

# Vector Information Sheet

## SAINT LOUIS ENCEPHALITIS

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Saint Louis Encephalitis (SLE) in humans is caused by a mosquito-borne virus that attacks brain tissue. The virus was first identified from victims of a 1933 epidemic in St. Louis, Missouri. The disease is commonly called sleeping sickness because in severe cases the patient suffers prolonged drowsiness. SLE virus has been detected in wild birds in the Coachella Valley near the Salton Sea.

SLE is the most prevalent mosquito-borne encephalitis in the United States. From 1955 to 1976, there were 4,627 cases reported in the U.S., mostly from the Ohio Valley and Texas.

In nature, the SLE virus is maintained in a primary enzootic transmission cycle, animal to animal, involving wild birds and mosquitoes. It is not known how the virus reappears each year. It has been speculated that migrant birds reintroduce the virus each spring from endemic tropical regions or that a local winter reservoir may exist in other vertebrates and arthropods.

The cycle begins when an uninfected female mosquito bites an infected bird during the period in which the bird has a viremia (virus in the blood). The virus replicates in the mosquito for 5 to 8 days. After this incubation period, the mosquito is infective for life and can transmit the virus to another bird, human, domestic or wild animal. Humans can be severely affected by the virus, but they are “dead end” hosts because not enough virus develops in their blood to infect other mosquitoes.

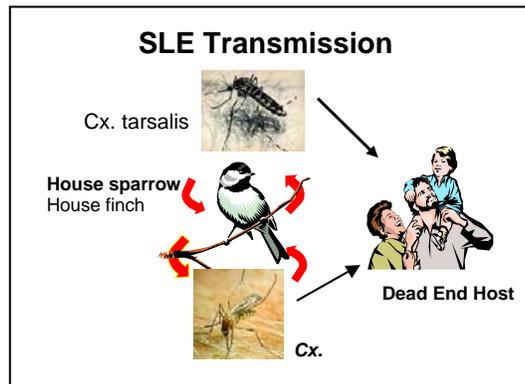
In the western United States, *Culex tarsalis* is considered the primary vector of SLE in rural areas, while *Culex quinquefasciatus* and *Culex stigmatosoma* are potential SLE vectors in urban areas of southern California.

An SLE infection can be unnoticeable, acute, or fatal. The majority of SLE cases are mild or sub-clinical; a small number of people develop acute symptoms or die from the disease.

The severity of the disease appears to be age dependent. The fatality rate for individuals under 40 is 1 to 5 %, while it ranges between 15 to 23 % for the elderly (60 and over).

Symptoms of infection appear 7 to 21 days after a bite from an infected mosquito. SLE has three separate sets of symptoms: (1) feverish headache, (2) aseptic meningitis, and (3) encephalomyelitis. All SLE infections are followed by immunity. Sequelae (permanent abnormalities) can follow an SLE attack. Sequelae symptoms range from recurring headaches, dizziness, memory impairment, tremors, sensory motor disturbances, insomnia to speech disturbances.

Cases in California, as a whole, are most likely to occur during the months of May through November. Approximately 80% of the cases occur during August and September. In Southern California, specifically, cases can occur in almost any month, but they are more likely to occur during the warmer months.



Historically, both the Sacramento and San Joaquin Valleys have been the regions where most SLE cases have occurred. In 2003, the counties with the highest incidence of human cases were Kern (99), Fresno (83) and San Joaquin (36). In recent years, SLE activity has shifted to the Southern California region. During a 1984 outbreak, 26 human cases were diagnosed from the counties of Los Angeles, Orange, Riverside, and San Diego.

Chickens are used as an early warning system for the presence of SLE virus in nature. The District has sentinel chicken flocks located throughout the Coachella Valley. If SLE virus is found to be present, the Coachella Valley Mosquito and Vector Control District staff intensifies and specifically targets larval and adult control in the Valley.

