



Introduction

Eastern equine encephalitis virus (EEEV) is the causative agent of the disease Eastern Equine Encephalitis (sometimes Encephalomyelitis or Sleeping Sickness). It has viral reservoirs in birds of freshwater marshes and is spread by mosquitos (particularly *Culiseta melanura*) to other hosts such as pheasants, white-tailed deer, horses, and people. Due to the nature of transmission through mosquitos, EEEV is known as an arthropod-borne virus (arbovirus). The ability of the disease to be transmitted can be limited through reducing populations of mosquitos.

Species Affected

Various species of birds, white-tailed deer, and horses are affected by EEE.

Clinical Signs

Signs are typically nonapparent through observation in bird hosts. In deer, signs can include depression, weakness, loss of coordination, circling, seizures, blindness, excitability, aggression, and irritability.

Transmission

Transmission of EEEV occurs via mosquito bites. Horses and humans are “dead end

hosts” as they do not have a high enough viral load to transmit to others.

Diagnosis

Diagnosis of EEE in wild or domestic animals occurs through ELISA or PCR confirmation of EEEV presence in cerebrospinal fluid and neurologic tissue, such as brain.

Epidemiology

An *Alphavirus*, EEEV has four different lineages (I, IIA, IIB, and III). Rates of infection vary by region for each variant. Reservoirs for EEEV are in resident passerine and wading birds of freshwater marshes, where the mosquito *Culiseta melanura* causes spread between individuals. Outbreaks are known to occur when other mosquito species boom in late summer and fall, followed by increased infections of humans and horses. The largest outbreak of EEE occurred in 1959 in New Jersey and resulted in 32 human cases over an 8-week period. Of these, 22 cases were fatal. Outbreaks of this size are uncommon.

An average of 11 human cases of EEE are reported annually nationwide. The highest risk populations are individuals who work outside in or around freshwater swamps. In

New Jersey, five cases were reported in people between 2011 and 2020.

Surveillance/Management

All cases of EEEV in humans and animals must be reported to the local health department and the Center for Disease Control CDC).

The New Jersey Department of Health – Public Health and Environmental Laboratories (PHEL) perform arboviral testing on mosquito pools collected by county mosquito control agencies throughout New Jersey. Among other diseases, EEEV is included in viral testing. The State Mosquito Control Commission was established in 1956 to protect the public from nuisance mosquitoes and the threat of mosquito-borne disease.

Typically, EEE cases in New Jersey are limited to the southern half of the state and increase in numbers in late summer through early fall.

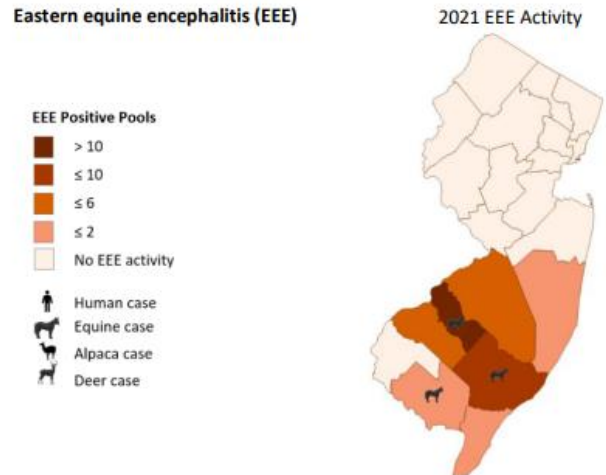


Figure 1 EEE Activity shown by New Jersey County in 2021

Additional Information

[Vector-borne Disease Report-Week 25 2022.pdf \(nj.gov\)](#)

[2021-Vector-Borne-End-of-Year-Report.pdf \(nj.gov\)](#)

[Frequently Asked Questions | Eastern Equine Encephalitis | CDC](#)



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