

Encephalitis – EEE and LAC

Eastern Equine Encephalitis (EEE)

Eastern Equine Encephalitis is a Class B Disease and must be reported to the state within one business day.

Eastern Equine Encephalitis (EEE), an alphavirus, was first recognized in Massachusetts in 1831, when during an outbreak, over 75 horses died. The virus is transmitted by mosquitoes, occurring often in the eastern half of the United States where it causes disease in humans, horses and in some bird species.

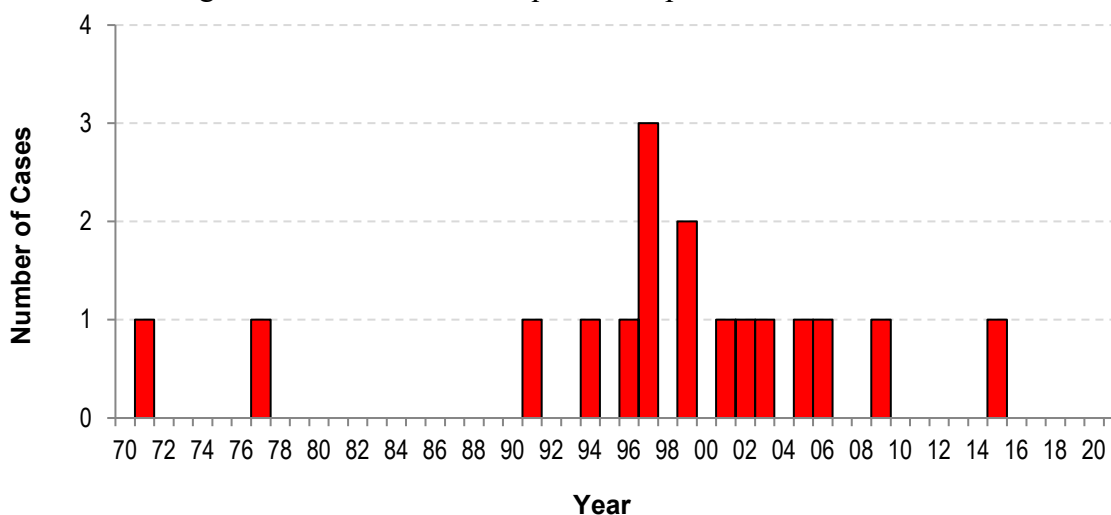
The majority of human EEE infections are either asymptomatic or produce nonspecific, flu-like syndromes. Infection is thought to confer life-long immunity against re-infection. Severe disease is occasionally seen in children younger than 15 years of age and is more common in adults older than 50 years of age. The incubation period is typically three to ten days. Treatment is generally supportive. Approximately one-third of those who develop clinical encephalitis from EEE, die from the disease. Among those who recover, half will suffer mild to severe permanent neurologic damage, many requiring permanent institutional care.

In addition to illness in humans, EEE virus can produce severe disease in horses. Since horses are outdoors and attract masses of biting mosquitoes, they are at high risk for contracting EEE when the virus is circulating in the mosquito population. However, there is a vaccine available to protect equines.

The arbovirus surveillance program monitors for cases of EEE in horses. Human cases are usually preceded by those in horses and are exceeded in number by horse cases.

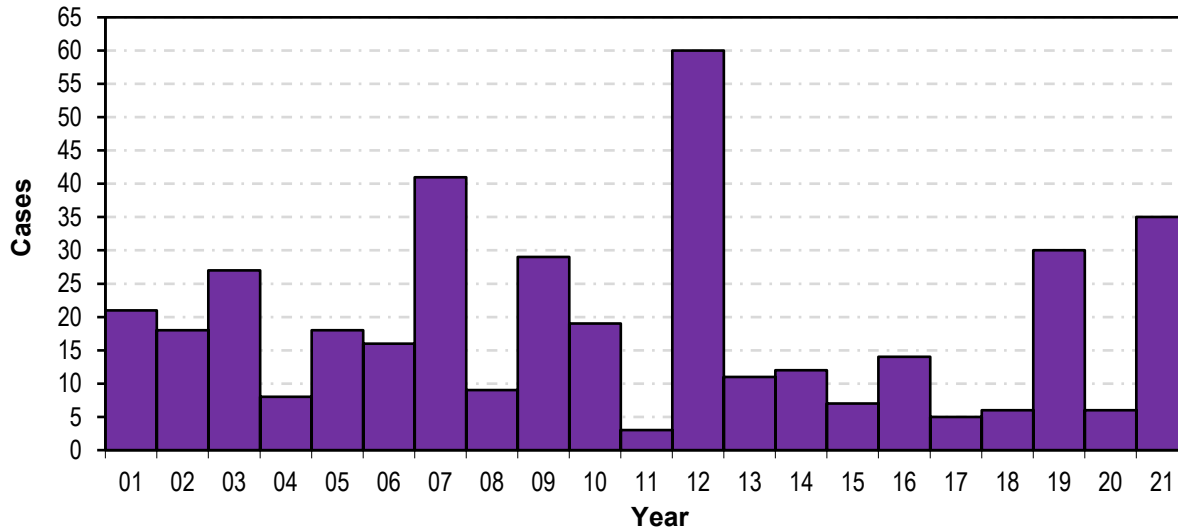
Historically, human EEE cases in Louisiana have been sporadic, with no more than two to three cases every few years (Figure 1).

