ServSafe In-Class Study Guide

Chapter 1: Providing Safe Food

- **An illness is considered an outbreak when:**
  - **Two or more** people have the same **symptoms** after eating the same food
  - An **investigation** is conducted by **state and local authorities**
  - The outbreak is **confirmed by laboratory** analysis

- **Three ways to contaminate food:**
  - **Biological** (Bacteria, Viruses, Parasites, Fungi)
  - **Chemical** (Cleaners, sanitizers, chlorine)
  - **Physical** (anything you don't expect in food: Including bones in a filet of fish, pits in a cherry pie, bugs in produce, staples or other packaging. Shields on lighting protects from broken bulbs)

- **Five ways foods become unsafe:**
  - **Time-Temperature abuse**
  - **Cross Contamination**
  - **Personal Hygiene**
  - **Poor Cleaning and Sanitizing**
  - **Buying from Unapproved Sources** (only one not under our control within the store)

- **TCS Foods –** Food that needs Time and Temperature Control for Safety
  - Milk and dairy
  - Eggs, meat, poultry, fish
  - Shellfish and crustaceans
  - Baked potatoes
  - Heat treated plant food (rice, beans, veggies)
  - Tofu or soy protein
  - Sprouts and sprout seeds
  - Sliced melons, tomatoes, cut leafy greens
  - Untreated garlic and oil mixtures

- **RTE:** Ready to Eat foods (no more prep, washing or cooking is needed)
  - Think salad, pie, previously cooked and cooled food
- **High Risk Populations**
  - Elderly people – their immune system weakens with age
  - Preschool-age children – their immune system has not developed fully
  - People with compromised immune systems
    - Cancer or chemotherapy
    - HIV/AIDS
    - Transplant patients
    - People on certain antibiotics
- **Government Agencies**
  - **FDA** – Food and Drug Administration
    - Inspects all food not USDA's job
    - Food that travels across state lines
    - Publishes Food Code (Recommendation for States to adopt some, all or none)
  - **USDA** – United States Department of Agriculture
    - Inspects meat, poultry and eggs
    - Across state lines
  - **CDC –** Centers for Disease Control and **PHS** – Public Health Service
    - They do not inspect. Only do research and assist when there is an outbreak
  - **State and Local** Authorities (Health Department) Need them to open/reopen
    - Inspects and enforces locally (employed by the county/directed by the state)

- Investigates complaints
- Issue license, permits and approves construction and approves HACCP plans
- Inspect public pools, day cares, hospitals etc.
- Can close for significant rodent infestation/significant loss of refrigeration or drinkable water

Chapter 2: Forms of Contamination

- **Common Symptoms of Foodborne Illness**
  - Diarrhea, vomiting, fever, nausea and abdominal cramps
- **Big 6** (Must be **EXCLUDED** from ALL work until doctor note saying healthy again)
  - **Bacteria: Salmonella (Typhi)**
    - Found in human bloodstream and intestines
    - Typically found in RTE foods and beverages
    - Correct by washing hands &
    - Cook to proper temperature

  - **Bacteria: Salmonella** (most common)
    - Farm animals (poultry, eggs, meat, milk and dairy)
    - Produce
    - Prevent Cross contamination and cook to proper temperatures

  - **Bacteria: Shigella**
    - From flies and water that is contaminated by animals
    - Salads (that will have no further cooking)
    - Prevent by washing hands
    - Symptoms Diarrhea

  - **Bacteria: E. Coli**
    - **Ground beef (all beef) and produce**
    - Cook to proper temperatures
    - Buy from approved suppliers
    - Prevent cross contamination

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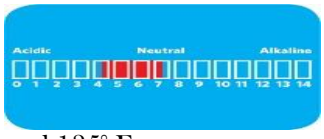
  - **Virus: Hep A**
    - Ready to eat food and Shellfish
    - Wash hands
    - Symptoms Jaundice (yellowing of the skin)
  - **Virus: Norovirus**
    - Ready to eat food and Shellfish
    - Wash hands
    - Symptoms: Vomiting and diarrhea

