

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
- **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
 - 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



- **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**:
 - Food
 - Acidity (Little to no acid 4.5-7 pH)



Most
controllable



- Temperature (Danger zone is between 41° and 135° F)
- Time (the more time food spends in the danger zone the more chance for bacteria to grow)

- Oxygen (Some need it, some don't)
 - Moisture (the more water the more bacteria can grow. 1.0=water)
- **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
 -
- **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)
 - **Assure** – Make sure the products you received are from safe sources
 - **Look** – Monitor the security of products
 - **Employees** – Make sure only staff has access to the kitchen
 - **Report** – Keep copies of food defense on hand
 - **Threat** – 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 9**
 - Milk and eggs
 - Fish and crustacean/shellfish (lobster, shrimp, crab)

- o Tree nuts (almonds, walnuts, pecans) and peanuts
- o Soy and wheat (gluten)
- o Sesame

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

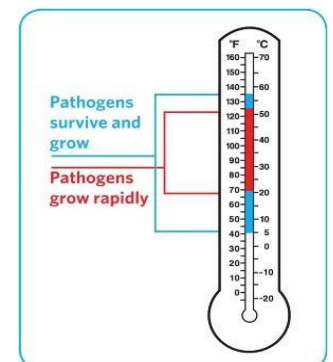


- ❖ Hand washing
 - o 20 seconds total (10-15 seconds scrubbing). Wet hands first!
 - o 85° water (The FDA and ServSafe have changed the temperature to 85° however no health department in the United States has adopted it yet)
 - o Turn off the faucet with a paper towel if available
 - o Hand antiseptic (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:
 - o When washing produce
 - o Handling RTE ingredients that will be added to a dish to be cooked to proper temperatures
- ❖ Hand Care
 - o Fingernails should be short and unpolished (no false fingernails)
 - o Never blow into gloves or roll them up before putting them on
 - o The only jewelry allowed is a plain band ring
- ❖ Handling Illness:
 - o 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
 - o 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)
 - o 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

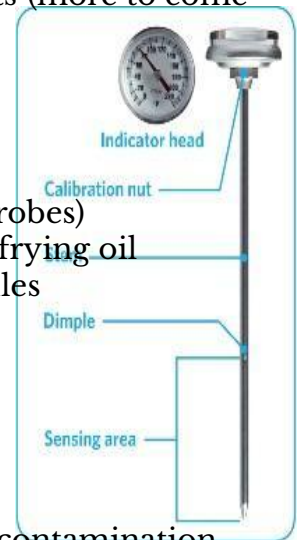
- ❖ Preventing cross contamination
 - o Use separate equipment for each item
 - o Clean and sanitize equipment after every use
 - o Prep food at efficient times
- ❖ Buy pre-prepped food Preventing Time and Temperature Abuse



- o **Danger zone is 41°F – 135°F**
- o Bacteria grows fastest between 70°F-125°F
- o TIP: Take out only what you need to prep
- o Monitor and record temps and times whenever critical point exists (more to come on this in chapter 8)

❖ Thermometers

- o **Bimetallic**
 - 0°F – 220°F Measures from tip to dimple through the stem
- o **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
- o **Infrared**
 - Checks surface temp using laser light
 - It can not read through a clear object
- o **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 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
 - 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 the 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)

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- ❖ **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 minutes
 - 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

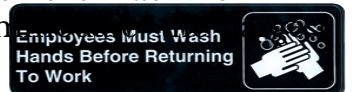
- ❖ Self-serve/buffet
 - Sneeze guards must be in place they are 14” off the counter and 7” wide – they protect food from customers
 - Customers must use a clean plate each time they return for more food
 - Never use ice as an ingredient if it was used to keep food cold
 - Labels for bulk food must be 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
 - o Need to be smooth and durable for easy cleaning
 - o Baking equipment should be cleaned at least every 24 hours
- ❖ Equipment
 - o Needs to be smooth, non-absorbent, durable and resistant to corrosion and damage
 - o NSF or UL approved – ANSI is the group that sets the standards for NSF and UL
- ❖ Equipment Heights:
 - o Tabletop equipment must be at least 4 inches off the counter
 - o Floor mounted equipment must be at least 6” off the floor
 - o Either can be mounted directly to the surface if sealed so nothing can get under the equipment
- ❖ Dishwashers must have:
 - o Ability to measure water temperature and pressure, cleaning and sanitizing chemical solutions
 - o Information about the correct settings must be posted on the machine
- ❖ 3 compartment sinks need to be big enough to accommodate utensil/equipment
 - o Must have drain boards
 - o Should be cleaned and sanitized before set up
- ❖ Handwashing sinks
 - o Must be available in restrooms, all prep areas, service areas and the dishwashing area
 - o 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
 - o Approved public water main (city water)
 - o Private well (must be tested annually)
 - o Closed, portable water containers
 - o 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
- ❖ **gap** between the two
- ❖ Garbage containers for inside must be:
 - o Leak proof
 - o Cleaned regularly
 - o Covered when not in use
- ❖ Outside garbage containers must be:
 - o On a smooth, durable, non-absorbent surface (concrete or asphalt)
 - o Have tight fitting lids that are closed
 - o Drain plug must be in place
 - o Should be cleaned regularly to help prevent pest
- ❖ Three rules of Pest prevention:
 - o Deny access to the facility
 - o Deny food, water and shelter



- o 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
 - o Heat (simple but hot)
 - Water temperature at a minimum 171°F
 - Immersed und the water for at last 30 seconds
 - o Chemical (3 types)
 - Chlorine (Bleach)
 - Iodine
 - Quaternary ammonium (Quat)
- o ALWAYS FOLLOW MANUFACTURE’S DIRECTIONS TO EMSURE PROPER TEMP/CONCENTRATION
- ❖ Chlorine
 - o Contact time is 7 seconds
 - o Concentration is 50-99 PPM (parts per million)
 - o Water temperature between 75°F and 100°F (Warm water)
- ❖ Iodine
 - o Contact time is 30 seconds
 - o Concentration is 12.5-25 PPM
 - o Water temperature 68°F – 75°F
- ❖ Quat
 - o Contact time is 30 seconds
 - o Concentration 200-400 PPM (depends on manufacturer’s recommendation)
 - o Water temperature 75°F -90°F (Warm water)
 - Water hardness can make sanitizer take longer to sanitize*
- ❖ Five steps to cleaning (in order)
 - o Scrape
 - o Wash
 - o Rinse
 - o Sanitize
 - o 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
 - o After use
 - o Before working with a different food
 - o Anytime contamination may have occurred
 - o 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

- o 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
- o Stationary rack (single rack) water temperature must be 165°F
 - Check temperature with a Maximum Registering Thermometers or Temperature sensitive tape
- ❖ When setting up a Three Compartment Sink:
 - o First, clean and sanitize the sinks and drain boards
 - o First sink should be filled with detergent and water at least 110°F
 - o The second sink for clean water for rinsing (no set temperature requirement)
 - o 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 c



- ❖ Cleaning Supplies:
 - o Degreasers
 - o Abrasive cleaners (like comet or ajax)
 - o Delimers - they remove mineral build up
 - o 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)