

Class Outline

- 1) Importance of Food Safety – Why is it so important?
- 2) Essentials of Food Safety and Sanitation
 - a. Time and Temperature (T&T)
 - b. Heat and Cold
 - c. Wash, Rinse, Sanitize, Air-dry (WRSA) & hand-washing
- 3) Sources of Contamination – 8 Main Sources
 - a. Food handlers (poor personal hygiene)
 - b. Food contact surfaces (clean at least every 4 hours)
 - c. Packaging materials (6 inches off of the ground)
 - d. Soil (dirty soil = dirty food)
 - e. Water (all water must be potable or drinkable)
 - f. Air (Are your foods cooled before refrigeration?)
 - g. Ingredients (buy from **approved** and **reputable** sources)
 - h. Rats, mice, roaches (have approved pest control program, limit access)
- 4) High Risk Populations (PIES), **P**regnant/Nursing women, **I**nfants, **E**lderly, Impaired Immune **S**ystems (such as cancer, AIDS, HIV)
- 5) 4 Types Of Food Contaminants
 - a. Biological (from the earth) 4 types:
 - i. Bacteria
 - ii. Viruses
 - iii. Parasites
 - iv. Fungi
 - b. Chemical (msg, sulfites)
 - c. Physical (“if you can see it...”)
 - d. Cross (cutting raw meat + fresh lettuce)
- 6) Bacteria
 - a. Found everywhere, doubles every 20 minutes, produces spores and toxins (toxins cannot be killed by heat or cold)
 - b. 6 types of bacteria
 - i. E.Coli (ground beef) 155°F for 15 seconds
 - ii. Salmonella (poultry and eggs) 165°F for 15 seconds
 - iii. Clostridium **B**otulinum (swollen cans)
 - iv. Listeria (lunch and deli meats, listeria and luncheon meats or L&L)
 - v. Shigella (fecal contamination), **Shi**?+gella
 - vi. Staphylococcus Aureus (saliva, Staff = People)
- 7) Foodborne Illness – 2 types
 - a. Foodborne infection – **delayed onset**
 - i. Symptoms appear later (E.Coli, Salmonella)
 - b. Foodborne intoxication – **rapid onset**
 - i. Symptoms appear right away (Staph, Botulinum)
- 8) FATTOM
 - a. Foods high in protein
 - b. Acidic, bacteria grows in a pH of 4.6-7.5
 - c. Temperature, 41-135
 - d. Time, maximum of 4 hours in the danger zone
 - e. Oxygen, is it aerobic or anaerobic?
 - f. Moisture, water activity level (Aw) .85 or greater, water is neutral at 7
- 9) Freezing does **not** kill bacteria. Bacteria are like bears, growth rate is slowed in cold temperatures.
 - a. Monitor temperature with thermometer in warmest part of the freezer/refrigerator
 - b. Remember the Q in frozen
- 10) Viruses - require a **living host**, largely spread through poor personal hygiene
 - a. Hepatitis A
 - b. Norwalk (Norovirus)
- 11) Parasites require a **living host**. Can be killed by freezing to -4°F for 7 days, T.A.G
 - i. Trichinella (pork and wild game)
 - ii. Anisakis (fish, sushi); Do you have **any sake**?
 - iii. Giardia (contaminated/dirty water)
- 12) Chemical Contamination From Fish - Buy From **approved and reputable** sources
 - a. Ciguatera (toxic algae in tropical predatory fish such as snapper and barracuda)
 - b. Scombroid (Time and Temperature Abuse + Mahi-Mahi = TT+MM)
- 13) Chemical Dangers - Cleaning solutions stored away from food
 - a. Pesticides stored **away** from food and cleaning supplies and locked up
 - b. MSDS (Material Safety Data Sheets, contains first aid information)
 - c. Copper, Brass, and Tin (CBT) should not be mixed with acidic foods
- 14) Physical Dangers – “if you can see it...”
- 15) Cross Contamination - How To Avoid It
 - a. Clean and sanitize all food contact surfaces (at least every 4 hours)
 - b. Store ready to eat foods **away from** or **above** raw foods
 - c. Use **color coded** cutting boards and colored utensils
- 16) Thermometers
 - a. Must read from 0°F-220°F
 - b. Infrared thermometers (reading affected by thickness of packaging, angle of laser)
 - c. **Calibrate** thermometers – ice water is 32°F, boiling water is 212°F