- **Bacteria**
  - Can not be seen, smelled or tasted
  - Needs **FATTOM:**
    - **F**ood
    - **A**cidity (Little to no acid 4.5-7 pH)
    - **T**emperature (Danger zone is between 41° and 135° F
    - **T**ime (the more time food spends in the danger zone the more chance for bacteria to grow)
    - **O**xygen (Some need it, some don't)
    - **M**oisture (the more water the more bacteria can grow. 1.0=water)



Most controllable ★★

- **Viruses**
  - **Cooking can not kill a virus**
  - Viruses do not grow in food, but can be transferred from humans or animals
- **Parasites**
  - Not as common as bacteria and virus
  - **Seafood and Wild Game** is where they are found mostly or from food processed with contaminated water
  - Make sure to cook to proper temperature
  - Buy from an approved reputable supplier (supplier that has been inspected)

- **Fungi**
  - Yeast, mold and mushrooms
  - Grows well in highly acidic food with low moisture
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- **Toxins**
  - Can be produced in plants, mushrooms and seafood
  - In seafood usually in tuna, bonito, mahi mahi
  - Ciguatera Toxin: Barracuda, snapper, grouper, amberjack
  - Symptoms:
    - Diarrhea or vomiting
    - Tingling in the extremities, hot and cold reversals
    - Flush in the face, hives, difficulty breathing, rapid heart rate
- **Chemical Contaminates**
  - Pewter, copper, and zinc in cooking equipment (pots and pans)
  - Cleaners, first aid items (burn spray) beauty products, etc
- **Physical Contaminates**
  - Bones, pits in a cherry pie plus all the obvious items (bandages, fingernails, hair etc)
- **ALERT** (system to prevent deliberate contamination of food)
  - **A**ssure – Make sure the products you received are from safe sources
  - **L**ook – Monitor the security of products
  - **E**mployees – Make sure only staff has access to the kitchen
  - **R**eport – Keep copies of food defense on hand
  - **T**hreat – Who are you going to call
- **Foodborne-Illness Outbreak**
  - Gather information
  - Notify Authorities
  - Segregate product
  - Document information
  - Identify staff
  - Cooperate with authorities
  - Review procedures
- **Allergens**
  - Nausea
  - Wheezing or shortness of breath
  - Hives or rashes
  - Swelling for face, eyes, hands or feet
  - Abdominal pain
  - Itchy throat

  Big 8
    - Milk and eggs
    - Fish and crustacean/shellfish (lobster, shrimp, crab)
    - Tree nuts (almonds, walnuts, pecans) and peanuts
    - Soy and wheat (gluten)

  Don't cross contaminate, do wash your hands often and always suggest items (if you don't know, say I don't know) Remind the kitchen staff to start with clean hands, fresh pans and utensils and make sure all prep surfaces have been cleaned and sanitized.

Chapter 3: The Safe Food Handler

- Hand washing
  - 20 seconds total (10-15 seconds scrubbing). Wet hands first!
  - 100° water
  - Turn off the faucet with a paper towel if available
  - Hand antiseptic (hand sanitizer) is ***NEVER*** a substitute to handwashing
- Infected wound on Hand must be covered with impermeable bandage and single-use glove

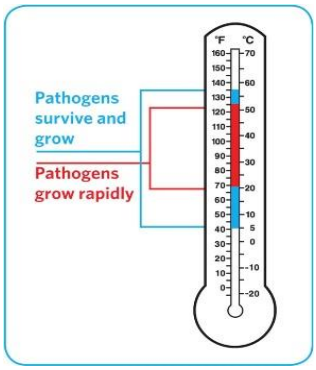
- Single use gloves are required to be used at ALL TIMES except:
  - When washing produce
  - Handling RTE ingredients that will be added to a dish to be cooked to proper temperatures
- Hand Care
  - Fingernails should be short and unpolished (no false fingernails)
  - Never blow into gloves or roll them up before putting them on
  - The only jewelry allowed is a plain band ring
- **Handling Illness:**
  - Sore throat **with fever:**

    - **Restrict** from handling food
    - **Exclude** if you work with a predominately high risk population.
    - **Doctor's note is required to return to work**
  - **Vomiting or Diarrhea**

