

# BASIC FOOD HANDLER'S COURSE (4 Hours)



Environmental Health Section  
Department of Preventive Medicine  
Tripler Army Medical Center



# SECTION 1

## Introduction to Foodborne Illnesses (and what causes them)



# Introduction



**“I am the one asking you – on behalf of myself, my family, and the 1,500 others who were sickened – please make our food system safe.”**

**– Testimony from the congressional hearing, “The Outbreak of Salmonella in Eggs,” Sept. 22, 2010**

# Introduction

- CDC estimates that each year, roughly 1 in 6 Americans (or 48 million people) get sick.
  - After combining the estimates for the major known pathogens and the unspecified agents, the overall annual estimate of the total burden of disease due to contaminated food consumed in the United States is 47.8 million illnesses, 127,839 hospitalizations, and 3,037 deaths.
- Among the 31 known foodborne pathogens:
  - nontyphoidal *Salmonella*, *Toxoplasma*, *Listeria*, and norovirus caused the most deaths;
  - nontyphoidal *Salmonella*, norovirus, *Campylobacter*, and *Toxoplasma* caused the most hospitalizations; and
  - norovirus caused the most illnesses. Although norovirus usually causes a mild illness, norovirus is a leading cause of foodborne deaths because it affects so many people.



# Foodborne Illness

- A common, costly - yet preventable - public health problem.
- Each year, 1 in 6 Americans gets sick by consuming contaminated foods or beverages. Many different disease-causing microbes, or pathogens, can contaminate foods, so there are many different foodborne infections. In addition, poisonous chemicals, or other harmful substances can cause foodborne diseases if they are present in food.
- Foodborne Illness Outbreak
  - Incident occurs when a group of people consume the same contaminated food and two or more of them come down with the same illness.



# Foodborne Pathogens

- **Bacillus cereus**– A variety of foods, particularly rice and leftovers, as well as sauces, soups, and other prepared foods that have sat out too long at room temperature;  
<http://www.foodsafety.gov/poisoning/causes/bacteriaviruses/bcereus/>
- **Campylobacter**: Raw and undercooked poultry, unpasteurized milk, contaminated water.  
<http://www.foodsafety.gov/poisoning/causes/bacteriaviruses/campylobacter/index.html>
- **Clostridium botulinum**–**Infants:** Honey, home-canned vegetables and fruits, corn syrup. **Children and adults:** Home-canned foods with a low acid content, improperly canned commercial foods, home-canned or fermented fish, herb-infused oils, baked potatoes in aluminum foil, cheese sauce, bottled garlic, foods held warm for extended periods of time.  
<http://www.foodsafety.gov/poisoning/causes/bacteriaviruses/botulism/index.html>





# Foodborne Pathogens(con't.)

- **Clostridium perfringens:** Beef, Poultry, Gravy; often occur when foods are prepared in large quantities and are then kept warm for a long time before serving. That's why outbreaks of these infections are usually linked to institutions (such as hospitals, school cafeterias, prisons, and nursing homes) or events with catered food.

<http://www.foodsafety.gov/poisoning/causes/bacteriaviruses/cperfringens/index.html>

- **E. Coli:** Contaminated food, especially undercooked ground beef, unpasteurized (raw) milk and juice, soft cheeses made from raw milk, and raw fruits and vegetables (such as sprouts); Contaminated water, including drinking untreated water and swimming in contaminated water; Animals and their environment: particularly cows, sheep, and goats. If you don't wash your hands carefully after touching an animal or its environment, you could get an *E. coli* infection; Feces of infected people.

<http://www.foodsafety.gov/poisoning/causes/bacteriaviruses/ecoli/index.html>

- **Lysteria:** Ready-to-eat deli meats and hot dogs; Refrigerated pâtés or meat spreads; Unpasteurized (raw) milk and dairy products; Soft cheese made with unpasteurized milk, such as queso fresco, Feta, Brie, Camembert; Refrigerated smoked seafood; Raw sprouts

<http://www.foodsafety.gov/poisoning/causes/bacteriaviruses/listeria/index.html>

# Foodborne Pathogens (con't.)

- **Salmonella**: Contaminated eggs, poultry, meat, unpasteurized milk or juice, cheese, contaminated raw fruits and vegetables (alfalfa sprouts, melons), spices, and nuts.  
<http://www.foodsafety.gov/poisoning/causes/bacteriaviruses/salmonella/index.html>
- **Shigella**: Contaminated food or water, or contact with an infected person. Foods most often associated with *Shigella* outbreaks are salads and sandwiches that involve a lot of hand contact in their preparation, and raw vegetables contaminated in the field.  
<http://www.foodsafety.gov/poisoning/causes/bacteriaviruses/shigella/index.html>
- **Staphylococcus** : Foods that are made with hand contact and require no additional cooking, such as: Salads, such as ham, egg, tuna, chicken, potato, and macaroni; Bakery products, such as cream-filled pastries, cream pies, and chocolate éclairs; Sandwiches; Other sources include milk and dairy products, as well as meat, poultry, eggs, and related products.  
<http://www.foodsafety.gov/poisoning/causes/bacteriaviruses/staphylococcus/index.html>



# Foodborne Pathogens (con't.)

- **Toxoplasmosis:** Eating undercooked, contaminated meat (especially pork, lamb, and venison); Accidental ingestion of undercooked, contaminated meat after handling it and not washing hands thoroughly (*Toxoplasma* cannot be absorbed through intact skin); Eating food that was contaminated by knives, utensils, cutting boards, or other foods that had contact with raw, contaminated meat.  
<http://www.cdc.gov/parasites/toxoplasmosis/epi.html>
- **Norovirus:** Food can get contaminated with norovirus when infected people who have stool or vomit on their hands touch the food, it is placed on counters or surfaces that have infectious stool or vomit on them, or tiny drops of vomit from an infected person spray through the air and land on the food. Food can also be contaminated at their source from oysters that are harvested from contaminated water or fruit and vegetables that are contaminated in the field.

<http://www.cdc.gov/norovirus/food-handlers/work-with-food.html>



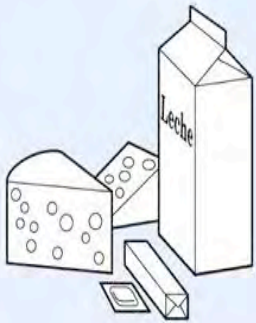
# Potentially Hazardous Foods



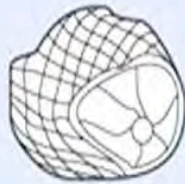
- Generally meat, poultry and dairy products.
- Supports rapid growth of microorganisms.
- Has a pH of 4.6 – 7.5.
- Has a water activity of 0.85 – 0.97.



