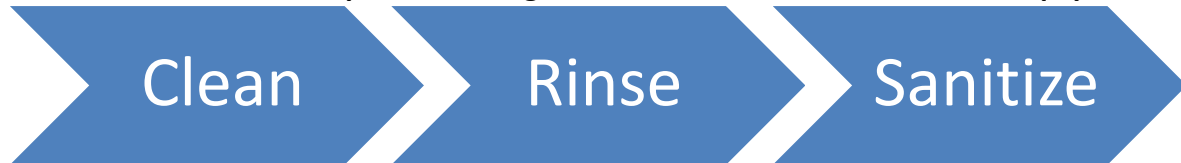
- All items must be properly labeled. No unlabeled containers.
- A **Material Safety Data Sheet (MSDS)** must be available for each chemical/toxic item used in a facility.
- Items such as “sterno cans”, hand lotion, medicine bottles etc., are considered to be potentially toxic items.
- If ever in doubt about contamination from a chemical or toxic item – **throw it out!**

## Utensils, Surfaces, and Equipment

Another way to prevent cross contamination is to be sure that utensils, work surfaces, and equipment are washed, rinsed, and sanitized between uses.

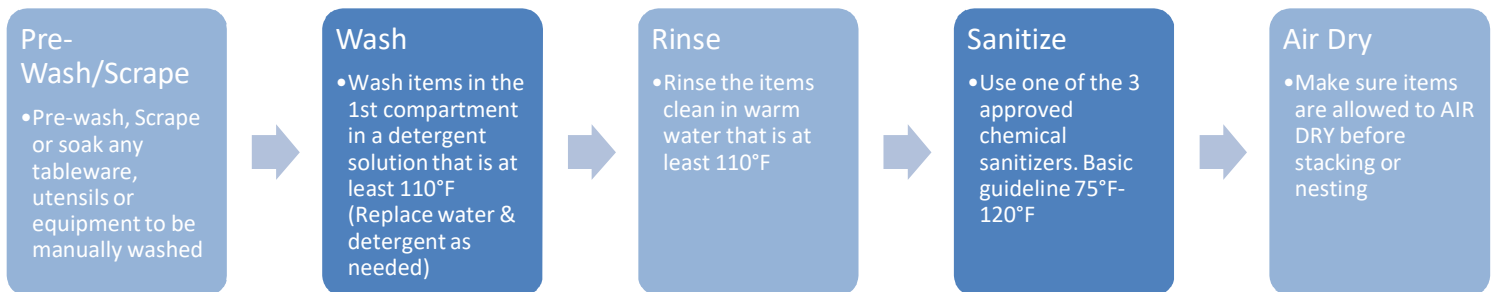
- **Wash** them in hot soapy water
  - **Rinse** them in clean hot water
  - **Sanitize** them with freshly prepared sanitizer (1 to 2 teaspoons of bleach per 1 gallon of water)
- Follow the recommended cleaning directions for each piece of equipment.

**Remember the correct steps for cleaning utensils, food contact surfaces and equipment are:**



## Manual Dishwashing

The 3 compartment sink is often the primary or the only means to clean and sanitize utensils and equipment. There are 5 basic steps we take in a very specific order. The steps and the order are easy to remember if we think about how the Dishwasher **PW RSA** Powers (**P**: Pre-wash/Scrape; **W**: Wash; **R**: Rinse; **S**: Sanitize **a**: Air Dry) their way through the job of dishwashing. Be sure to clean and sanitize all sink compartments and the drain boards before starting.



**Iodine:** 12.5ppm-25ppm  
**Water Temperature:** 75°F - 120°F

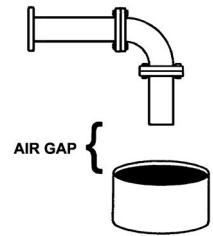
**Chlorine:** 50ppm-22ppm  
**Water Temperature:** 75°-120°F

**Quat:** 200ppm  
**Water Temperature:** 75°-90°F

## Storage & Disposal of Wastes

- No food, food products, food storage containers, single-use items or disposable food containers can be stored in this area
- Mops, brooms, dust pans etc., must not be stored on the floor, in the sink or in the mop bucket.
- All cleaning supplies and other chemicals must be properly labeled and have **Material Safety Data Sheet (MSDS)**

- Potable water must always be protected from contamination caused by the overflow from a **CROSS CONNECTION** or **BACKFLOW**. A **CROSS CONNECTION** is a physical connection between potable (safe to drink) water and non-potable (not safe to drink) water. **BACKFLOW** is when contaminated water (non-potable) flows backward into the potable water. Devices to prevent backflow include; air gap, double check valve and a pressure type vacuum breaker. An **AIR GAP** is the most dependable way to prevent backflow. The GAP must be at least twice the diameter of the supply line (drain pipe) but never less than 1”.



## Pests

Cockroaches, flies, mice and rats can carry disease and cause damage. Prevention and control of these pests are essential.

The Primary Pests or Vermin in of Food Service:

1. German Cockroaches
2. Rodents – Norway Rats, Mice
3. Flying Insects – House Fly, Fruit Fly (Small filth fly)

Other foodservice pests are: Roof Rats, American Roaches, Grain Beetles and Moths



Keep the inside and outside areas clean. All pest must have Food, Shelter, and Water to Survive. Keep them out! Outside garbage must be contained in Watertight containers with lids remaining closed when not in use.

Pest can come into the facility through small holes or gaps under the door to the outside. A mouse can slip through a space of 1/4“. Block their entry by eliminating small holes and gaps under and around the door.

If you find pests inside your facility, contact a licensed pest control service.

- Chemical Applications should only be applied by a properly Licensed/Certified individual or a **Pest Control Operator (PCO)**
- Food Contact surfaces must be protected during application
- Only when there is NO food in production
- After Application Food Contact Surfaces must be cleaned and sanitized

## Lighting

Light bulbs should be shatter resistant and the appropriate light shields should be used.

Light Intensity requirements:

- Food Preparation Area – **50 Foot Candles**
- Handwash/Warewash areas, buffets, restrooms, reach in coolers - **20 Foot Candles**
- Walk-in Coolers/Freezers, dry storage, dining rooms – **10 Foot Candles**