

Alpha University Borama

**Name:** *Ayan Muhumed Dahir*

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**Lecturer:***Mustafe Abdillahi Kahin*

**Arthropod Borne Infection**

### ****1. Introduction to Arthropod-Borne Infections****

Arthropod-borne infections are diseases caused by viruses, bacteria, or parasites that are transmitted to humans by arthropods such as **mosquitoes, ticks, lice, fleas**, and **mites**. These infections are common in tropical and subtropical areas and often increase during rainy seasons when breeding grounds for vectors increase. Arthropods act as **vectors**, meaning they carry and transmit pathogens without getting infected themselves.

**2. Types of Arthropod-Borne Infections**

Arthropod-borne infections can be classified based on the type of **pathogen** and **vector** involved:

* **Viral**:
  + Dengue fever
  + Yellow fever
  + Zika virus
  + Chikungunya
  + West Nile virus
  + Crimean-Congo hemorrhagic fever
* **Bacterial**:
  + Lyme disease (from ticks)
  + Plague (from fleas)
  + Typhus (from lice)
  + Ehrlichiosis (from ticks)
* **Parasitic**:
  + Malaria (from mosquitoes)
  + Leishmaniasis (from sandflies)
  + Trypanosomiasis (from tsetse flies)
  + Filariasis (from mosquitoes)

### ****3. Signs and Symptoms of Arthropod-Borne Infections****

Symptoms can vary depending on the disease but commonly include:

* Fever
* Headache
* Fatigue and muscle pain
* Skin rashes
* Nausea or vomiting
* Joint pain
* Swollen lymph nodes
* In severe cases: bleeding, confusion, coma, organ failure

### ****4. Common Arthropod-Borne Infections****

Here are some well-known diseases:

* **Malaria** – Mosquito-borne, causes fever and chills.
* **Dengue Fever** – Mosquito-borne, high fever and joint pain.
* **Zika Virus** – Mosquito-borne, mild symptoms but can cause birth defects.
* **Chikungunya** – Mosquito-borne, severe joint pain.
* **Yellow Fever** – Mosquito-borne, fever and liver damage.
* **Lyme Disease** – Tick-borne, causes rash and joint pain.
* **Plague** – Flea-borne, serious bacterial infection.
* **Leishmaniasis** – Sandfly-borne, skin sores or organ damage.
* **Sleeping Sickness** – Tsetse fly-borne, affects the brain.
* **Typhus** – Louse or flea-borne, causes high fever and rash

**5. Prevention and Control Measures**

* **Personal protection**:
  + Use of insect repellents
  + Wearing long sleeves and pants
  + Sleeping under insecticide-treated bed nets
* **Environmental control**:
  + Removing stagnant water (mosquito breeding sites)
  + Spraying insecticides
  + Improving sanitation
* **Public health interventions**:
  + Vector control programs
  + Health education
  + Surveillance systems
* **Vaccination**: Available for some diseases like yellow fever and dengue (in certain regions).

### ****6. Diagnosis of Arthropod-Borne Infections****

Diagnosis depends on the disease and includes:

* **Clinical examination** and history of travel or exposure
* **Blood tests**:
  + Serology (antibody/antigen tests)
  + PCR (detects DNA or RNA of pathogen)
  + Blood smear (e.g., malaria parasites)
* **Culture** (for bacterial infections)
* **Imaging** (for complications)

### ****7. Treatment of Arthropod-Borne Infections (in detail)****

#### **a) Viral infections (e.g., dengue, chikungunya, Zika)**

* No specific antiviral drugs in most cases
* **Supportive care**:
  + Rest
  + Fluids
  + Pain relievers (like acetaminophen, avoid aspirin in dengue)
* Monitor for complications (e.g., dengue hemorrhagic fever)

#### b) **Bacterial infections**

* **Antibiotics** depending on the bacteria:
  + **Lyme disease**: Doxycycline
  + **Typhus**: Doxycycline
  + **Plague**: Streptomycin, gentamicin

#### c) **Parasitic infections**

* **Malaria**:
  + Artemisinin-based combination therapy (ACT)
  + Chloroquine (for sensitive strains)
* **Leishmaniasis**:
  + Amphotericin B or antimonial drugs
* **Filariasis**:
  + Diethylcarbamazine (DEC), albendazole, ivermectin