# Potentially Hazardous Food



**Milk and Milk Products**



**Meat: Beef, Pork, Lamb**



**Fish**



**Heat-Treated Plant Food, such as Cooked Rice, Beans, and Vegetables**



**Eggs (except those treated to eliminate *Salmonella* spp.)**



**Poultry**

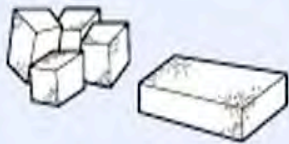


**Shellfish and Crustacean**

# Potentially Hazardous Food



**Baked Potatoes**



**Tofu or Other  
Soy-Protein Food**



**Untreated Garlic-and-Oil  
Mixtures**



**Raw Sprouts and  
Sprout Seeds**



**Synthetic Ingredients,  
Such as Textured Soy  
Protein in  
Meat Alternatives**



**Sliced Melons**



# Factors Contributing To The Growth Of Pathogens

- F- Food
- A- Acidity
- T- Time
- T-Temperature
- O- Oxygen
- M- Moisture



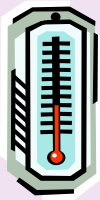
FOOD



ACIDITY



TIME



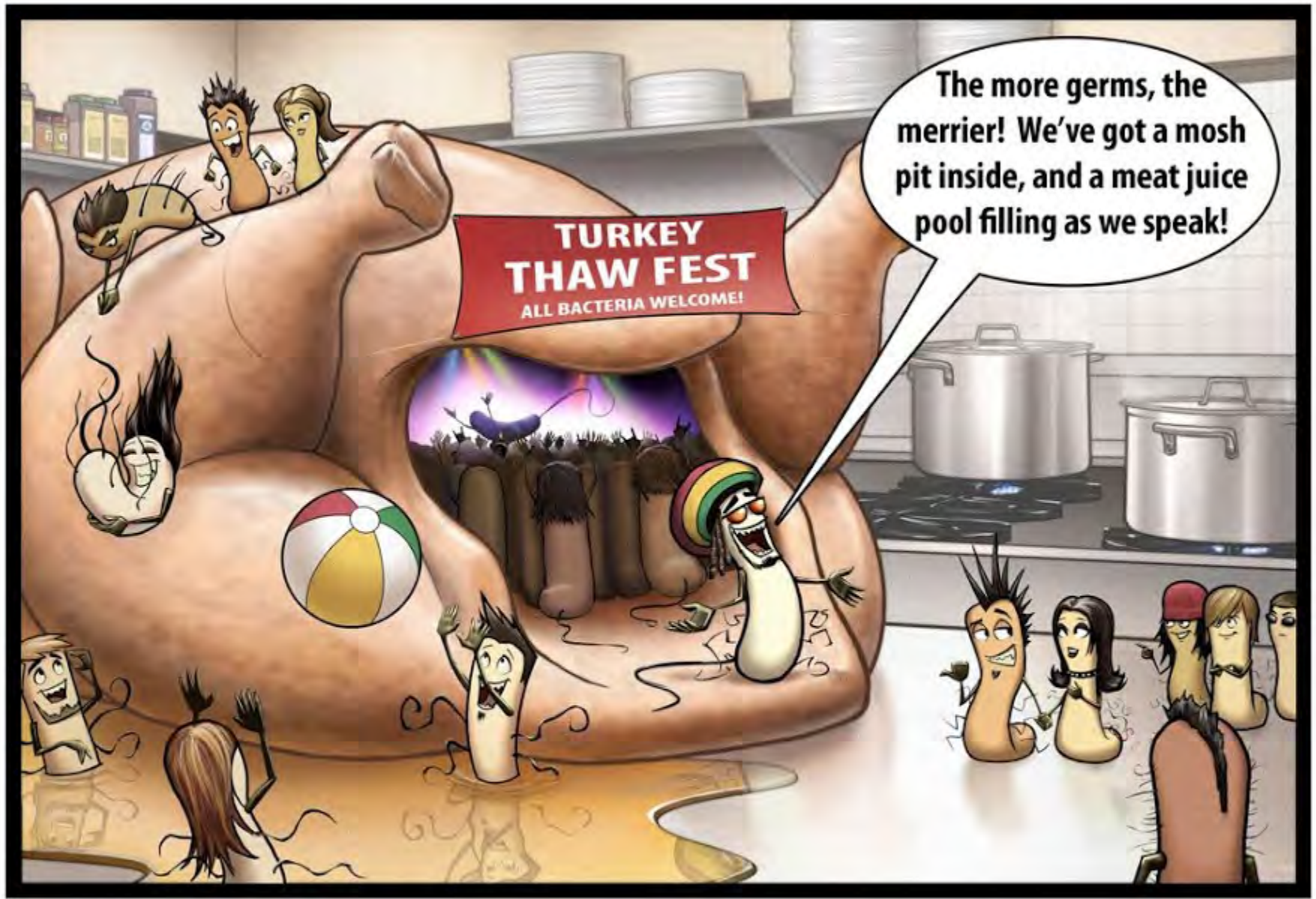
TEMPERATURE



OXYGEN



MOISTURE





# How Food Becomes Unsafe

- Food from Unsafe Sources
- Inadequate Cooking
- Improper Holding/ Time-Temperature Abuse
- Contaminated Equipment/ Cross-Contamination Protection (to include food allergens)
- Poor Personal Hygiene





## SECTION 2

# Food from Unsafe Sources





## SECTION 3

# Inadequate Cooking

# MINIMUM COOKING TEMPERATURES

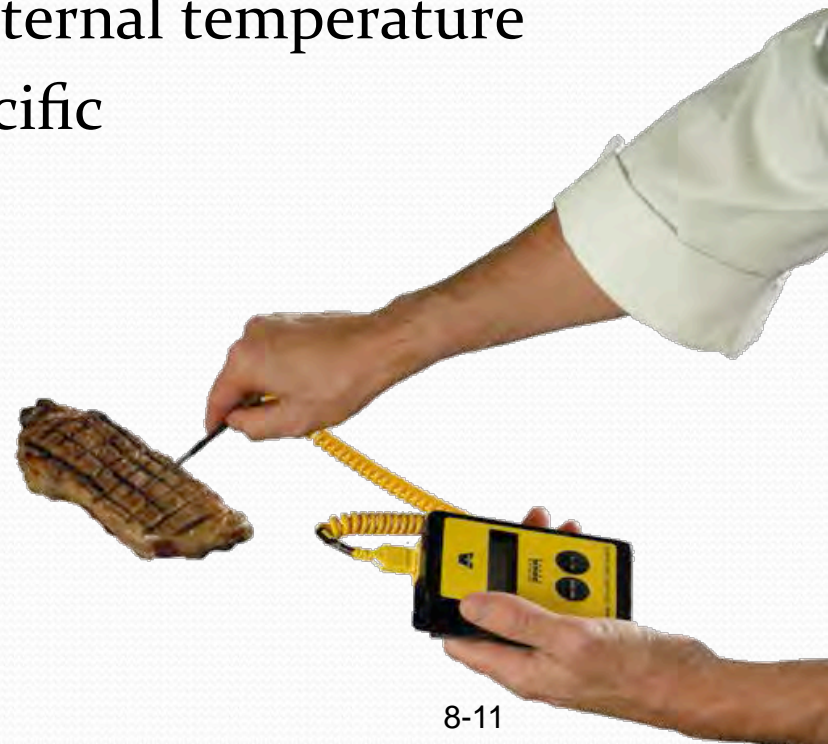
• Eggs (made to order)	145 °F (63 °C)
• Fish	145 °F (63 °C)
• Beef	145 °F (63 °C)
• Ground beef	155 °F (66 °C)
• Pork	155 °F (66 °C)
• Eggs (batch cooked)	155 °F (66 °C)
• Poultry	165 °F (74 °C)
• Stuffed Meats	165 °F (74 °C)
• Dressing	165 °F (74 °C)

*Note: Foods with higher cooking temperatures will be stacked below foods with lower cooking temperatures.*



# Cooking Food

- When cooking potentially hazardous food, the internal portion must:
  - Reach the required minimum internal temperature
  - Hold that temperature for a specific amount of time



# Cooking Poultry

- Poultry:  
(including whole or ground chicken,  
turkey, and duck)  
Minimum Internal Cooking Temperature:  
165°F (74°C) for 15 seconds





# Cooking Ground Meat

- Ground Meat  
(including beef, pork, other meat)  
Minimum Internal Cooking Temperature:  
155°F (68°C) for 15 seconds



# Cooking Beef, Veal and Lamb

- Beef, Veal, Lamb

Minimum Internal Cooking Temperature:

Steaks/Chops:

145°F (63°C) for 15 seconds

Roasts:

145°F (63°C) for 4 minutes





# Cooking Fish

- Fish

Minimum Internal Cooking Temperature:  
145°F (63°C) for 15 seconds

- Ground, chopped, minced fish

Minimum Internal Cooking Temperature:  
155°F (68°C) for 15 seconds





## SECTION 4

# Improper Holding/ Time- Temperature Abuse



# Time-Temperature Abuse

- Any time food has been allowed to remain too long at temperatures favorable for the growth of food-borne microorganisms.
- It is important to establish standard operating procedures (SOPs) that focus on this area.



