

# **Lecture 8: The Environment and Health**

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# Session Objectives

- By the end of this lecture, you should be able to:
  - Apply the concept of environmental hazards on day to day life
  - Discuss the influence of the environment on human health

# Environment

- The environment is everything that is external to human
- Environmental health is the study and management of environmental conditions that affect the health and well-being of humans
- Environmental hazards may be biological, chemical, physical, psychological, sociological, or site and location hazards.
- **The environment is responsible for many preventable diseases**

# Components of the Environment

- Physical
  - Water, soil, housing, climate, noise, radiation
- Biological
  - Viruses, microbial agents, rodents, plants, insects
- Psychosocial
  - Cultural values, customs, beliefs, lifestyle, health services

# Environmental Hazards

- These may be classified as
  - Biological
  - Chemical
  - Physical
  - Psychological
  - Sociological
  - Site and location

# Biological Hazards (I)

## Waterborne hazards

- Diseases that are transmitted in drinking water (fecal-oral)
- Examples are;
  - Polio virus
  - Hepatitis a virus
  - Salmonella, Cholera, amoebic dysentery

## Foodborne

- Ingestion of foodstuffs contaminated with microorganisms or chemicals
- Contamination may occur from food production to consumption
- Examples are;
  - Salmonella
  - Escherichia coli

# Biological Hazards (II)

- Vector borne diseases:
  - Diseases transmitted by insects or arthropods
    - Globally over 700,000 deaths
    - 17% of all infectious diseases
    - Highest in tropical and subtropical areas affecting poorest populations
  - Examples of vector borne diseases:
    - Malaria transmitted by mosquitoes
    - Plague transmitted by fleas
    - Lyme disease transmitted by ticks
    - Sleeping sickness transmitted by tsetse flies

# WHO Response to Vector-Borne Diseases

- The *Global vector control response (GVCR) 2017–2030* approved by the World Health Assembly (2017)
- Provides strategic guidance on prevention, control and responding to outbreaks through:
  - Vector control programs
  - Support by increased technical capacity
  - Improved infrastructure
  - Strengthening monitoring and surveillance systems
- Behavior change
  - Protective practices depend on sociocultural and cognitive factors
  - Provide education and awareness to communities
  - Individuals and communities should be involved in the prevention and control



# Chemical Hazards (I)

- Result from mismanagement or misuse of chemicals resulting in risks to human health
  - Misuse can lead to illness and death
  - Yearly 3 million cases of pesticide poisoning
  - 220,000 deaths annually mostly in developing countries
- **Health effects:** neurological effects, asthma, allergies, cancer
- **Pesticides**
  - Manufactured for the purpose of reducing pests e.g. herbicides and insecticides
- **Associated diseases**
  - Lung cancer
  - Heart diseases

# Chemical Hazards (II)

- **Lead:** An element used in the manufacture of many industrial and domestic products
- Associated health problems
  - Anemia
  - birth defects
  - bone damage
  - neurological damage
  - kidney damage

# Physical Hazards

- airborne particles (environmental or occupational)
  - respiratory illnesses, risk of lung cancer
- Humidity (excessive sweating)
  - dehydration, fatigue, muscle cramps, heat exhaustion, fainting and heat stroke
- equipment (healthcare setting and occupational)
  - Bodily harm
- Radiation (UV radiation)
  - Skin cancer
- Radon gas (decay product of radium)
  - number one cause of lung cancer among non-smokers

# Psychological Hazards

Environmental factors that produce psychological changes:

- **Occupational factors:** Workplace violence and harassment
  - Working alone
  - Change
  - Technological change Technological change
  - Fatigue and hours of work
- **Personal factors:** stress, substance abuse
  - depression, anxiety, other mental illnesses,
  - age-related factors and work-life conflict

# Sociological Hazards

- Result from living in a society where one experiences:
  - Noise
  - lack of privacy
  - Overcrowding
  - Population growth

# Site and Location Hazards

- Natural disasters: Examples include:
  - Cyclones
  - Earthquakes
  - Floods
  - Hurricanes
  - Tornadoes
  - Typhoons
  - volcanic eruptions



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# Questions?

