Modern food production, processing, and marketing have both positive and negative influences on food safety.

Government Control Agencies

- Food and Drug Administration (FDA)
- USDA Food Safety and Inspection Service (FSIS)
- National Marine Fisheries Service (NMFS)
- Environmental Protection Agency (EPA)
- Federal Trade Commission (FTC)
- Centers for Disease Control and Prevention (CDC)

Food and Drug Administration

- Enforces food sanitation and quality control
- Controls food additives
- Regulates interstate food transport
- Maintains nutrition labeling
- Ensures public food service safety
- Provides consumer education
- Performs research
• Food Labels

• Two types of label information
  — Food standards: lists all ingredients (“standard of identity”)
  — Nutrition information: describes a food’s nutritional value

• Current Food Label:
  Nutrition Facts

• Food Label: Health Claims

• Strictly regulated by FDA

• To make an association between a food product and a specific disease:
  — FDA must approve claim
  — Food must meet criteria set forth for that claim
  — Wording on package must be approved

• Food Technology

• Agricultural and food processing industries have developed chemicals to increase and preserve food supply.

• Critics are concerned about how certain changes have affected food safety and the environment.
  — Pesticides
  — Food additives

• Agricultural Pesticides

• Goal is to feed a growing population

• Pesticides improve crop yields
Example: Chemicals destroy many destructive insects

- Problems
  - Pesticide residue on food
  - Gradual leaching of chemicals into ground water and wells

- Alternative Agriculture
  - Organic farming
    - Grow foods without synthetic pesticides, fertilizers, sewage sludge, bioengineering, or ionizing radiation
    - Raise animals and produce dairy products without antibiotics or growth hormones
  - Natural pesticides may be used

- Alternative Agriculture, cont’d
  - Genetic modification
    - Reduces the need for toxic pesticides and herbicides
    - Example: Genetically modified corn that expresses a protein that acts as an insecticide

- Alternative Agriculture, cont’d
  - Genetic modification
    {Insert Figure 13-5}

- Alternative Agriculture, cont’d
  - Irradiation
— Kills bacteria and parasites on food after harvest
— Prevents food-borne illness
— Can increase shelf life of produce

• Foods that are irradiated:
  — Have unaltered nutritional value
  — Are not radioactive
  — Have no harmful substances introduced as a result of irradiation
  — May taste slightly different

• Food Additives

• Chemicals intentionally added to foods to prevent spoilage and extend shelf life

• Benefits include:
  — Enriched food with added nutrients
  — Uniform quality
  — Standardized functional factors (e.g., thickening)
  — Preserves foods
  — Controls acidity and alkalinity

• Chapter 13
  Lesson 13.2

• Key Concept

• Many organisms in contaminated food transmit disease.

• Food-Borne Disease

• 76 million people in the United States sickened with food-borne disease annually

• 325,000 U.S. hospitalizations annually
• $83 billion annually in medical costs and personal salary losses

• Buying and Storing Food

• Food should be of good quality.

• Dry or cold storage is best.

• Refrigerate promptly.

• Refrigerate at 40° F or lower.

• Do not cross-contaminate foods.

• Preparing and Serving Food

• Wash hands and food preparation surfaces

• Keep raw meat, fish, and poultry separate from other foods.

• Cook to proper temperatures.

• Refrigerate leftovers immediately.

• Fight BAC!

• Food Contamination

• Food-borne illness usually presents with flulike symptoms

• High-risk individuals: Age, physical condition
  — Young children
  — Pregnant women
  — Elderly
  — Individuals with compromised immune systems
• Bacterial Food Infections

• Salmonellosis
  — Caused by Salmonella, which grow readily in milk, custard, egg dishes, salad dressing, sandwich fillings, seafood from polluted waters
  — Unsanitary food handling can spread bacteria

• Bacterial Food Infections, cont’d

• Shigellosis
  — Caused by Shigella, which grow easily in milk
  — Most common in young children
  — Usually confined to large intestine

• Bacterial Food Infections, cont’d

• Listeriosis
  — Caused by Listeria
  — Grows in soft cheese, poultry, seafood, raw milk, commercially broken and refrigerated raw eggs, meat products (such as pâté)

• Bacterial Food Poisoning

• Staphylococcal food poisoning
  — From Staphylococcus aureus
  — Source often is an infection on the hand of a food worker
  — Many foods are effective carriers

• Bacterial Food Poisoning, cont’d

• Clostridial food poisoning
From Clostridium perfringens and Clostridium botulinum

- C. perfringens are widespread in environment
- C. botulinum cause botulism (serious, often fatal food poisoning)

- Viruses
- Upper respiratory infections
- Viral infectious hepatitis
- Caused by fecal contamination of water, milk, or food or by contaminated shellfish from polluted waters

- Parasites
- Roundworms
  - Example: Trichina worm found in pork
- Flatworms
  - Example: Tapeworms in beef and pork

- Environmental Food Contaminants
- Lead
  - Sources include lead paint, airborne lead particles, water from lead pipes
- Mercury
  - Sources include fish from contaminated water
- Aflatoxin
  - Produced by fungi

Chapter 13
Lesson 13.3
• Key Concept

• Poverty often prevents individuals and families from having adequate access to their surrounding community food supply.

• Food Needs and Costs

• Worldwide hunger and malnutrition
  — Lack of sanitation
  — Cultural inequality
  — Overpopulation
  — Economic and political structure
  — Chronic food or nutrient shortages

• In the United States
  — More than 11 million households defined as “food insecure” in 2000

• Multiple Causes of Malnutrition

• Food Assistance Programs

• Commodity Supplemental Food Program

• Food Stamp Program

• Special Supplemental Food Program for Women, Infants, and Children

• National School Lunch, Breakfast, and Special Milk Program

• Nutrition Services Incentive Program

• WIC Enrollment

• Food Buying and Handling
• Plan ahead to control impulse buying.

• Buy wisely.
  — Understand packaging, labels, brands, portion yields, measures, and food values.
  — Only buy in quantity if savings will be achieved.

• Store food safely.

• Cook food well.

• Summary

• Common public concerns regarding the safety of the community food supply center on the use of pesticides and food additives.

• These substances have produced an abundant food supply but have brought dangers and require control.

• The FDA is the main government agency established to maintain control.

• Summary, cont’d

• The FDA also conducts activities related to areas such as food safety, food labeling, food standards, consumer education, and research.

• Numerous organisms can contaminate food and cause food-borne illness.
  — Bacteria
  — Viruses
  — Parasites

• Summary, cont’d

• Rigorous public health measures control sanitation and food areas and personal hygiene of workers.

• U.S. food assistance programs are available for families under economic stress.