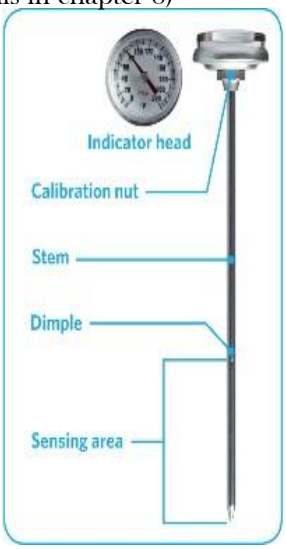
    - **Exclude –** when working with high risk or not.
    - Can return to work after 24 hours of no symptoms or a Doctor's note
    - **Strict** cleaning and sanitizing procedures (vomit carries Norovirus, which is highly contagious)
  - **Jaundice** (yellowing of the skin or eyes)

    - **Exclude –** with high risk or not customers
    - **Report** to the local health authority (segregate food handled or prepped by that employee)
    - Can return to work after 7 days and a Doctor's note

Chapter 4: Introduction to the flow of Food



- **Preventing cross contamination**
  - Use separate equipment for each item
  - Clean and sanitize equipment after every use
  - Prep food at efficient times
- Buy pre-prepped food **Preventing Time and Temperature Abuse**
  - **Danger zone is 41°F – 135°F**
  - Bacteria grows fastest between 70°F-125°F
  - TIP: Take out only what you need to prep
  - Monitor and record temps and times whenever critical point exists (more to come on this in chapter 8)
- **Thermometers**
  - **Bimetallic**
    - 0°F – 220°F Measures from tip to dimple through the stem
  - **Thermocouples and Thermistors**
    - Measures temps using only the tip of the probe (4 types of probes)
      - **Immersion probe –** for liquids like soups, sauces and frying oil
      - **Surface probe –** for flat cooking equipment like griddles
      - **Penetration probe –** for internal temp of foods
      - **Air probe –** for inside coolers and ovens
  - **Infrared**
    - Checks surface temp using laser light
    - It can not read through a clear object
  - **Thermometer Guidelines**
    - Must be cleaned and sanitized after every use to avoid cross contamination
    - Recalibrate at the beginning of every shift and whenever dropped
    - Must be accurate to **+/-2°F** (air thermometers must be accurate to +/-3°F)
    - Always check temps in two different spots in food



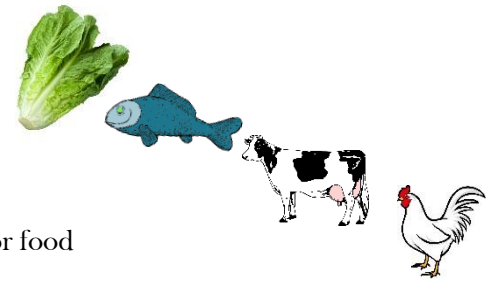
Chapter 5: Purchasing, Receiving and Storage

- Always use approved, reputable suppliers
  - An approved supplier has been inspected
- Visually inspect every delivery immediately when it arrives

- **Reject food if:**
  - Packaging is damaged (tears, holes or punctures)
  - Cans are missing labels, bulging, swollen, rusty or dented
  - Product is leaking or seals are broken
  - Product has past its "use by" or expiration date
  - Frozen foods shows ice crystals or water stains
  - Temperature of the product is not correct:
    - 41°F or lower for all cold foods
    - **45°F** or lower – shucked shellfish, surface temp of live shellfish, milk and eggs
    - **Live** shellfish must also not have an internal temperature more than 50° F
    - All foods must be cooled to 41°F or lower within 4 hours
    - Shellfish must have shellstock ID tags (kept for 90 days after using all the product)
  - 135°F or higher for all hot food

- **Labeling**
  - All food must be labeled with a common name and date marking if not in the original container
  - Food packaged on-site for retail sales must be labeled with:
    - Common name
    - Quantity of food
    - List of ingredients by weight (most to least)
    - List of artificial colors and flavors, as well as preservatives
    - Name and place of manufacturer, packer or distributor
    - Source of major food allergen (unless it's part of the common name)
- **Date Marking**
  - All food must be dated marked is held for longer than **24 hours**
  - RTE food can be stored for only **7 Days** if held at 41°F or lower (today is the first day)
  - When combining food, the date to discard will always be determined by the oldest ingredient
  - **FIFO –** First in first out (only exception is expiration date)
  - No date or past use by date - discard