- 17) Danger Zone – What Is It And How To Avoid?
- 41°F -135°F, cold foods under 41°F and hot foods above 135°F
 - Pass foods quickly through danger zone
 - 2 step cooling process - 135°F to 70°F **in 2 hours**, then 70°F to 41°F **in 4 hours** (6 total hours maximum)
 - Reduce cooling time – 3SI (smaller, shallow, stir, ice wand/bath)
 - Thawing foods - CROW (cooking, refrigerator, oven (microwave), water (running at 70°F or less))
- 18) Measuring Temperatures - Unpackaged foods
- Center or thickest part
 - Break 2 eggs and place in cup/bowl
 - Pour milk into cup
- b. “**Sandwich or fold**” packaged foods
- 19) Cooking Requirements – Internal Temperatures
- 165°F – Chicken, turkey, poultry (**including ground poultry**)
 - All reheated foods (cook within two hours),
 - All microwaveable foods (stir, rotate ½ way thru cooking, wait 2 minutes before serving)
 - 155°F – all ground meat **except** for poultry
 - 145°F – single cuts of meat
- 20) Receiving and Evaluating Food
- Check for color, odor, texture, pest activity, visible spoilage
 - All meats received at 41°F or below
 - Buy from approved sources (compliance with federal, state, local laws)
 - Live seafood should be received alive
 - Eggs received at 45°F
 - UHT (ultra high temperature) – liquid coffee creamers
 - Frozen foods - check for ice crystals on bottom of box (refrozen)
 - ROP (**R**educed **O**xygen **P**ackaging)
 - Reject dented, or swollen cans
 - Dairy - **Pasteurized** and **Grade A**
 - Dry foods - do not store under sewer lines without **shielding**, 6 inches off the ground
- 21) Allergies - Most common allergens are **shrimp** and **peanuts**, and **tofu**
- Be aware of MSG/Sulfites
 - Anaphylaxis** – **allergic shock** causing hives, itching, swelling, death
- 22) Hygiene - Poor personal hygiene is #1 cause of food contamination
- Properly wash hands for **20 seconds (10-15 seconds is rubbing)**
 - Clean clothing and uniforms
 - Gloves and antibacterial gel are not substitutes for proper hand washing
 - HESSN – highly infectious illnesses (Hepatitis A, E.Coli, Salmonella, Shigella, Norovirus)
 - Symptoms are vomiting, diarrhea, and jaundice (yellowing of eyes and skin)
- 23) Cleaning and Sanitizing
- Use a 3-compartment sink or a machine dishwasher
 - Have a Master Cleaning Schedule
 - CIQ** - 3 approved chemical sanitizers
 - Chlorine – 50ppm
 - Iodine – 12.5ppm
 - Quaternary Ammonium – 200ppm
 - Prep floors should have baseboard coving
 - Food contact surfaces made of plastic, glass, or steel
 - CIP (Clean in Place)
- 24) Buffet Station
- Only cups are reusable
 - Cannot use burners or heat lamps to re-heat Food
 - Utensils inside the food
 - Lighting should not mislead food on display
- 25) HACCP - Hazard Analysis Critical Control Point
- Seven steps in HACCP – **prevention based** system
 - Time and Temperature (T&T) control principles
 - Required if you package ROP foods, serve raw or undercooked shellfish, or if you package unpasteurized juices
- 26) Restaurant Best Practices
- FIFO (First In, First Out)
 - Avoid cross connection (mixing of dirty and clean water)
 - Back siphonage/backflow (air gap is twice diameter or minimum one inch of water supply inlet)
 - No hot water means you must close, sewage overflow is immediate closure
 - Lighting
 - Food prep – 50 foot candles
 - Dining area – 20 foot candles
 - Walk-in fridges/freezers – 10 foot candles
 - Proper ventilation is required (eliminate odors, smoke, gas, moisture)
 - Garbage dumpsters must be leak proof and waterproof and on a solid foundation such as concrete
 - Pest control program required (proper sanitation and limit access to prevent infestation)
 - Pest control operators utilize **IPM (Integrated Pest Management)**
 - Always ask for ID from health inspector
 - Assess training needs