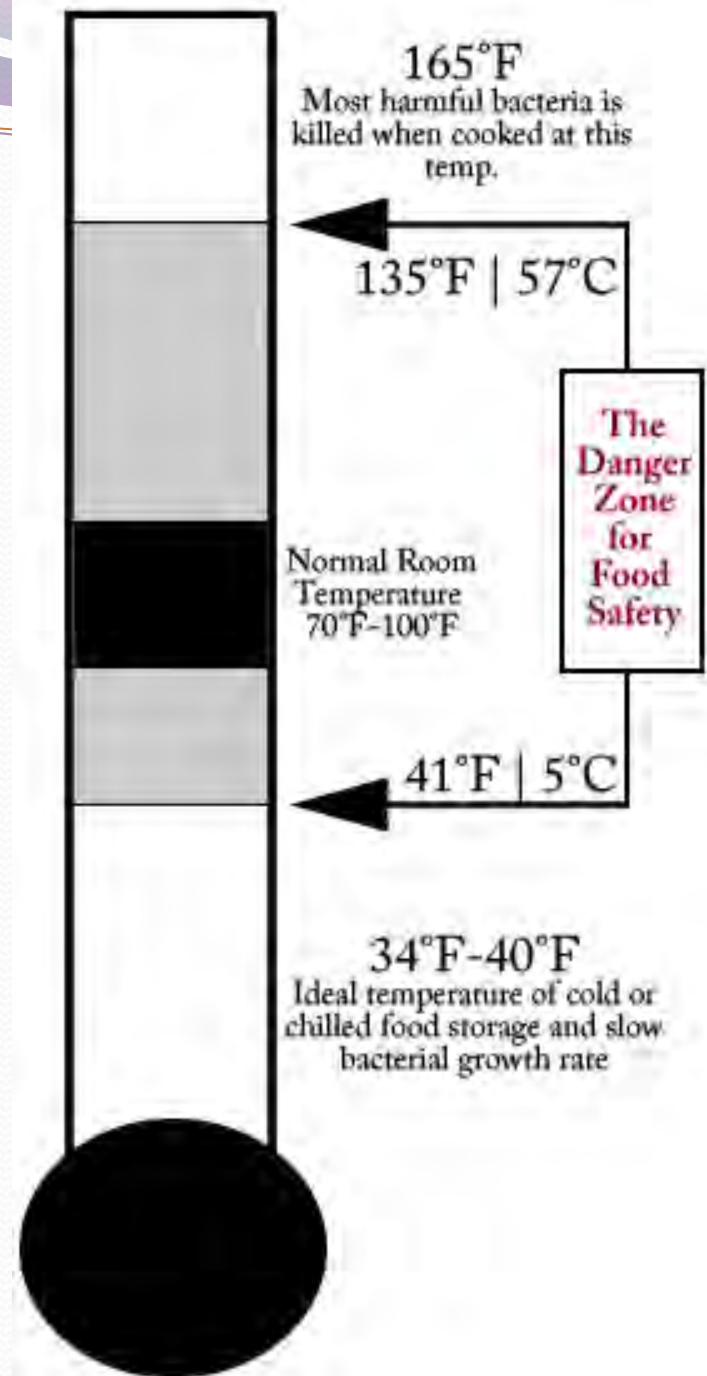
# Temperature Danger Zone (TDZ)

**\*\* Between 41° - 135° F \*\***

- PHFs THAT HAVE BEEN MAINTAINED AT UNSAFE PRODUCT TEMPERATURES (I.E., TEMPERATURE DANGER ZONE) FOR GREATER THAN **FOUR HOURS CUMULATIVE** TIME (FROM REMOVAL FROM TEMPERATURE CONTROLLED EQUIPMENT TO PREPARATION AND SERVING) WILL BE CONSIDERED ADULTERATED AND WILL BE **DISCARDED** AS FOOD WASTE.



# Temperature Danger Zone (TDZ)



# Thawing Food

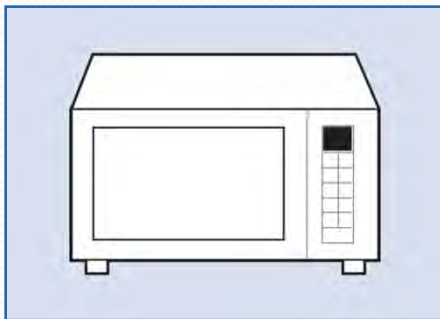
- The Four Acceptable Methods for Thawing Food



In a refrigerator, at 40°F (5°C) or lower



Submerged under running potable water, at a temperature of 70°F (21°C) or lower



In a microwave oven, if the food will be cooked immediately after thawing



As part of the cooking process

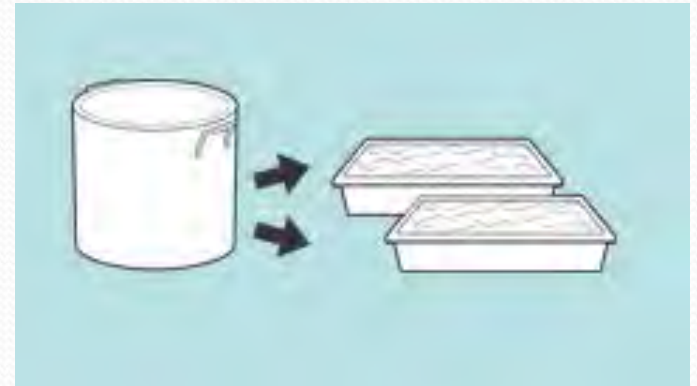
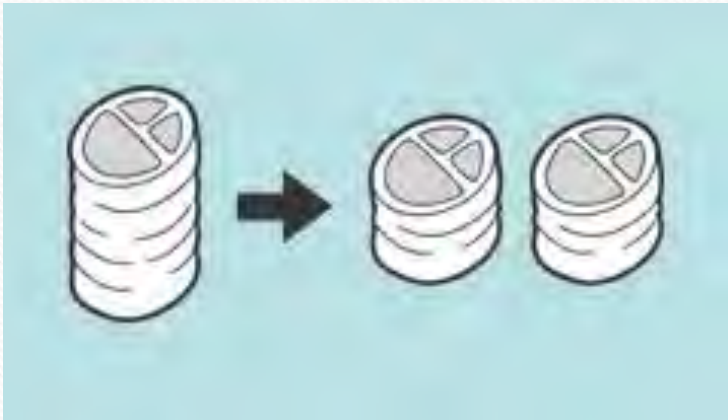


# Cooling Food: Requirements

- Cool potentially hazardous food from:
  - **140°F to 70°F within 2 hours**
- And then from
  - **70°F to 40°F or lower in the next 4 hours**

# Cooling Food: Prior to Cooling

- Before cooling food, start by reducing its size:
  - Cut larger items into smaller pieces
  - Divide large containers of food into smaller containers or shallow pans





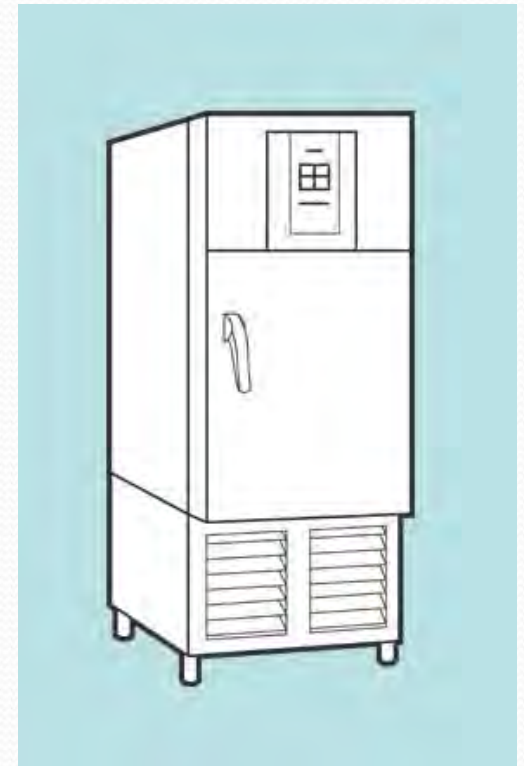
# Methods for Cooling Food

- Safe methods for cooling food:
  - **Place it in an ice-water bath**
    - Place containers into a sink or large pot filled with ice water
    - Stir the food frequently
  - **Stir it with an ice paddle**
- Food cools faster when placed in an ice-water bath and stirred with an ice paddle



# Methods for Cooling Food (con't)

- Safe methods for cooling food:
  - **Place it in a blast chiller**
    - Blast chillers blast cold air across food at high speeds to remove heat
    - They are useful for cooling large items
  - **Place it in a tumble chiller**
    - Tumble chillers tumble bags of hot food in cold water
    - They are useful for cooling thick food







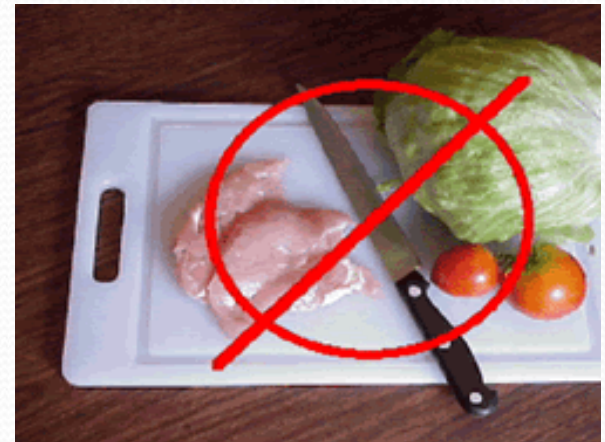
# SECTION 5

Contaminated Equipment/  
Cross-Contamination Protection  
(to include food allergens)

# Cross-Contamination



- **Cross-contamination** - the transfer of a harmful substance from one food to another by direct or indirect contact.
  - **Direct cross-contamination** involves the transfer of a harmful agent from raw foods to cooked or ready-to-eat foods.
    - Example of direct contact: blood from thawing ground beef dripping onto fresh produce stored on a shelf below.
  - **Indirect cross-contamination** involves the transfer of a harmful agent to foods by hands, utensils, or equipment.
    - Example of indirect contact: raw chicken prepared with a knife and cutting board and knife and cutting board are not cleaned and sanitized after use.