- **Storage**
  - Food must be 6" off the floor – not touching the wall
  - Do not over pack coolers. Leave room for air to flow
  - Store food only in containers intended for food that are durable, leak proof and able to be sealed or covered
  - Storage order on shelves (top to bottom)
    - RTE
    - Seafood
    - Whole cuts of beef and pork
    - Ground meat and ground fish
    - Poultry
  - Never store food in areas not designed for food



Chapter 6: Preparation

- Never misrepresent the food with additives, over wraps or lights
- **Thawing: (**4 acceptable ways to thaw food)
  - **Under refrigeration** – 41°F or below (best way)
  - **Submerged completely under running water at 70°F or less** water must be running
  - In a microwave **ONLY** if being cooked by conventional methods immediately after
  - Thawing as part of the cooking process.
- **ROP –** Reduced Oxygen Packaging
  - If ROP package says must remain frozen until use then:
    - Remove from package THEN thaw using refrigeration method, or
    - Remove from package AFTER thawing using running water method.
- **Produce**

- Wash **BEFORE** cutting, cooking or combining with other ingredients
- Do not mix different produce (old and new) when cleaning or storing in an ice bath
- **Melons, tomatoes** and **leafy greens** do not need to be held at temp until cut, then they must be held at 41°F or lower like all RTE food.

❖ Use pasteurized eggs if they are to be **pooled**, then cook immediately or store at 41°F or lower.
- For eggs that will be cooked and served immediately their internal temp must reach 145°F
- For eggs that will be hot held, or on a buffet, the internal temp must reach 155°F

❖ **Variances** – Documents issued by the regulatory authority (Health Department) that allows a requirement to be waived.
- Packaging **juice on-site for sale**
- **Smoking** food to preserve it (but not to enhance flavor)
- Using food additives to **eliminate the need for Time and Temperature Control**
- **Curing** food
- Custom-processing **animals for personal use**
- Sprouting **seeds or beans**
- Selling live **Shellfish** from a **display tank –**(serving raw oysters requires a consumer advisory)

MEMORIZE

❖ **Cooking Temps**
- 135°F – Fruits, veggies and grains
- 145°F – Seafood, Steaks/chops (Beef, pork, veal and lamb), shell eggs for immediate service
  - Roast can be as well – there is a longer holding time from 5 minutes – 112 minutes
- 155°F – Ground meat, shell eggs that will be hot held
- 165°F – Poultry, stuffing/stuffed meats
- 165°F – Any food cooked in a microwave oven – any item that is being REHEATED
  Remember, any items that has been cooked, and cooled properly is also RTE.

❖ **The cooking temps must be maintained for at least 15 seconds for everything except as noted – Holding times will be going to 17 seconds**

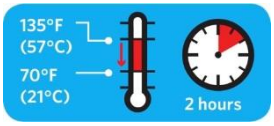
❖ **Microwave Cooking**
- Stir/rotate halfway through cooking process
- Let food stand two minutes when done to even temps out
- Check the temperature in at least 2 places – must reach 165°

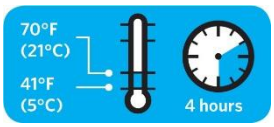
❖ **Partial Cooking**
- Never par cook longer than 60 minuets
- Cool food immediately using the 2 stage cooling method
- Freeze or refrigerate food immediately – remember par cooked food is NOT RTE
- Heat to the correct temperature before serving

❖ Raw or undercooked items must have a Consumer Advisory listed (consuming undercook or raw...)

❖ Never serve raw or undercooked items to a high-risk population

❖ **Cooling Time**





- From 135°F to 70°F in two hours
- 70°F to 41°F or below within an additional 4 hours
- Bacteria grows fastest between 70°F and 125°F – if you do not reach 70°F in the first two hours, you must reheat the food and start the process over.
- NOTE: You have a total of six hours for cooling, so if you cool to 70°F in 1 hour, then you have 5 hours to get to 41°F or lower.

