ServSafe In-Class Study Sheet

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 regulatory authorities**
  - The outbreak is **confirmed** by **laboratory** analysis
- **Three ways to contaminate food:**
  - **Biological** (Bacteria, Viruses, Parasites, Fungi)
  - **Chemical** (Anything not food…including cleaners and sanitizers)
  - **Physical** (including bones)
- 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** = Foods that are Time and **T**emperature **C**ontrolled for **S**afety
  - 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 (like romaine, spinach, etc.)
  - Untreated garlic and oil mixtures

- RTE = **R**eady **T**o **E**at foods (no more prep, washing or cooking is needed)
- Government Agencies
  - **FDA** (Food and Drug Administration)
    - Inspects all food not USDA's job
    - Across state lines
    - Publishes Food Code (as a recommendation for State and local authorities)
  - **USDA** (United States Department of Agriculture)
    - Inspects meat poultry and eggs
    - Across state lines
  - **CDC** (Centers for Disease Control) and PHS (Us Public Health Service)
    - Do not inspect. Only do research and assist when there is an outbreak
  - **State and Local** Authorities (i.e.: Health Department)
    - Inspects and enforces locally
    - Investigates complaints
    - Issues license, permits and approves construction and HACCP plans

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CHAPTER 2: Forms of Contamination

- **Common Symptoms of Foodborne Illness**
  - Diarrhea, vomiting, fever, nausea or abdominal cramps
- **Big 6** (EXCLUDE from ALL work until doctor note saying healthy again)
  - **BACTERIA: Salmonella (Typhi)**
    - Humans only in bloodstream and intestines
    - From **RTE foods and beverages** →

    - Wash hands
    - Cook to proper temps
  - **BACTERIA: Salmonella** (more common)
    - Farm animals (**poultry, eggs, meat, milk and dairy**) →

    - Produce
    - Prevent cross contamination and cook to proper temperatures
  - **BACTERIA: Shigella**
    - From flies and water contaminated by animals

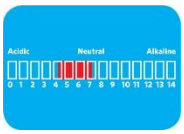
    - **Think flies at a picnic**: **Salads** (potato, tuna, shrimp, macaroni, chicken) →

    - Wash hands
    - Diarrhea
  - **BACTERIA: E. coli**
    - **Ground beef (cattle) and produce** →

    - Cook to proper temps
    - Buy from approved suppliers
    - Prevent cross contamination

  - **VIRUS: Hep A**
    - RTE food and Shellfish
    - Wash hands
    - **Jaundice**
  - **VIRUS: Norovirus**
    - RTE food and shellfish
    - **Wash hands**
    - Vomiting and diarrhea

- **Bacteria**
  - Cannot be seen, smelled or tasted
  - Needs **FATTOM:**
    - **F**ood
    - **A**cidity (**little or no acid** = 4.5-7 pH) →



    - **T**emperature (**Danger Zone = 41°F-135°F**)
    - **T**ime (more time in the Danger Zone = more change for bacterial growth)
    - **O**xygen (some need it, some don't)
    - **M**oisture (the more water = the more bacteria can grow)

Most controllable

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- **Viruses**
  - **Cooking does not kill a virus**
  - Do not grow in food but require humans of animals to be transferred
- **Parasites**
  - Not as common as bacteria and virus
  - **Seafood**, **wild game**, food processed with contaminated water
  - Cook properly
  - Buy from reputable supplier
- **Fungi**
  - Yeasts, mold, mushrooms
  - Grows well in high acidic food with low moisture
- **Toxins**
  - Can be produced in plants and mushrooms
  - Can be produced in seafood: **tuna, bonito, mahi mahi**.
  - Ciguatera Toxin: **Barracuda, snapper, grouper, amberjack**
  - Symptoms:
    - Diarrhea or vomiting
    - **Tingling in extremities** and hot/cold flashes
    - Flush in face / hives, difficulty breathing, heart racing

- **Chemical Contaminants**
  - Pewter, copper, zinc cooking equipment
  - Cleaners, first aid items, beauty products, etc. (anything not food)
- **Physical Contaminants**
  - Includes bones plus all obvious items (plastic, bandages, rocks, etc.)