# Food Protection

- All food will be free of hazards.
  - Physical Cross Contamination
  - Biological Cross Contamination
  - Chemical Cross Contamination

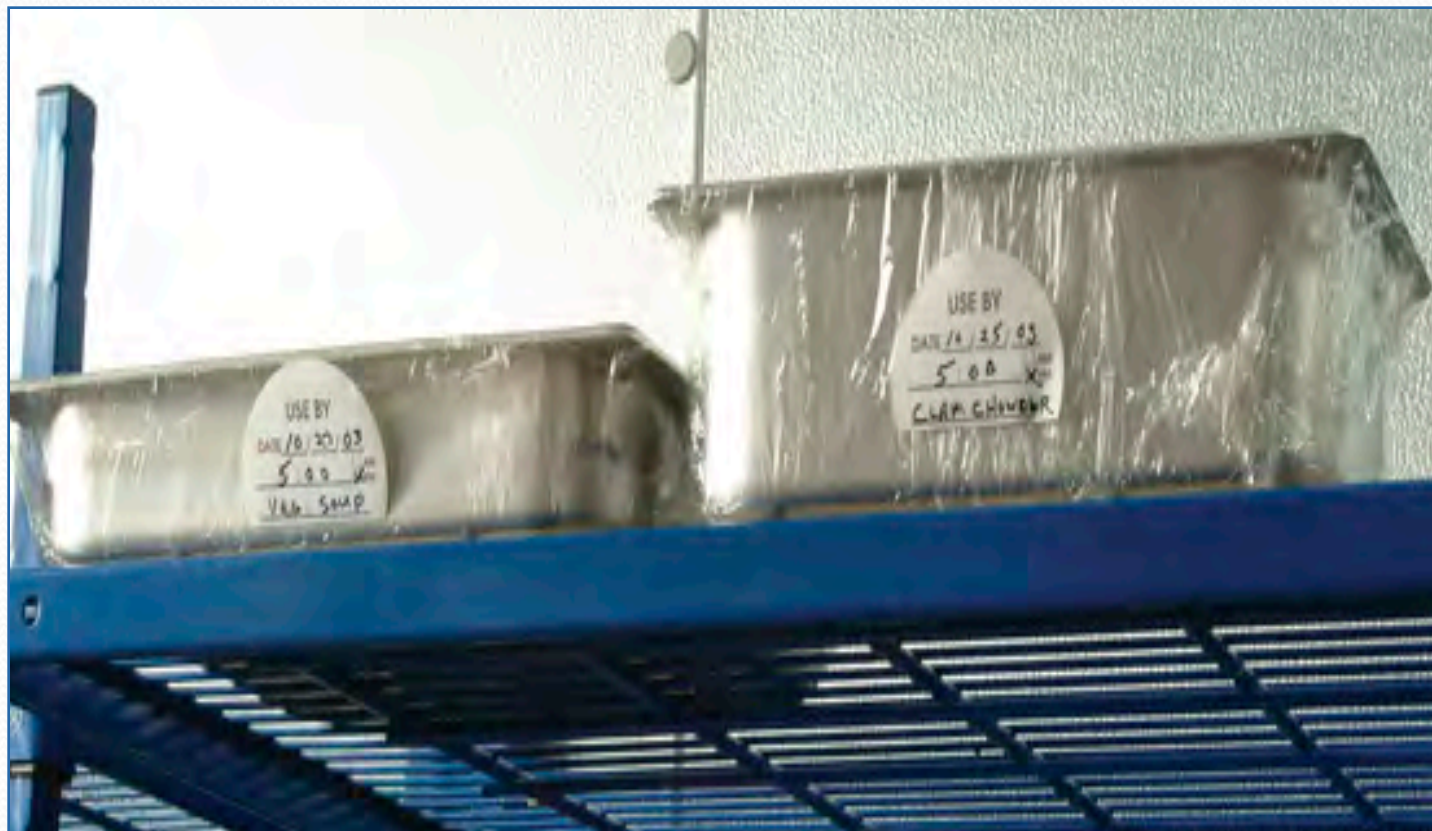


[www.nypost.com](http://www.nypost.com)

# General Storage Guidelines

- All prepared food (not in it's original container) will be labeled.
- The label must include:
  - The name of the food
  - Date and time of preparation
  - The date by which it should be sold, consumed and/or discarded





# General Storage Guidelines

- Transfer food between containers properly
- If food is removed from its original package:
  - Put it in a clean, sanitized container
  - Cover it
  - Label the container with:
    - The name of the food
    - The original use-by or expiration date



# General Storage Guidelines

- Rotate products to ensure the oldest inventory is used first
- One way to rotate products is to follow FIFO or First In, First Out:
  - Identify the use-by or expiration date of products
  - Shelf products with the earliest dates in front of those with later dates
  - Use products stored in front first



# General Storage Guidelines

- If there is prepared potentially hazardous, ready-to-eat food that's not sold or consumed by the end of the predetermined fundraiser time:
  - Throw it out
  - Does not pertain to pre-packaged foods (such as potato chips, snack cakes, etc.)
- Discard food that has passed the manufacturer's expiration date.



# General Storage Guidelines

- Discard food that has passed the manufacturer's expiration date
- Potentially hazardous, ready-to-eat food that was prepared in the food facility:
  - Can be stored for 7 days at 40°F (5°C) or lower
  - Must be thrown out after 7 days



# General Storage Guidelines

- Keep potentially hazardous food out of the temperature danger zone
  - After deliveries have been inspected, store them immediately
  - Take out only as much food as can be prepared at one time
  - Put prepared food away until needed
  - Properly cool and store cooked food when it's no longer needed



# General Storage Guidelines

- Check temperatures of stored food and storage containers (i.e. refrigeration units, coolers, etc.)



# General Storage Guidelines

- Store food in designated storage areas
- Do not store food:
  - Near chemicals or cleaning supplies
  - In restrooms
  - In locker rooms
  - In janitor closets
  - In furnace rooms
  - Under stairways or pipes



**Never store food  
near chemicals  
or cleaning  
supplies**



# General Storage Guidelines

- Keep all storage areas clean and dry
  - Clean up spills immediately
  - Clean dollies, carts, transporters, and trays often

# Refrigerated Storage

- Refrigerated Storage
  - The setting must keep the food at an internal temperature of 40°F (4.4°C) or lower
  - Slows the growth of microorganisms





# Refrigerated Storage Guidelines

- Monitor food temperature regularly
  - Randomly sample the internal temperature of stored food with a calibrated thermometer



# Refrigerated Storage Guidelines

- Do not overload refrigerators
- Storing too many products:
  - Prevents good airflow
  - Makes units work harder



**Overloaded  
refrigerator**



# Refrigerated Storage Guidelines

- Use open shelving in the unit
- Lining shelving with the following restricts air circulation:
  - Aluminum foil
  - Sheet pans
  - Paper

# Refrigerated Storage Guidelines

- Never place hot food in refrigerators
  - This can warm the interior and put other food into the temperature danger zone





# Refrigerated Storage Guidelines

- Keep refrigerator doors or container utilized as refrigeration (i.e. cooler with ice) closed as much as possible
  - Frequent opening lets warm air inside
  - Replenish ice often within coolers

# Refrigerated Storage Guidelines

- Store raw meat, poultry, and fish:
  - Separately from cooked and ready-to-eat foods or produce
  - OR
  - Below cooked and ready-to-eat foods or produce

