Environmental and Health Hazards
Hazards

- Biological
- Chemical
- Physical
- Cultural
Biological Hazards

- Caused by pathogens
  - Bacteria
  - Viruses
  - Parasites
  - Protozoa
  - Fungi
Biological Hazards

- Often spread from animals to people
- Transmissible
  - Spread by:
    - Air
    - Water
    - Food
    - Bodily fluids

1) Pneumonia and Flu
   - Bacteria and virus

2) HIV/AIDS
   - Virus

3) Malaria
   - Protozoa
Biological Hazards

- Non-living causes
  - Nontransmissible
  - Ex. Cardiovascular disease, malnutrition

- Large scale outbreak in a country – epidemic
  - Global epidemic – pandemic (ex. AIDS)

- Decrease in infectious disease since 1950 but bacteria are becoming resistant to antibiotics.
Chemical Hazards

- Toxic Chemicals
  - Mutagens
    - Cause mutations in DNA
  - Teratogens
    - Birth defects to fetus or embryo
  - Carcinogens
    - Cause cancer
Hazardous Chemicals interfere with the:

- **Immune System** – decreases the body's ability to fight disease.

- **Endocrine system** – hormonally active agents (HAA’s), hormone mimics, gender benders, sexual changes, thyroid disruptors.

- **Nervous System** – Neurotoxins cause behavioral changes, retardation, paralysis, and death.
Physical Hazards

- Fire
- Earthquakes
- Volcanoes
- Floods
- Tornadoes
- Hurricanes
Cultural Hazards

- Smoking
- Unsafe working conditions
- Poor diet
- Drugs
- Drinking
- Driving
- Criminal assault
- Unsafe sex
- Poverty
Toxicology

- Examines the harmful effect of chemicals.
Toxicity

- Measures how harmful a substance is.
  - Dose
  - Frequency
  - Genetic makeup (body’s ability to detoxify a substance)
Toxicity

- Depends on:
  - Solubility
  - Persistence
  - Bioaccumulation
  - Biomagnification
  - Chemical interaction
Bioaccumulation

- When a compound accumulations in the tissue.
Biomagnification

- The increase in concentration of a substance that occurs in a food chain.
- Increasing of toxins with increased trophic level.
Body’s Defenses

- Breakdown – liver
- Excrete – Kidney
- Enzymes in cells can repair damaged DNA
- Quick reproduction can replace damaged cells

Toxins are usually worse for children.
The greatest risk in terms of number of premature deaths and decreased life expectancy is poverty

- Malnutrition
- Lack of safe drinking water
- Increased susceptibility to normal nonfatal infectious diseases
Voluntary choices people make

- Avoid smoking
- Lose excess weight
- Decrease cholesterol and saturated fat
- Increase fruits and vegetables in the diet
- Exercise regularly
- Limit alcohol to 2 or less drinks/day
- Avoid excess sunlight
- Practice safe sex