- **ALERT** (prevention against terrorism and deliberate contamination of food)
  - **A**ssure
  - **L**ook
  - **E**mployees
  - **R**eports
  - **T**hreat



- **Allergens**
  - Symptoms very similar to toxin, but no tingling in extremities or hot / cold flashes
  - **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 hands often, and always **offer ingredients**

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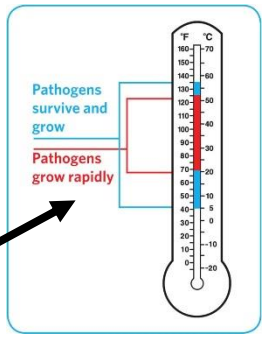
CHAPTER 3: The Safe Food Handler

- **Hand washing**
  - 20 seconds total (10-15 seconds for scrubbing)
  - **100°F** water
  - Turn off faucet with hand towel
  - Hand antiseptic is NEVER a substitute
- **Infected wound on hand** must be covered with impermeable **bandage** and single-use **glove**
- Single-use gloves are required to be used **all times EXCEPT**:
  - Washing produce
  - Handling RTE ingredients that will be added to a dish to be cooked to proper temps
- **Never** blow into gloves or roll them up before putting on
- Only **jewelry** allowed is plain band ring
- **Aprons** must be removed when leaving the food prep area (especially restroom!)

- **Handling Illnesses**:
  - Sore throat **with fever**:
    - **Restrict** from food
    - **OR** – Exclude **if** serving high-risk population
    - **Doctor's note is required to return**
  - **Vomiting or Diarrhea**
    - **EXCLUDE**, no exceptions
    - Can return after EITHER **no symptoms for 24 hours** OR doctor's note
    - "**Strict**" cleaning and sanitizing procedures
  - **Jaundice**
    - **Exclude** employee
    - **Report** to local health authority
    - Can return 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 foods that don't require prepping



- **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 (to be studied further in chapter 8)

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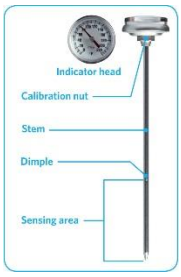
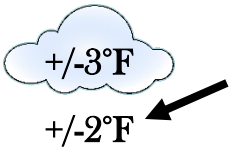
- **Thermometers**
  - **Bimetallic**
    - 0°F - 220°F
    - Measures from tip to dimple **through the stem**



  - **Thermocouples and Thermistors**
    - Measures temps using **only the tip** of the probe
      - **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 cannot read through a clear object!

- **Thermometer Guidelines**
  - Must be washed, rinsed and sanitized **after every use** to avoid cross contamination
  - Recalibrate at the **beginning of every shift** and **whenever dropped**
  - **Accuracy must be within +/- 2°F (**air thermometers must be accurate to +/- 3°F)**
  - Glass thermometers cannot be used without shatterproof casing
  - **Always check temps in two different spots in food**



CHAPTER 5: Purchasing, Receiving and Storage

- Always use approved, reputable suppliers
- 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 dates are expired
  - Frozen food shows ice crystals or water stains
  - Temp of product not correct:
    - **41°F** or lower = all cold food
    - **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 then **cooled** to 41°F or lower within **4 hours**
      - Shellfish must have shellstock ID tags (**keep for 90 days after the last shellfish from that stock was used**)
    - **135°F** or higher = all hot food

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- **Labeling**
  - All food must be labeled with **common name** and **date marking** if not in original container
  - Food packaged **on-site for retail sales** must be labeled with:
    - Common name
    - Quantity of food
    - List of ingredients
    - 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 already part of the common name)

- **Date Marking**

  - All food must be date marked is held for longer than **24 hours**
  - RTE food can be stored for only **7 days** if held at 41°F or lower
  - When combining food, the date to discard will always be the **earliest** of the foods
  - **FIFO** = First In First Out

