WEST NILE VIRUS

Office of Fish and Wildlife Health and Forensics

Introduction

West Nile virus is a mosquito-borne illness from the genus *Flavivirus.* It is known to infect over 250 species of birds and some mammals, including humans. West Nile virus is transmitted through a mosquito vector which picks up the virus from infected birds. It is important to prevent mosquito breeding in order to prevent the spread of mosquito-borne illness.

Species Affected

West Nile virus is known to affect over 250 species of birds. Corvids (crows, ravens, and blue jays) and raptors are most susceptible to dying from West Nile virus. Mammals can contract the virus, but do not usually show clinical signs. The most commonly affected mammals are horses, making up 97% of the non-human mammalian cases. West Nile virus can also infect squirrels, chipmunks, mice, rats, other rodents, skunks, canids, white-tailed deer, raccoons, bears, opossums, bats, and non-human primates.

Clinical Signs

Clinical signs vary depending on the infected species. Birds typically will have a loss of coordination, head tilt, tremors, weakness, apparent blindness and possibly death. West Nile virus can also cause encephalitis and paralysis.

In mammals, individuals can be asymptomatic. Mammals can also experience flu like symptoms including fever, headache, tiredness, body aches, nausea, and vomiting. In a small portion of humans and horses, neurological signs can develop.

Transmission

The most well-known method of transmission of West Nile virus is through mosquitos. The mosquito vectors of West

Nile virus are members of the *Culex* genus. When mosquitos of this genus bite an infected bird, they are then able to transmit the virus to another bird or animal. Bird-to-bird transmission is also possible when infected birds contaminate food or water sources through oral secretions or feces. Birds of prey can also be infected if they prey on infected birds. Small mammals like squirrels, chipmunks, and raccoons can shed the virus though oral secretions, feces and urine.

Diagnosis

Laboratory tests like PCR, virus isolation, or antibody testing is needed to diagnose West Nile virus.

Treatment/Prevention

There is no treatment for West Nile Virus. Vaccines are available for birds and horses. Take measures to reduce and prevent mosquito breeding on your property.

Epidemiology

West Nile virus was first recorded in a woman in Uganda in 1937. In 1953, West Nile virus was discovered in birds near the Nile delta region. In 1997, West Nile virus caused a large die off that involved different bird species. In 1999, it was first recorded in New York City which spread throughout the United States and Canada. Outbreaks typically happen during the summer months when mosquitos are the most prevalent. Case numbers vary from year to year as they are dependent on environmental factors such as rainfall, temperature, and the mosquitos themselves.

Additional Information

West Nile Virus | Cornell Wildlife Health Lab

West Nile virus (who.int)

Cover Image: CDC