❖ **Cooling Methods**
- Food cools faster when smaller portions or in shallower containers

- Ice water bath, use a ice paddle or a blast chiller
- When storing food that needs further cooling, keep the lid loose or uncovered if possible

Chapter 7: Service

- When holding food at temperature (minimum or 135°F) check the temperature at least every 4 hours
- When holding food without temperature control:
  - **Hot food** no longer than 4 hours
    - Food starts at 135°F or higher
    - Label with starting time and discard time
    - Must be sold, served or discarded after 4 hours
  - **Cold Food** no longer than 6 hours if:
    - Food starts at 41°F or lower
    - The ambient temperature never gets above 70°F
    - Label with starting time and discard time
    - Must be sold, served or discarded after 6 hours
  - If the ambient temperature is above 70°F, cold food is only good for 4 hours
- **Preset tableware**
  - Must be wrapped or covered if present
  - Must be removed if not needed when seating guest. If not, it must be cleaned and sanitized even if not used
- Take home containers (like growlers at a brewery)
  - Must be designed to be reused
  - Must be provided by a food establishment
  - Must be cleaned and sanitized properly before refilling
- Never reserve
  - Food returned by a customer
  - Uncovered condiments
  - Uneaten bread (not to be made into croutons)
  - Plate garnishes
    - However, any individually wrapped, unopened single service item can be reserved
- Self-serve/buffet
  - Sneeze guards must be in place they are 14" off the counter and 7" wide – they protect food from customers
  - Customers must use a clean plate each time they return for more food
  - Never use ice as an ingredient if it was used to keep food cold
  - Labels for bulk food must be included if there is a health claim made (i.e. gluten free, low fat, etc)
- Consumer advisory – Statement on the menu: Consuming raw or undercooked food could be hazardous to your health

Chapter 8: Food Safety Management Systems

- **Examples of Food Safety Management Systems**
  - Personal hygiene program
  - Food safety training
  - Supplier selection and specification program
  - Quality control and assurance programs
  - Cleaning and sanitation program
  - Standard operating procedures (SOP's)

- Facility design and equipment maintenance program
- Pest control program

❖ **HACCP (Hazard Analysis Critical Control Point)**
- Conduct a hazard analysis
- Determine critical control points (CCP's)
- Establish critical limits
- Establish monitoring procedures
- Verify that the system works
- Establish procedures for record keeping and documentation

❖ **HACCP in Action (simplified)**
- Grilled chicken on the menu could make people sick from bacteria
- Chicken must be cooked properly by the cook before serving
- The internal temperature of the chicken must be 165°F for 15 seconds
- The cook will use a thermometer to check the temperature in the thickest part
- If its not 165°F then the cook will put it back into the oven for an additional 3-5 minutes
- Management will ensure logs are being filled out and occasionally do a test
- Temperature logs will be filed and kept for 60 days

❖ The HACCP plan must be approved by the local regulatory authority.
If you want to serve live shellfish from a display tank (pick your lobster) you must have a HACCP plan.

❖ **Training**
- Observing food handlers performance helps assess training needs.
- Key to training is using multiple types of training
  - ✓ Classroom
  - ✓ One on one
  - ✓ Show practice learn

Chapter 9: Safe Facilities and Pest Management

❖ Floors, walls and Ceilings
  - Need to be smooth and durable for easy cleaning

❖ Equipment
  - Needs to be smooth, non-absorbent, durable and resistant to corrosion and damage
  - NSF or UL approved – ANSI is the group that sets the standards for NSF and UL

❖ Equipment Heights:
  - Tabletop equipment must be at least 4 inches off the counter
  - Floor mounted equipment must be at least 6" off the floor
  - Either can be mounted directly to the surface if sealed so nothing can get under the equipment

❖ Dishwashers must have:
  - Ability to measure water temperature and pressure, cleaning and sanitizing chemical solutions
  - Information about the correct settings must be posted on the machine

❖ 3 compartment sinks need to be big enough to accommodate the largest utensil/equipment
  - Must have drain boards
  - Should be cleaned and sanitized before set up

❖ Handwashing sinks
  - Must be available in restrooms, all prep areas, service areas and the dishwashing area
  - Must be stocked with 5 items: Hot and cold water, soap, a way to dry your hands, garbage can and signage reminding staff to wash their hands.