- **Storage**
  - Food must be **6" off the ground**
  - 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 food
    - Seafood
    - Whole cuts of beef and pork
    - Ground meat and ground fish
    - Whole poultry

  - Never store food in areas not designed for food

CHAPTER 6: Preparation

- Never misrepresent the food with additives, overwraps or lights
- **Thawing**: 4 Methods
  - **In cooler** at 41°F or lower (BEST METHOD)
  - **Submerged completely under running water at 70°F or less** (keeping the food always 41°F or lower in the process)
  - In microwave **ONLY if** being cooked by conventional methods immediately after
  - Thaw as part of the **cooking process**

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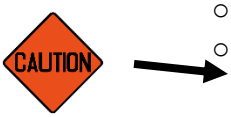
- **ROP** = Reduced Oxygen Packaging
  - If ROP package says must remain frozen until use then **EITHER**:
    - Remove from package THEN thaw using cooler method, **OR**
    - Remove from package AFTER thawing using running water method.

- **Produce**
  - Wash **before** cutting, cooking or combining with other ingredients
  - Do not mix different produce when cleaning or giving 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

- **Variances –** Documents issued by regulatory authority that allows a requirement to be waived
  - Packaging **juice on-site**
  - **Smoking** food to **preserve** it (but not to enhance flavor!)
  - Using food additives to **eliminate need to time and temperature control**
  - **Curing** food
  - Custom-processing **animals for personal use**
  - **ROP** (includes MAP, vacuum-packed and sous vide)
  - Sprouting **seeds** or **beans**
  - Live **shellfish** from a **display tank**

- **Cooking Temps ("Please Give Safe Food!")**
  - 165°F – **P**oultry, stuffed meat, reheating
  - 155°F – **G**round meat, ground seafood, injected meat, ratites (ostrich, emu), eggs LATER
  - 145°F – **S**eafood, Steaks (pork, beef, veal, lamb, eggs NOW
  - 135°F – **F**ruits, veggies and grains
- **Above are all for 15 seconds of holding time at the temperature listed**.
- **Only** exception is **roasts** of pork, beef, veal or lamb, which is **145°F for 4 minutes**

MEMORIZE

- **Microwave Cooking**
  - Stir / rotate halfway through cooking process
  - Let stand two minutes when done to even temps
  - Check temps in two places

- **Partial Cooking**
  - Never cook longer than **60 minutes** if partial cooking an item
  - Cool food immediately
  - Properly freeze or cool food
  - Heat properly before selling or serving
- Raw or undercooked items must have a Consumer Advisory listed
- Never serve raw or undercooked items to a high-risk population

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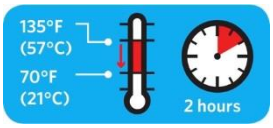
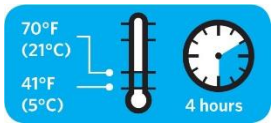
- **Cooling Time**
  - 135°F to 70°F in **two** hours
  - 70°F to 41°F in **four** hours
  - **NOTE: TOTAL of six hours, means it could be 1 hour then 5 hours, but 135°F to 70°F must be done within 2 hours still.**



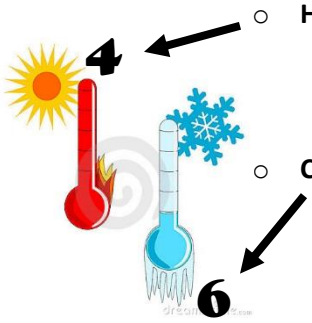


- **Cooling Methods**
  - Food cools faster when smaller portions or in shallower containers
  - Use ice water bath, or stir with paddle or blast chiller
  - When storing for further cooling, keep lid loose or uncovered (if safe)

