The Epidemiology of Healthcare-Associated Infections (HAIs) in Long Term Care

UNIT II - Infection Control 101

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The Epidemiological Triangle

SOURCE

TRANSMISSION

HOST

Sources of Infection

- Inanimate objects in environment that have become contaminated
- PEOPLE: Patients, Personnel, Visitors
  - Those with outward signs and symptoms of infection.
  - Those who are simply colonized or carrying an infectious agent.

Host

(Resistance to infections varies markedly)

- Immune-suppressed patients
  - lymphomas, leukemia, agranulocytosis, chemotherapy, irradiation, corticosteroids
- Organ Transplant patients
- Diabetics
- Patients on antibiotics
- Those suffering trauma
- Elderly patients-chronic debilitating disease

4 Primary Means of Transmission

- Vector
- Vehicle
- Airborne
- Contact

Vectorborne Diseases

- Transmitted by biting insects such as mosquitoes and ticks.
  - West Nile
  - Lyme Disease
  - Babesiosis
  - Ehrlichiosis
  - Yellow Fever
  - Malaria
  - Dengue
**Vehicle Transmission**
- Transmitted through ingestion or injection.
  - Bloodborne Pathogens
    - Hepatitis B
    - Hepatitis C
    - HIV
    - Arboviruses (i.e., West Nile, etc.)
  - Enteric pathogens
    - Salmonella
    - Shigella
    - 0157 E. coli
    - Norovirus

**Airborne Transmission**
- Inhaled into the lungs or upper respiratory tract
  - Varicella (Chickenpox)
  - Measles
  - Tuberculosis

**Contact Transmission**
- DROPLET - (e.g., common cold, “flu”)
- INDIRECT - contaminated devices
- DIRECT - skin to skin contact (85% of HAIs)