

## Introduction to Arthropod-Borne Infections

Arthropod-borne infections, commonly referred to as arboviral infections, are diseases caused by viruses or other pathogens that are transmitted to humans and animals through the bites of infected arthropods. Arthropods are invertebrate animals that have jointed limbs and segmented bodies, including mosquitoes, ticks, fleas, lice, sandflies, and mites

### Key Characteristics:

**Vectors:** Arthropods serve as vectors, meaning they carry and transmit infectious pathogens between humans or from animals to humans.

**Pathogens:** These include viruses (e.g., dengue, Zika, chikungunya), bacteria (e.g., *Rickettsia*), and protozoa (e.g., *Plasmodium* in malaria).

**Transmission:** Transmission typically occurs through bites during blood feeding. Some diseases can also be spread via contact with infected animal tissues or fluids.

### Common Arthropod-Borne Diseases:

Disease	Causative Agent	Vector
Malaria	<i>Plasmodium</i> spp.	Mosquito (Anopheles)
Dengue Fever	Dengue virus	Mosquito ( <i>Aedes aegypti</i> )
Lyme Disease	<i>Borrelia burgdorferi</i>	Tick (Ixodes)
Yellow Fever	Yellow fever virus	Mosquito ( <i>Aedes aegypti</i> )
Leishmaniasis	<i>Leishmania</i> spp.	Sandfly
Plague	<i>Yersinia pestis</i>	Flea

### Public Health Importance:

These infections are widespread in tropical and subtropical regions.

Climate change, urbanization, and international travel contribute to the emergence and re-emergence of arboviral diseases.

Effective control involves vector management, public education, surveillance, and where available, vaccination (e.g., for yellow fever).

Arthropod-borne infections (also known as -arboviral infections or vector-borne diseases) are infections transmitted to humans and animals by arthropods such as mosquitoes, ticks, fleas, lice, and mites. These infections can be caused by viruses, bacteria, or parasites. Below are the major types grouped by pathogen:

#### 1. Viral Arthropod-Borne Infections (Arboviruses)

Transmitted mainly by mosquitoes and ticks.

Dengue fever– *Aedes*- mosquitoes

Zika virus– *Aedes*-mosquitoes

Chikungunya virus – *Aedes*-mosquitoes

Yellow fever– *Aedes*-mosquitoes

West Nile virus– *Culex*-mosquitoes

Japanese encephalitis– *Culex*-mosquitoes

Tick-borne encephalitis – *Ixodes*- ticks

Crimean-Congo hemorrhagic fever– *Hyalomma*-ticks

## 2. Bacterial Arthropod-Borne Infections

Spread primarily by ticks, fleas, and lice.

Lyme disease – *Borrelia burgdorferi*- via -Ixodes- ticks

Rocky Mountain spotted fever– *Rickettsia rickettsii*- via ticks

Plague– *Yersinia pestis* via fleas

Relapsing fever – *Borrelia* species via lice or ticks

Tularemia– *Francisella tularensis*- via ticks or deer flies

Epidemic typhus– *Rickettsia prowazekii*-via lice

## 3. Parasitic Arthropod-Borne Infections

tsetse flies.

Malaria – *Plasmodium*- species via -Anopheles-mosquitoes

Leishmaniasis– *Leishmania*- species via sandflies

Trypanosomiasis (Sleeping sickness)– *Trypanosoma brucei*- via tsetse flies

Chagas disease– *Trypanosoma cruzi*- via kissing bugs (reduviid bugs)

Filariasis – *Wuchereria bancrofti*- via mosquitoes

Onchocerciasis (River blindness)– *Onchocerca volvulus*-via blackflies