CHAPTER 7: Service

- When **holding food** to temp: Check temperatures at least every **4 hours**

- When holding food **without temperature control**:
  - **Hot food** no longer than **4 hours**
    - Started at 135°F or higher
    - It has a date label stating when it started and when it needs to be thrown out
    - It is thrown out after 4 hours
  - **Cold food** no longer than **6 hours** if:
    - Started at 41°F or lower
    - Never gets above 70°F
    - It has a date label stating when it started and when it needs to be thrown out
    - It is thrown out after 6 hours



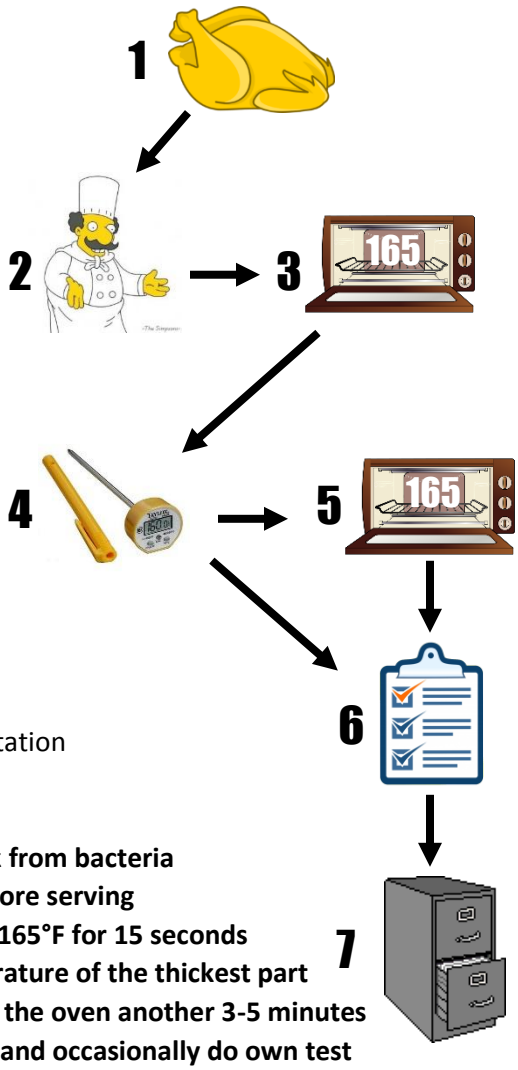
- **Preset tableware**
  - Must be **wrapped** or covered if preset
  - Must **either** be removed if not needed when guests are sat **or** cleaned and sanitized when they leave, even if it was never used.

- Take home containers (like **refill beverage cups** at a convenience store, etc.)
  - Must be designed to be reused
  - Must be provided by the 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

- **Self-serve / Buffet**
  - Sneeze guards (7' back, 14 " tall)
  - Must have clean plate when returning to get more food
  - Never use ice as an ingredient if it was used to keep food cold
  - **Labels must mark bulk foods** if there is a **health claim** (i.e.: gluten free, etc.), **otherwise**, as long as it was produced **on-site** or **off-site with the same company**, it is not needed

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 (SOPs)
  - Facility design and equipment maintenance program
  - Pest-control program

- **HACCP (Hazard Analysis Critical Control Point)**
  1. Conduct a hazard analysis
  2. Determine critical control points (CCPs)
  3. Establish critical limits
  4. Establish monitoring procedures
  5. Identify corrective actions
  6. Verify that the system works
  7. Establish procedures for record keeping and documentation

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

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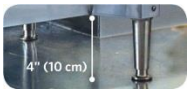
CHAPTER 9: Safe Facilities and Pest Management

- Floors, Walls and Ceilings
  - Need to be **smooth** and **durable** for easy cleaning
- Equipment
  - Need to be **smooth, non-absorbent**, **durable** and **resistant to corrosion and damage**.
- Equipment Heights:
  - **4 inches if tabletop**-mounted on legs
  - **6 inches if floor**-mounted on legs
  - **OR –** equipment can be directly on the surface if **sealed**