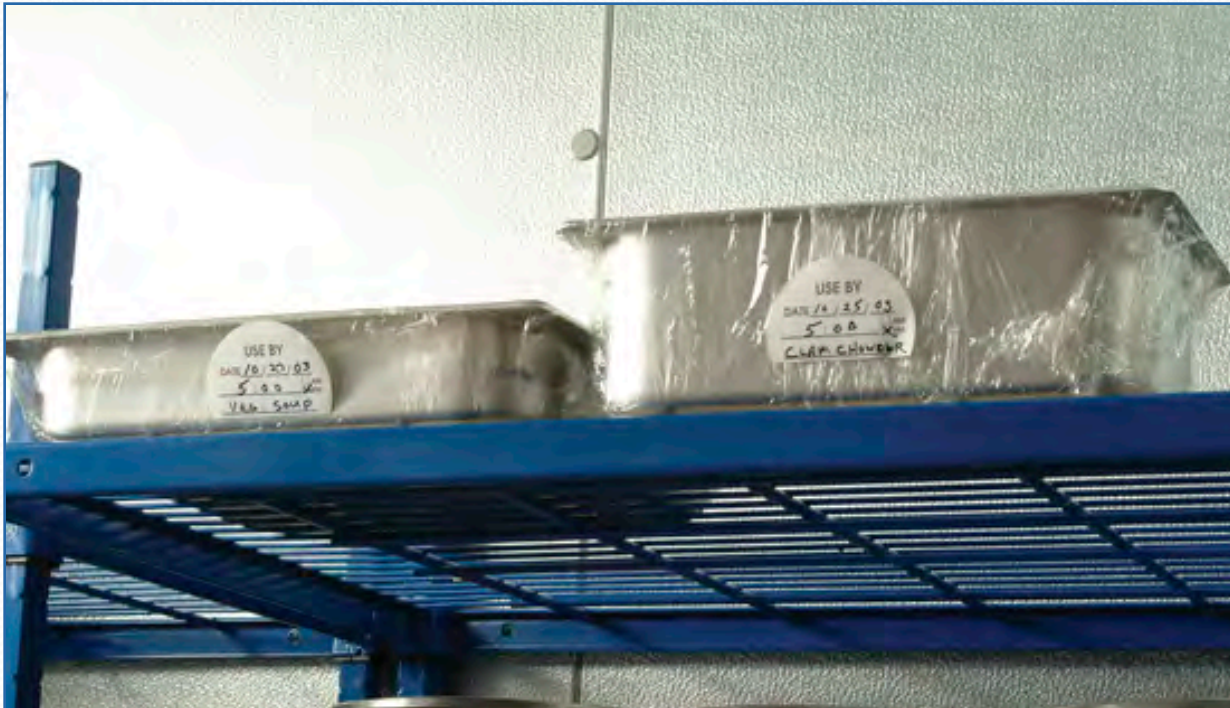


**Improper  
Storage**



# Refrigerated Storage Guidelines

- Wrap food properly
  - Leaving it uncovered can lead to cross-contamination

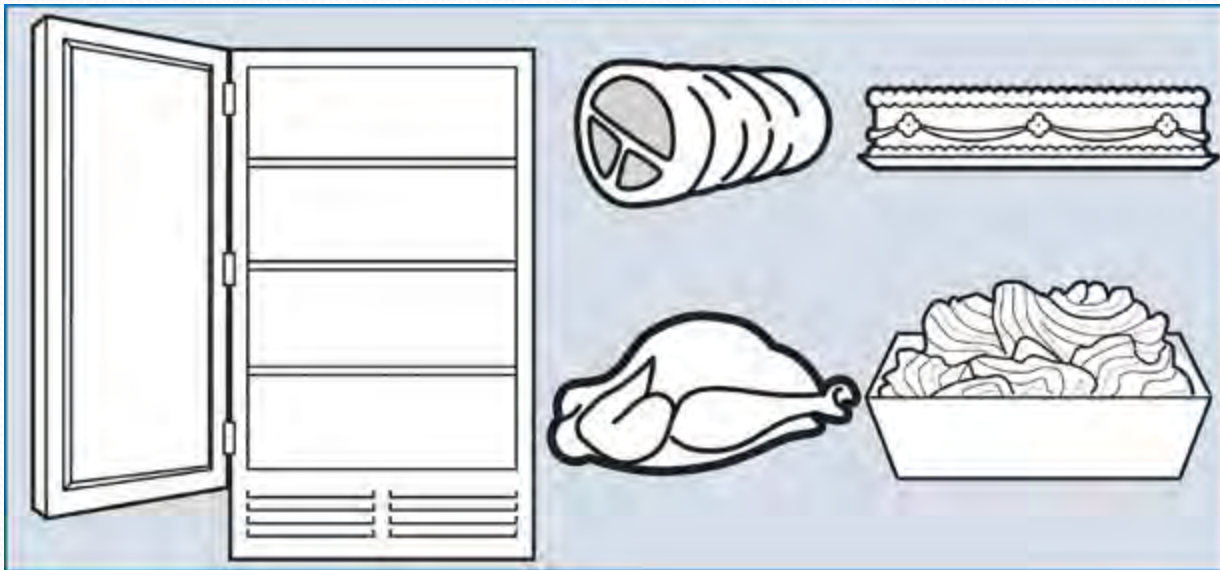


# Frozen Storage Guidelines

- When storing food in freezers:
  - Keep freezers at 0 degrees Fahrenheit or below to keep products frozen
  - Check freezer temperatures regularly
  - Place deliveries in freezers as soon as they have been inspected
  - Clearly label frozen food that was prepared on site



# Where does each item go?



# Dry Storage Guidelines

- Keep storerooms:
  - Cool (50°F to 70°F [10°C to 21°C])
  - Dry (50% to 60% humidity)
  - No wooden pallets will be used
  - Well ventilated
  - Clean
    - Ensure that all food spills are cleaned up immediately!



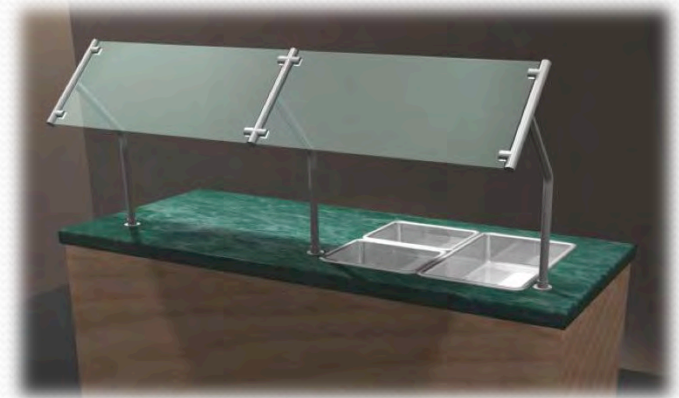
# Dry Storage Guidelines

- When storing food in dry storage keep it:
  - Away from walls
  - Out of direct sunlight
  - At least 6" (15 cm)  
off the floor



# SERVICE

- Servers
  - Use serving utensils, NEVER touch food with hands.
  - Practice good personal hygiene.
- Self-service areas
  - Monitor.
  - Protect with sneeze guards.
  - Label all food items.
  - Maintain food at proper temperatures and conduct temperature checks with a calibrated thermometer
  - Keep raw foods separated from cooked or ready-to-eat items.





# Proper Ways to Serve Food

- To prevent contamination when serving food:
  - Use clean and sanitized utensils for serving
    - Use separate utensils for each food
    - Clean and sanitize utensils after each task
  - Use serving utensils with long handles to keep hands away from food
  - Practice good personal hygiene



# Proper Ways to Serve Food (con't.)

- To prevent contamination when serving food:
  - Store serving utensils properly
    - Store them in the food, with the handle extended above the rim of the container
    - Store them on a clean, sanitized food-contact surface



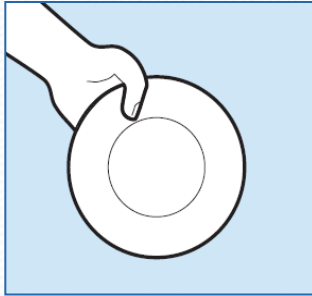


# Proper Ways to Serve Food (con't.)

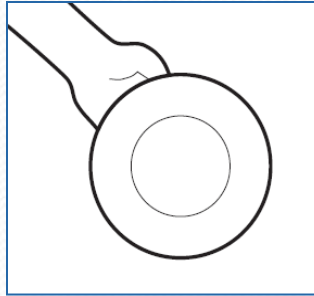
- To prevent contamination when serving food:
  - Minimize bare-hand contact with cooked or ready-to-eat food
  - Handle food with tongs, deli sheets, or gloves



