CHAPTER 6
INTRODUCTION TO FOOD SAFETY
FOODBORNE ILLNESS AND ITS COSTS

• **FOODBORNE ILLNESS**—DISEASE TRANSMITTED TO PEOPLE BY FOOD

• **FOODBORNE-ILLNESS OUTBREAK**
  - 2 OR MORE PEOPLE
  - FROM THE SAME FOOD SOURCE
  - INVESTIGATION IS CONDUCTED
  - LABORATORY ANALYSIS CONFIRMED
POPULATIONS AT HIGH RISK FOR FOODBORNE ILLNESS

• HIGHER RISK FOR FOODBORNE ILLNESS
  o WEAKENED IMMUNE SYSTEMS
  o CANNOT FIGHT ILLNESS

• IMMUNE SYSTEM—DEFENSE AGAINST ILLNESS

• ELDERLY PEOPLE
• PRESCHOOL-AGE CHILDREN
• COMPROMISED IMMUNE SYSTEMS
  o CANCER OR CHEMOTHERAPY
  o HIV/AIDS
  o TRANSPLANT RECIPIENTS
  o MEDICATIONS
FORMS OF CONTAMINATION

• **HAZARD**—POTENTIAL TO CAUSE HARM
• **THREE CATEGORIES OF FOOD HAZARDS**
  o BIOLOGICAL
  o CHEMICAL
  o PHYSICAL

CONTAMINATION

• HARMFUL ITEMS PRESENT IN FOOD
• UNSAFE TO EAT THE FOOD
BIOLOGICAL CONTAMINATION

MICROORGANISMS
- SMALL, LIVING ORGANISMS
- ONLY SEEN THROUGH A MICROSCOPE
- HUMANS CAN CARRY THEM
- PATHOGENS - CAUSE ILLNESS

FOUR TYPES OF PATHOGENS:
- VIRUSES
- BACTERIA
- PARASITES
- FUNGI – MOLD AND YEAST
BACTERIA

- **FAT TOM - SIX CONDITIONS TO GROW:**
  - FOOD
  - ACIDITY
  - TEMPERATURE
  - TIME
  - OXYGEN
  - MOISTURE
BACTERIA – FAT TOM PRINCIPLES

FOOD:
• ENERGY SOURCE FOR BACTERIA
• CARBOHYDRATES AND PROTEINS

ACIDITY:
• PH—MEASURE OF ACIDITY LEVELS
• PH SCALE—0 TO 14
• BEST GROWTH—PH OF 7.5 TO 4.6
• BACTERIA PREFER FOOD WITH LITTLE OR NO ACID

TEMPERATURE:
• BETWEEN 41°F AND 135°F (5°C AND 57°C)
• TEMPERATURE DANGER ZONE
BACTERIA – FAT TOM PRINCIPLES

TIME:
• TIME SPENT IN TEMPERATURE DANGER ZONE
• BACTERIA GROW TO UNSAFE LEVELS
• FASTEST GROWTH BETWEEN 70 – 125°F

OXYGEN:
• AEROBIC: GROW WITH OXYGEN
• ANAEROBIC: GROW WITHOUT OXYGEN

MOISTURE:
• BACTERIA LOVE FOOD WITH HIGH LEVELS
• EXAMPLE: TOMATOES, MEAT, POULTRY

Under the right conditions bacteria can increase quickly.
• With plenty of food, the right temperature and other suitable conditions, bacteria can reproduce as often as every 20 minutes!!!!
BACTERIA

TCS FOOD:

• TIME AND TEMPERATURE CONTROL FOR SAFETY
• INCLUDE ALL FAT TOM CONDITIONS
• MOST COMMONLY INVOLVED IN FOODBORNE-ILLNESS OUTBREAKS
• VIRTUALLY ALL FOODS ARE CONSIDERED TCS FOODS
BACTERIA

READY-TO-EAT FOOD:

- FOOD EATEN WITHOUT FURTHER:
  - PREPARATION
  - WASHING
  - COOKING

- EXAMPLES: WASHED FRUIT, DELI MEAT, SEASONINGS
CHEMICAL CONTAMINATION

- Used or stored incorrectly
- Cleaners, sanitizers, polishes
- Separate area
- Away from food, utensils, equipment
- Follow manufacturer’s directions
PHYSICAL CONTAMINATION

- Objects in food
- Naturally occurring
- Accidents and mistakes
FOOD ALLERGIES

- Food allergy—negative reaction to food protein
- Food allergens—proteins causing allergic reactions
- Immune system attacks protein
- Causes allergic reaction
FOOD ALLERGIES

Cross-contact:
- Allergen food item touches another food item
- Proteins mix
THE “BIG EIGHT” FOOD ALLERGENS

- Crustacean shellfish, such as crab, lobster, and shrimp
- Eggs
- Fish, such as tuna and cod
- Milk
THE “BIG EIGHT” FOOD ALLERGENS

- Peanuts
- Soy
- Tree nuts, such as almonds, walnuts, and pecans
- Wheat
STEPS TO AVOID CROSS-CONTACT

WASH, RINSE, & SANITIZE
- Cookware, utensils, and equipment
- Food-prep surfaces

KEEP ALLERGENS SEPARATE
- Use separate utensils
- Store common allergen foods separate
- Have dedicated fryer