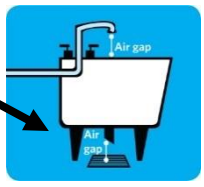
- Automatic dishwashers must have:
  - Ability to measure water **temperature** and **pressure**, cleaning and sanitizing **chemical solutions**
  - Information about the correct settings posted on the machine

- 3-compartment sinks need to be big enough to accommodate the large equipment and utensils

- **Handwashing sinks**
  - Must be available in bathrooms, **all** prep areas, service areas and dishwashing area
  - Must be stocked with 5 items: hot and cold running water, soap, a way to dry hands, garbage container and sign (saying employees must wash hands)

- **Approved Water Sources**
  - Approved public water mains
  - **Regularly tested** and **maintained** private sources
  - Closed, portable water containers
  - Water transport vehicles

- A **cross connection** is the physical link between clean water and dirty water.
- **Backsiphonage** is backflow that occurs when there is a **water pressure drop** and water travels backwards in pipe/hose
- A **backflow 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 **inside** must be
  - **Leak proof**
  - **Cleaned regularly**
  - **Covered** when not in use
- Garbage containers **outside** must be
  - On a smooth, durable, non-absorbent surface (**concrete or asphalt**)
  - Have tight fitting **lids always on**
  - **Drain plugs in place**

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- **Three Rules of Pest Prevention:**
  - **Deny access** into the building
  - **Deny food, water and shelter**
  - Work with a licensed **Pest Control Operator (PCO)**
- **Chemicals used by "PCO" are** restricted use pesticides

CHAPTER 10: Cleaning and Sanitizing

- **Two ways** to sanitize a surface:
  1. **Heat (simple, but HOT)**
     - Water minimum **171°F**
     - Immersed under the water for at least **30 seconds**
  2. **Chemicals (3 types)**
     1. Chlorine (**Bleach**)
     2. Iodine
     3. Quat

Only 2 ways to sanitize

- Two methods to sanitize a surface
  1. Soaking it in sanitizer solution
  2. Rinsing, swabbing or spraying the surface with a sanitizer solution

- Always follow manufacturer's directions to ensure proper temp and concentration

- **Chlorine**
  1. Surface contact time is always minimum **7 seconds**
  2. Concentration is always **50-99 ppm** (part per million)
  3. Water temperature is **between 75°F-100°F**, depending on water pH
- **Iodine**
  1. Surface contact time is **30 seconds**
  2. Concentration is **12.5-25 ppm**
  3. Water temperature is **68°F**
- **Quat**
  1. Surface contact time is **30 seconds**
  2. Concentration is **500 ppm**
  3. Water temperature is **75°F**

- **Five steps to cleaning (in order)**
  1. **Scrape**
  2. **Wash**
  3. **Rinse**
  4. **Sanitize**
  5. **Air Dry**

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- **Clean food contact surface**
  - After use
  - Before working with different food
  - Any time contamination may have occurred
  - **Every 4 hours** at minimum if in constant use

- The first step before cleaning is always unplug equipment

- Dish Machine **Sanitizing** Temperatures
  - **High-temperature** machines must be at **180°F (to ensure that the water is 171°F)**
  - **Stationary rack**, single temp machines must be at **165°F**
  - Check these temperatures with either :
    - Maximum registering thermometers, OR
    - Temperature sensitive tape

- When setting up a **Three-Compartment Sink**:
  - **First clean and sanitize the sinks and drain boards**
  - The **first sink** should be filled with detergent and water **at least 110°F**
  - The **second sink** should be filled with **clean water (room temp is fine)**
  - The third sink should be filled with water and sanitizer to the correct concentration

Different than hand sink temp!

- 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")**

- **Never dump mop water or other liquid waste into a toilet – Use a mop sink only!**
- **Never clean cleaning tools in hand sinks, dish sinks or food prep sinks!**

- **An MSDS sheet** must be on-site for **every chemical** being used in the building

- **Coving** is required to assist in keeping floors clean and dirt-free

*** END NOTES ***