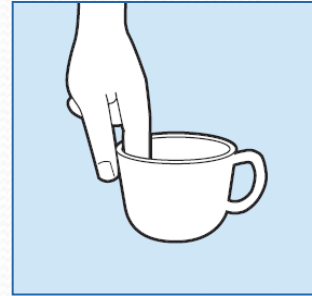
# Serving Food Safely: Servers



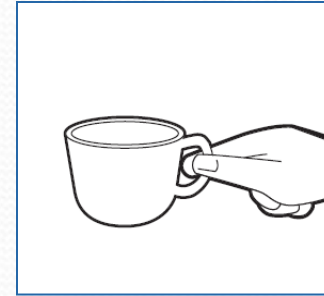
**WRONG**



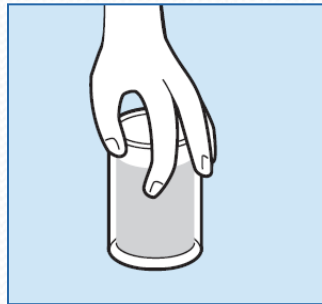
**RIGHT**



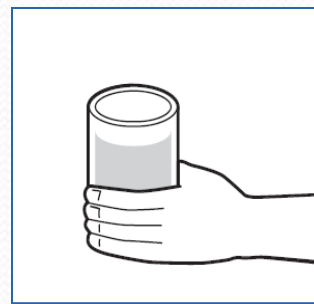
**WRONG**



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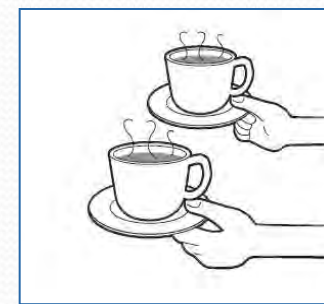
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**WRONG**

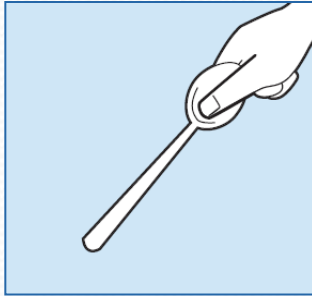


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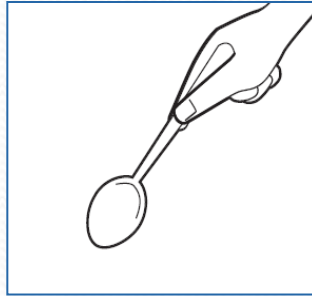
- Handling dishes, glassware, disposable food containers, plastic utensils, etc.



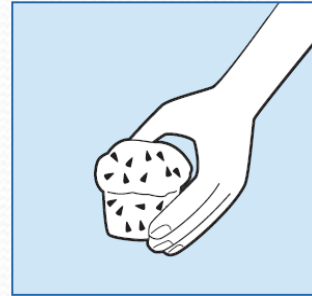
# Serving Food Safely: Servers



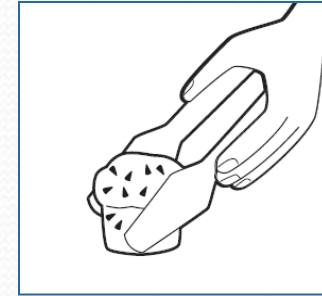
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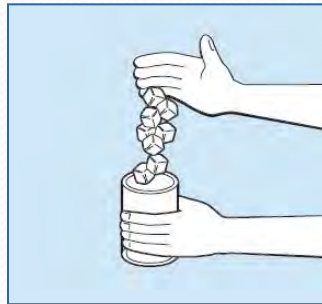
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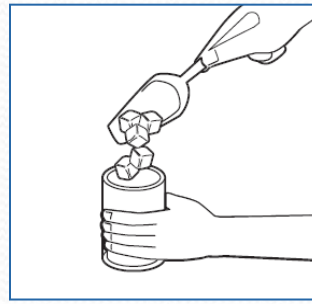
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**RIGHT**



**WRONG**



**RIGHT**

- Handling Utensils (metal or plastic/disposable) and Food

# Cleaning Vs. Sanitizing

- Cleaning
  - Process of removing food and other types of soil from a surface
- Sanitizing
  - Process of reducing the number of microorganisms on a clean surface to safe levels
  - Surfaces must first be cleaned and rinsed before being sanitized
- Just because a surface is clean, does this mean that it is safe?
- Is only rinsing food contact surfaces effective in minimizing cross contamination ?





# Cleaning and Sanitizing Food-Contact Surfaces

- Food-contact surfaces must be washed, rinsed, and sanitized:
  - 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 4-hour intervals if the items are in constant use



# Factors Influencing Sanitizer Effectiveness

- Concentration for Chlorine: 100ppm
  - Concentration must be checked frequently with a test kit
    - Low Concentrations:  
May fail to sanitize objects
    - High Concentrations:  
May be unsafe, leave an odor or bad taste, corrode metals
  - Change the solution when it is dirty or when the concentration has dropped below the required level





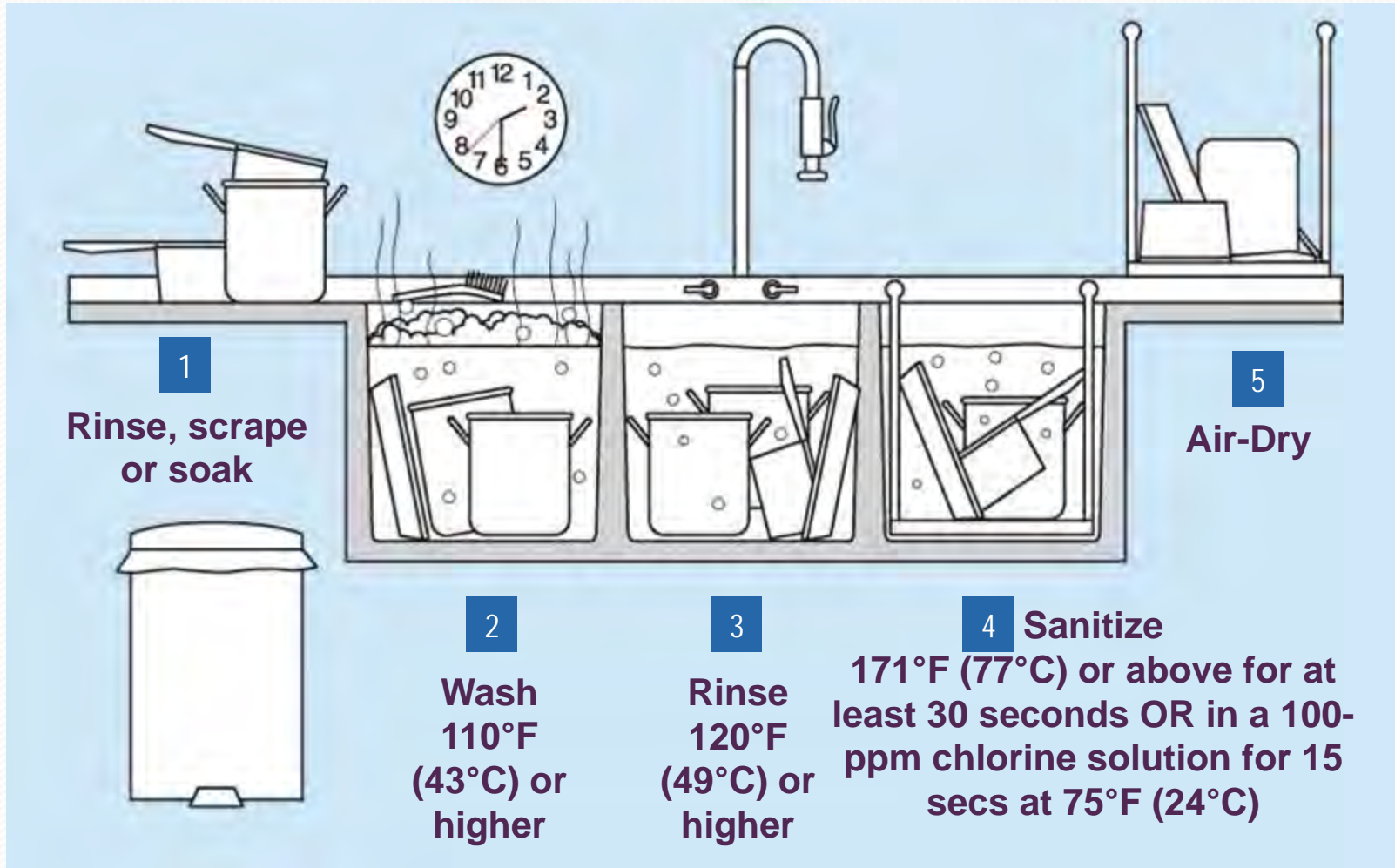
# Factors Influencing Sanitizer Effectiveness

- Temperature
  - Follow the manufacturer's recommendations for the proper temperature
- Contact Time
  - The sanitizer must make contact with the object for a specific amount of time
  - Minimum times differ for each sanitizer