❖ Approved Water Sources
  - Approved public water main (city water)
  - Private well (must be tested annually)

- Closed, portable water containers
- Water transport vehicles

- Cross connection – is a link between clean water and dirty water
- Backsiphonage is back-flow that occurred when there is a water pressure drop and water travels backwards in a pipe/hose
- A back-flow device (like a vacuum breaker) installed in a cross connection is required to ensure dirty water doesn't contaminate the clean water, or better, **an air gap** between the two
- Garbage containers for inside must be:
  - Leak proof
  - Cleaned regularly
  - Covered when not in use
- Outside garbage containers must be:
  - On a smooth, durable, non-absorbent surface (concrete or asphalt)
  - Have tight fitting lids that are closed
  - Drain plug must be in place
  - Should be cleaned regularly to help prevent pest
- Three rules of Pest prevention:
  - Deny access to the facility
  - Deny food, water and shelter
  - Work with a licensed Pest Control Operator (PCO)
- Chemicals used by "PCO's" are restricted use pesticides (only licensed can apply)
- Air curtains help prevent flies and other insects from entering a facility when a door is opened

Chapter 10: Cleaning and Sanitizing

- **Two ways to Sanitize**
  - **Heat** (simple but hot)
    - Water temperature at a minimum 171°F
    - Immersed und the water for at last 30 seconds
  - **Chemical (3 types)**
    - Chlorine (Bleach)
    - Iodine
    - Quaternary ammonium (Quat)
  - ALWAYS FOLLOW MANUFACTURE'S DIRECTIONS TO EMSURE PROPER TEMP/CONCENTRATION
- Chlorine
  - Contact time is 7 seconds
  - Concentration is 50-99 **PPM** (parts per million)
  - Water temperature between 75°F and 100°F
- Iodine
  - Contact time is 30 seconds
  - Concentration is 12.5-25 **PPM**
  - Water temperature 68°F – 75°F
- Quat
  - Contact time is 30 seconds
  - Concentration 200-400 **PPM** (depends on manufacturer's recommendation)
  - Water temperature 75°F -90°F (Warm water)

  Water hardness can make sanitizer take longer to sanitize

- Five steps to cleaning (in order)
  - Scrape
  - Wash
  - Rinse

- Sanitize
- Air Dry

- Remember: The first step in wear-washing in the three compartment sink is the clean and sanitize the sink and drain boards first!

  - Clean food contact surfaces
    - After use
    - Before working with a different food
    - Anytime contamination may have occurred
    - After 4 hours of continuous use
  - Wet towels must be stored in a solution between uses!
  - First step before cleaning is to **Unplug** equipment

  - Dish Machine Sanitizing Temperatures
    - High Temperature dish machine must be at 180°F at the manifold(where the water comes into the dish machine) so the water hitting the dishes will be at least 171°F
    - Stationary rack (single rack) water temperature must be 165°F
      - Check temperature with a Maximum Registering Thermometers or Temperature sensitive tape
  - When sitting up a Three Compartment Sink:
    - First, clean and sanitize the sinks and drain boards
    - First sink should be filled with detergent and water at least 110°F
    - The second sink for clean water for rinsing (no set temperature requirement)
    - Third sink is for sanitizer - be sure to check the concentration to make sure the sanitizer is made correctly
  - Store clean glasses upside down and clean silverware with handles up
  - Don't forget to clean and sanitize trays and carts being used to store and transport clean silverware, utensils and equipment
  - When cleaning up vomit, food handlers are required to wear protective clothing (PPE)
  - Need to have a written plan for vomit/diarrhea clean up – needs to be posted
  - Never dump mop water or other liquid waste into a toilet – Use a mop sink (service sink)
  - Never clean cleaning tools in hand sinks, dish sinks or food prep sinks

  - SDS (Safety Data Sheets) must be on site for every chemical being used in the facility – they include first aid and hazard communication about chemicals. You can google to get SDS sheets.

  - Coving is the curved tile that is curved to cut the sharp edge between the floor and wall – makes cleaning easier

  - Cleaning Supplies:
    - Degreasers
    - Abrasive cleaners (like comet or ajax)
    - Delimers – they remove mineral build up
    - Detergents – soap
  - Mop sink and Service sink are the same – it is an appropriate place to wash trash cans, empty mop buckets clean and hang mops, brooms and dust pans along with any other cleaning tools.

Training – multiple ways to train. One on one usually works best. Watching staff can help you understand what the training needs are.

Closure by the health department for imminent health hazard – (no water, no refrigeration, pest infestation)