WASHOE COUNTY HEALTH DISTRICT
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EPI-NEWS

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**IN THIS ISSUE: ST. LOUIS ENCEPHALITIS (SLE)**

# St. Louis Encephalitis (SLE)

## Introduction

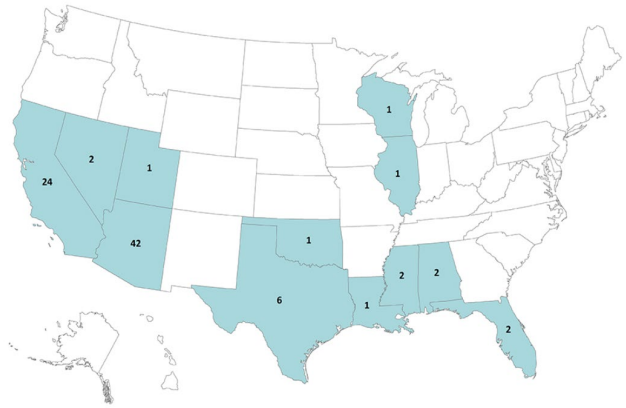
St. Louis encephalitis (SLE) is a disease caused by a virus spread through the bite of an infected mosquito.[1] SLE infections primarily occur during the late summer or early fall but can be year-round in southern states. Those at risk include all residents and visitors of areas where SLE virus activity has been reported. People who work outdoors, those who participate in recreational activities, and those living in low-income areas are at a higher risk of becoming infected with SLE virus.[2]

## Epidemiology

Birds such as house sparrows, pigeons, and blue jays are common hosts of SLE, which is transmitted to mosquitoes when they feed on birds carrying the virus in their blood. Mosquitoes from the *Culex* species are the principal vectors responsible for the virus spreading to humans. Transmission occurs when infected mosquitoes bite a human.[3]

Human cases of St. Louis Encephalitis have almost all been in the United States. Most of the cases occur in Eastern and Central states but have since spread to the Southwest. From 2012-2021, there have been 114 cases (both neuroinvasive and non-neuroinvasive) in the United States. Figure 1 shows neuroinvasive cases by state from 2012-2021, Nevada reported 2 cases. There have been no reported deaths linked to SLE.[2]

**Figure 1: St. Louis encephalitis virus neuroinvasive disease cases reported by state of residence, 2012-2021**




Source: ArboNET, Arboviral Diseases Branch, Centers for Disease Control and Prevention, https://www.cdc.gov/sle/statistics/index.html.

## Prevention

SLE virus currently does not have any vaccines available for use in humans. The best prevention efforts should be focused on decreasing exposure to mosquitoes.[4] Methods to limit exposure can include[5-7]:

- Use Environmental Protection Agency (EPA)-registered insect repellants that contain DEET, Picaridin (known as KBR 3023 and icaridin outside of the U.S.), IR3535, oil of lemon eucalyptus (OLE), Para-menthane-diol (PMD), or 2-undecanone.
- Wear loose-fitting, long-sleeved shirts and pants. Use 0.5% permethrin to treat clothing and gear (i.e., boots, pants, socks, and tents) or buy pre-treated clothing and gear.
- Control mosquitoes indoors and outdoors by using, and actively repairing, screens on windows and doors; use air conditioning when available; and use indoor insecticide if mosquitoes are still present inside the home.
- Stop mosquitoes from laying eggs in or near water by emptying and scrubbing, covering or throwing out items that can hold water (i.e., tires, planters, pools, birdbaths, etc.). Tightly cover water storage containers (i.e., buckets) to prevent mosquitoes from laying eggs inside of them. Use a wire mesh with holes smaller than an adult mosquito on containers without lids.
- Use larvicides to treat large bodies of water outside of the home. Use outdoor adulticide to kill adult mosquitoes in areas where they rest (dark, humid areas like under patio furniture and under the carport or garage).

SLE virus can be transmitted through blood transfusions. Those that have been diagnosed

should not donate blood for 120 days following illness.

## Signs & Symptoms

Most persons with SLE infections do not experience any symptoms and are not diagnosed, less than 1% of cases are clinically apparent. The disease is typically mild in children and young adults. Symptom onset occurs between 4 to 14 days after being exposed. Cases that report symptoms typically get worse over a period of several days to a week. Onset usually begins with fever, headache, dizziness, nausea, and weakness. Disease can progress to encephalitis, meningoencephalitis, or aseptic meningitis. Progressive symptoms can include stiff neck, confusion, disorientation, speech problems, paresis or paralysis, other movement disorders, and cranial nerve palsies. Severe cases of SLE can fall into a coma. SLE has a mortality rate of 5-20%, risk of mortality increases with age.[9]

## Diagnosis & Testing

It is difficult to isolate the SLE virus from clinical samples. Serologic testing is the primary method for diagnosing SLE virus infection. Laboratory diagnosis occurs by testing the serum or cerebral spinal fluid (CSF) to detect SLE virus-specific IgM using enzyme-linked immunosorbent assay (ELISA). These can have a potential cross-reactivity with other flavivirus such as West Nile Virus or Powassan virus so it is important to perform a confirmatory neutralizing antibody test (plaque-reduction neutralization test [PRNT]). If samples of serum, CSF, and tissue specimens are collected early in the illness, viral cultures and tests to detect viral DNA can be performed. All tests can be requested through state public health laboratories or through CDC.[10]

## Treatment

There are no specific medications indicated to prevent or treat SLE. Antibiotics are ineffective against viral infection so the treatment plan typically involves supportive care. Rest, fluids, and over-the-counter medications are recommended to help alleviate some of the symptoms. More severe cases may require hospitalized care. Cases experiencing meningeal symptoms may need pain control and antiemetic therapy and rehydration. Those with encephalitis will also require close monitoring for elevated intracranial pressure, seizures, and to ensure no respiratory failure occurs.[4]

## Reporting

The list of reportable communicable diseases and reporting forms can be found at:
**http://tinyurl.com/WashoeDiseaseReporting**

**Report communicable diseases to the Washoe County Health District. To report a communicable disease, please call 775-328-2447 or fax your report to the WCHD at 775-328-3764.**


## Acknowledgement

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