# Three-Compartment Sinks

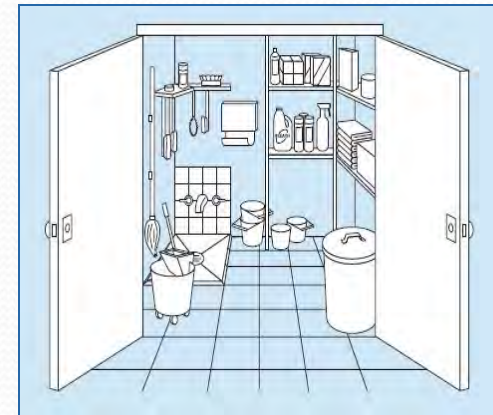
- Steps for Cleaning and Sanitizing





# Cleaning Tools and Supplies

- Cleaning tools and chemicals
  - Should be placed in a storage area away from food and food-preparation areas
- The storage area should provide:
  - A utility sink for filling buckets and washing cleaning tools
  - A floor drain for dumping dirty water
  - Hooks for hanging mops, brooms, and brushes to allow them to air-dry





## SECTION 6

# Poor Personal Hygiene



# How Food Handlers Contaminate Food

**A** Improper or no hair restraints

**B** Running fingers/touching hair

**C** Wiping or touching the nose

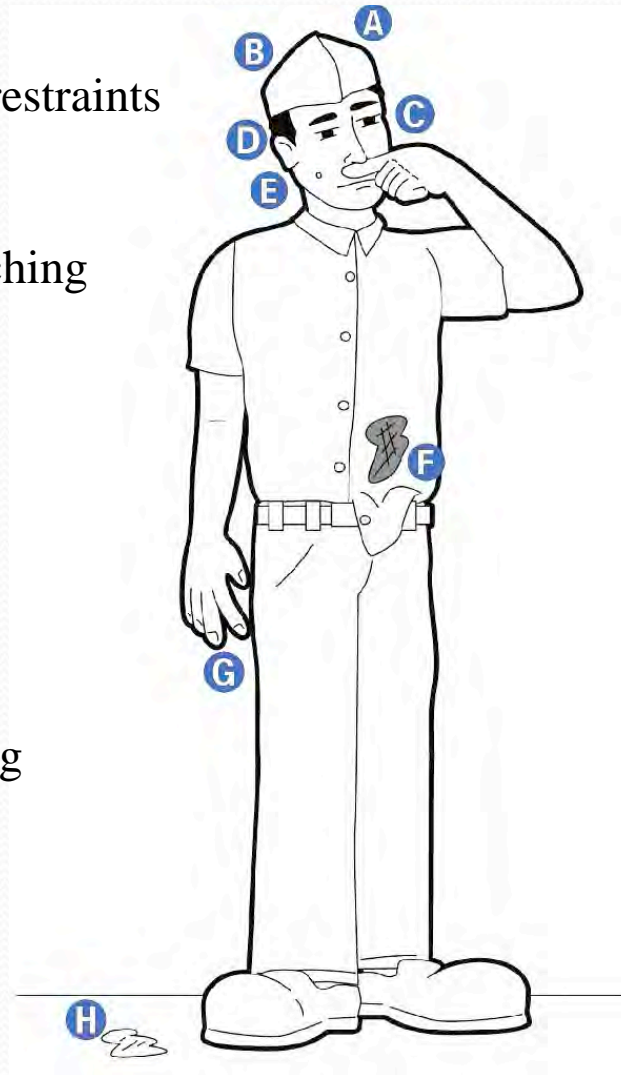
**D** Rubbing and touching your ears

**E** Touching a pimple or open sore

**F** Wearing a dirty uniform

**G** Coughing or sneezing into the hand

**H** Spitting in the establishment



# Good Personal Hygiene

- Good personal hygiene includes:
  - Maintaining personal cleanliness
  - Wearing proper and clean attire
  - Following hygienic hand practices
  - Avoiding unsanitary habits and actions
  - Maintaining good health
  - Reporting illnesses





# Proper Work Attire

- Food handlers should:

- A** Wear a clean hat or other hair restraint
- B** Wear clean clothing
- C** Remove aprons when leaving food-preparation areas (if applicable)
- D** Remove jewelry from hands and arms
- E** Wear appropriate and clean closed-toe shoes



# HAIR RESTRAINTS



IMPROPER WEAR!



Correct wear!

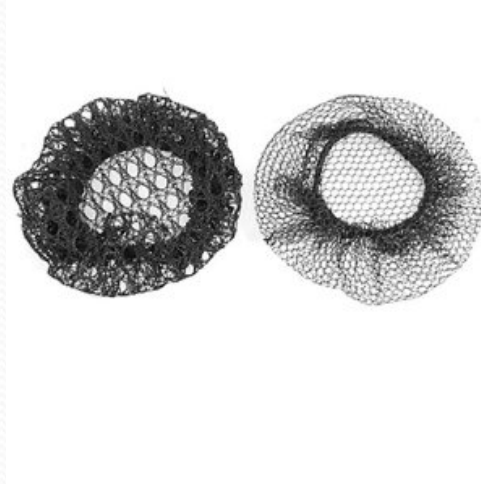


- Keeps hair from entering food.
- Keeps hands from touching hair.
- If wearing a ponytail with ball cap, the ponytail must not stick out of the hole of the ball cap. It must be either tucked under the cap or a hair net must be worn under the ball cap.

**Effective hair restraints include hair nets & hats.**



# HAIR RESTRAINTS (con't.)



# Hand Washing

The whole process should take 15 - 20 seconds



1

**Wet hands with running water as hot as you can comfortably stand (at least 100°F/38°C)**



2

**Apply soap**



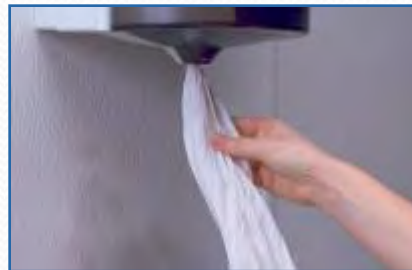
3

**Vigorously scrub hands and exposed areas of arms for fifteen seconds. Clean under fingernails and in between fingers.**



4

**Rinse thoroughly under running water.**



5

**Dry hands and arms with a single-use paper towel or warm-air hand dryer. Use a paper towel to turn off the faucet and open door to bathroom.**



# When to Wash Hands

- Food handlers must wash their hands after:
  - Using the restroom
  - Handling raw meat, poultry, and fish (before and after)
  - Touching the hair, face, or body
  - Sneezing, coughing, or using a tissue
  - Smoking, eating, drinking, or chewing gum or tobacco
  - Handling money



# When to Wash Hands (con't.)

- Food handlers must wash their hands after:
  - Handling chemicals that might affect food safety
  - Taking out garbage
  - Clearing tables
  - Touching soiled clothing
  - Touching anything else that may contaminate hands, such as un-sanitized equipment, work surfaces, or washcloths.
  - **WHEN IN DOUBT, WASH THEM!**





# Hand Antiseptics

- Must comply with Food and Drug Administration standards.
- Must *never* be used in place of hand washing.
- Do not use scented hand sanitizer.



# Hand Maintenance



Keep fingernails  
short and clean



Do not wear false  
nails, nail  
adornments, or nail  
polish



Bandage cuts and  
cover bandages  
using finger cots  
and gloves.



# Gloves

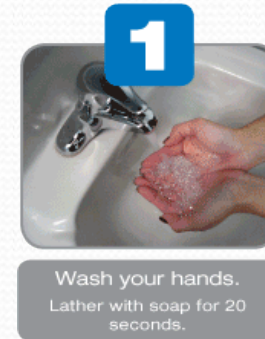
- Gloves used for handling food:
  - Do NOT blow into the gloves
  - Must NEVER be used in place of hand washing
  - Are for SINGLE use only
  - Should be right for the task
  - Must be safe, durable, and clean
  - Must fit properly
  - Must be used properly
  - Do NOT handle money while wearing gloves



# Hygienic Hand Practices: Gloves

- When to Change Gloves
  - As soon as they become soiled or torn
  - Before beginning a different task
  - At least every four hours during continual use and more often when necessary
  - After handling raw meat and before handling cooked or ready-to-eat food

**\*\*\*Hands must be washed before placing on gloves or in between changing gloves. During moments of high customer volume, FDA approved hand sanitizer can be utilized but once customer traffic dies down, hands will be washed with soap and water.**



