**Food-borne Pathogenic Microorganisms**

- Bacteria and viruses cause most food-borne illnesses
- Factors affecting pathogen growth: food (high in protein), acidity, time, temperature (41°F - 135°F), oxygen, moisture (water activity level)
- Time-temperature control for safety (TCS) foods aka potentially hazardous foods (PHF): moist, protein-rich foods that when temperatures are suitable can support pathogen growth
- Pathogens can live but usually not reproduce on non-hazardous foods such as crackers

**Observe Good Hygiene Practices**

- People are the most likely source of pathogens
- Wear clean clothing and hair restraints
- Do not wipe hands on cloth towels, aprons, or clothes
- Keep fingernails trimmed, neat, and clean
- Keep personal food and drinks covered and in appropriate areas that cannot contaminate food and clean equipment
- Cover open cuts or sores with a finger cot and/or single-use glove

**Proper Glove Use**

- Thoroughly wash hands before putting on gloves and in between changing gloves
- Change gloves when changing tasks or if gloves become contaminated (e.g. taking money), or if there is a break in food production
- Do not save and reuse disposable gloves
- Once gloves have been taken off, discard them and put on a new pair
- Change gloves at least once every four hours if in continually use (i.e. sandwich line)

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**NO Bare Hand Contact with Ready-To-Eat Foods!**

Use: Deli tissue, single-use gloves, spatulas, forks, dispensing equipment, tongs, ice scoops, etc.

**Proper Handwashing**

- Wash hands only in the designated handwashing sink
- Wet hands with hot (100°F) water
- Apply soap and rub hands together for 20 s
- Rinse hands thoroughly under running water
- Dry hands using single use paper towels and use paper towel to turn off faucet
- (optional) apply hand sanitizer

**When to Wash Your Hands**

- Using the restroom – double hand washing is required
- Coughing, sneezing, blowing or touching nose
- Touching head, hair, mouth, clothes, apron, cuts, or sores
- Smoking, eating, or drinking
- Touching raw poultry, meats, or fish
- Touching trash, floors, etc.
- Touching dirty dishes, equipment, or utensils
- Touching chemicals, animals, money, etc.
- Between loading and unloading dishwasher

**Preventing Cross-Contamination**

- Use different cutting boards for raw meats, cooked meats, and vegetables
- Store foods according to required safe cooking temperatures: ready-to-eat (RTE) foods on top (vegetables, fruits, fully cooked food), then seafood, steak, pork chops, ground meats (beef, pork), and stuffed meats and poultry on bottom
- All RTE foods should be marked with the date and time and discarded after 7 days from the date of preparation
- Rotate stored food products so the oldest food is used first
- Swollen/bulged and severely dented cans should be discarded
- Keep food stored in a dry, clean location 6 inches off of the floor
- Mop water should be disposed of in toilets or utility (mop) sinks only
- Lids on dumpsters should remain closed, garbage should be removed regularly, and containers and garbage area maintained clean
- Outer openings (doors and windows) should have screens, be kept closed, or provide another means to prevent the entry of pests
### Equipment Needed in Food Service Facilities
- Sanitizer and appropriate test strips to check concentration
- Probe-style thermometer to check food temperatures
- Thermometers in each cold-holding unit

### Proper Thawing
- In refrigerator at or below 41°F
- Under cold running water at or below 70°F
- As part of the cooking process (e.g., Frozen chicken wing straight into the fryer)
- In the microwave followed by immediate cooking

### Cleaning and Sanitizing of Dishes, Utensils, and Kitchen Ware
**Manual**
- Clean sink, sanitize if needed
- Proper cleaning and sanitizing procedure:
  - Scrape off any excess food on item and remove date mark stickers
  - Wash thoroughly with dish soap
  - Rinse with clear water
  - Sanitize in approved sanitizer
    - Use test strips to check for proper concentration
  - Allow to air dry before putting away (do NOT cloth dry)

**Mechanical**
- Clean warewashing unit, sanitize if needed
- Proper cleaning and sanitizing procedure:
  - Scrape off any excess food on item and remove date mark stickers
  - Wash with detergent (dish soap)
    - Water temperature of 150°F for hot water sanitizer methods
    - Water temperature of 120°F for chemical sanitizer methods
  - Rinse with clear water
  - Sanitize
    - Water temperature 180°F for hot water sanitizer methods
    - Water temperature 120°F for chemical sanitizer methods
    - Use test strips to check for proper concentration
  - Allow to air dry before putting away (do NOT cloth dry)

### Cleaning and Sanitizing of Food-Contact Surfaces
- Clean and sanitize food-contact surfaces
- Use proper sanitizer concentrations (do NOT add soap)
  - 50-100 ppm for chlorine (bleach)
  - 200 ppm for quaternary ammonia compounds
- Use test strips to check for proper sanitizer concentration
- Properly label working containers of chemicals (e.g., spray bottles) and store away from food products
- Reusable wiping cloths should be kept in a sanitizing solution
- Sanitizing solutions with wiping rags should be changed at least every 4 hours

### Time and Temperature Control for Safety Foods
- Cold-holding at or below 41°F
- Hot-holding at or above 135°F
- Internal Cooking Temperatures
  - 135°F (fruits, vegetables, grains, legumes, commercially cooked foods)
  - 145°F (fish, shellfish, steaks/chops of beef or pork, veal, shell eggs)
  - 155°F (ground meats, injected meats, ground seafood)
  - 165°F (raw poultry, stuffed meat or seafood or poultry or pasta)

### Symptoms of Food-borne Illness
- Vomiting
- Diarrhea
- Fever and Sore Throat
- Jaundice (Hepatitis A)
- Lesion/Infected wound

DO NOT HANDLE FOOD, CLEAN EQUIPMENT, or CLEAN UTENSILS IF YOU HAVE ANY SYMPTOMS OR A CONFIRMED FOODBORNE ILLNESS

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