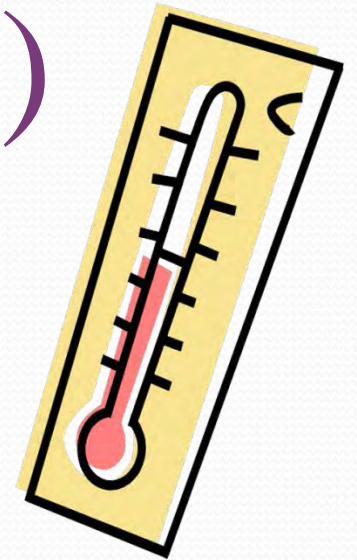


# What is wrong with this?



# SECTION 7

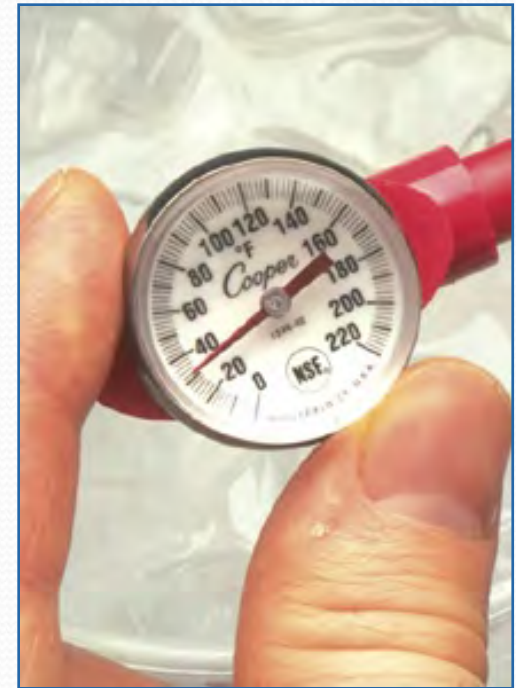
## Temperature Measuring Devices (TMD)





# Calibrating Thermometers

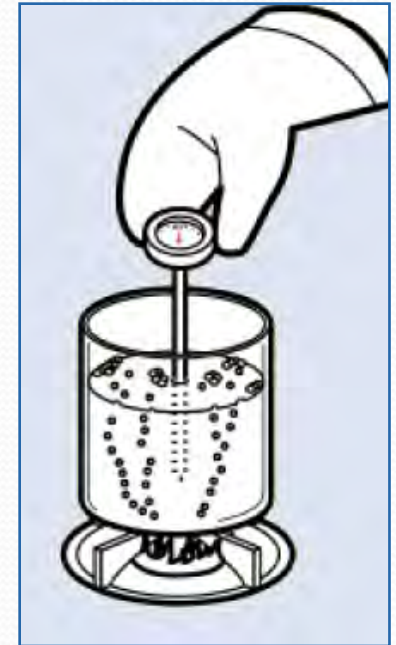
- Calibration
  - Adjusting a thermometer in order to get an accurate reading
- Two methods
  - Boiling-point method
  - Ice-point method



# Calibrating Thermometers

## Boiling-Point Method

1. Bring clean tap water to a boil
2. Submerge the sensing area of the thermometer stem or probe in the water for thirty seconds
3. Hold the calibration nut and rotate the thermometer head until it reads 212°F (100°C)





# Calibrating Thermometers

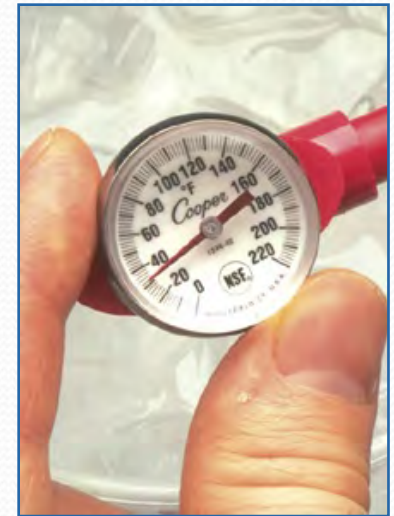
## Ice-Point Method



1. Fill a large container with crushed ice and water



2. Submerge the thermometer stem or probe in the water for thirty seconds



3. Hold the calibration nut and rotate the thermometer head until it reads 32°F (0°C)

# General Thermometer Guidelines

- When using thermometers:
  - Keep thermometers and their storage cases clean
  - Calibrate them regularly to ensure accuracy
  - Never use glass thermometers to monitor food temperature
  - Insert the thermometer stem or probe into thickest part of product (usually the center)
  - Wait for the thermometer reading to steady before recording the temperature of a food item





# Internal Thermometers

- If utilized, there should be an INTERNAL thermometer in ALL refrigeration, freezer, and hot holding units.
- If utilizing a cooler with ice, having an internal thermometer will help to monitor temperatures and keep cold foods out of TDZ.



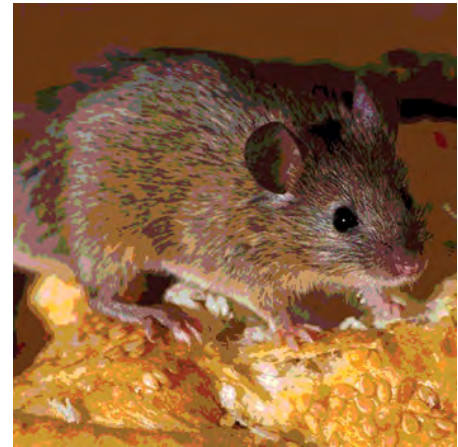
# PESTS





# Where are they typically found?

- Idle Equipment
- Soft drink syrup cabinet
- Steam table and salad bar
- Behind Kick plates
- Ice maker/cooler
- Dishwasher
- Floor Drains
- Dining Room Booths
- Planters
- Tray Racks
- Trash receptacles
- Any place that they can find food, water, and shelter!



# Deny them access!

- Avoid pest infiltration by:
  - Denying them access to your area.
    - Keeping your area clean.
    - Clean up food debris from areas where food is served (to include off the ground).
    - Clean and monitor areas most susceptible to pests.
    - Dispose of garbage quickly.
    - If utilizing garbage receptacles or trash bags, ensure that the receptacles have a lid and are closed/covered when not in use.

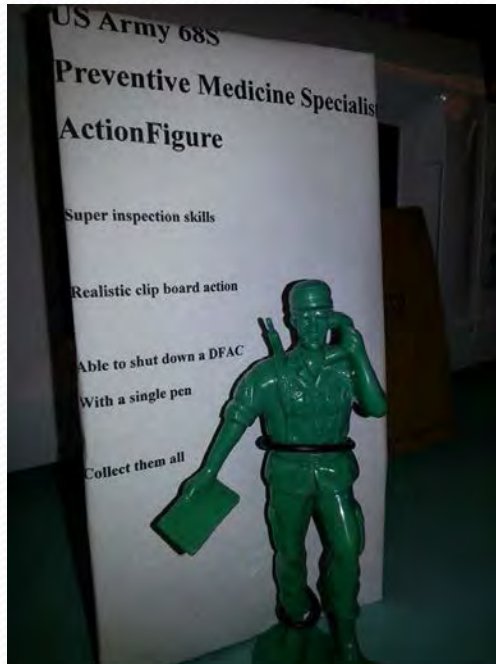


# SUMMARY

- Foodborne illnesses are **PREVENTABLE!!**
- Purchase food from safe and approved sources.
- Ensure food is cooked correctly.
- Enforce proper food holding and avoid time-temperature abuse
- Clean and sanitize contaminated equipment properly. Do everything possible to protect food from cross-contamination.
- Practice good personal hygiene!



# QUESTIONS/CONCERNS?



Contact:  
Environmental Health Section, TAMC  
Bldg: 147, 1 Jarrett White Rd.  
**Deputy Chief of EH:**CPT Jessica Lynch, 433-6694  
**NCOIC of EH:** SSG Leonardo Brightstar, 433-3683



# This certificate is only for Army Units in Hawaii.

## Instructions

- Click here to sign up  
<http://quizstar.4teachers.org/student/registrs.jsp>
- Enter your information and click “register”
- Click link “click here to search a new class”
- Under green section type “4 hour food handlers quiz”  
click exact match
- Check box next to basic food handlers quiz and click “register” on the right side of the screen. DO NOT CLICK “register (to top)” on left side of screen.

- 
- Your registration will be approved within approximately two business days.
  - Check back to ensure registration was approved and take the quiz.
  - Once you have achieved a 70% or greater email [leonardo.d.brightstar.mil@mail.mil](mailto:leonardo.d.brightstar.mil@mail.mil) to receive your certificate.
  - If you have any questions please email SSG Brightstar at [leonardo.d.brightstar.mil@mail.mil](mailto:leonardo.d.brightstar.mil@mail.mil)