Figure 1: Human Eastern Equine Encephalitis Cases - Louisiana, 1960-2021



EEE in Horses from 2001 to 2021

Figure 3: Cases of EEE in Horses – Louisiana, 2001-2021



The Monkey with EEE in Lafayette

In June 2012, a young outdoor-house macaque monkey (*Macaca mulatta*) was found obtunded, non-responsive to noise or tactile stimuli. She later had seizures and was euthanized. A brain biopsy showed multifocal necro-suppurative brain lesions (cerebrum and gray matter). Neurons were the primary targets. She was diagnosed as having EEE neuro-invasive disease.

La Crosse (California Group) Encephalitis (LAC)

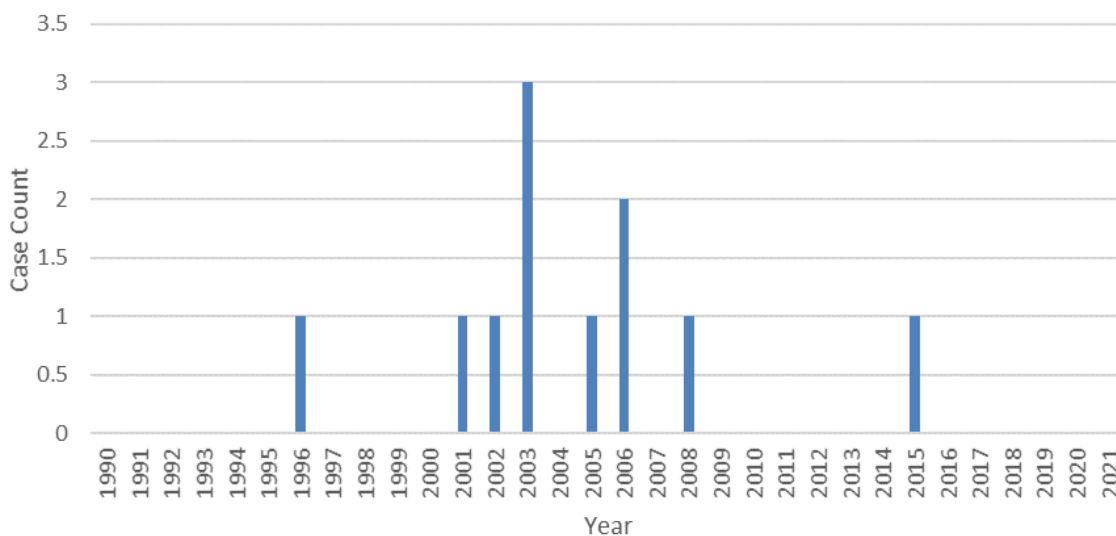
La Crosse Encephalitis is a Class B Disease and must be reported to the state within one business day.

La Crosse Encephalitis (LAC), one of the California serogroup bunyaviruses, is transmitted by mosquitoes to humans in the woodland habitats common to the Great-Lakes and mid-Atlantic states. The majority of LAC infections are either asymptomatic or mild febrile syndromes. Severe disease characterized from seizures to even coma is usually seen in children younger than 15 years of age. Neurological sequelae typically resolves within several years.

The main vector of LAC is *Aedes triseriatus*, a widely distributed treehole breeder that has adapted to small artificial containers resembling tree holes, such as tires, jars, pots, paint cans and pet dishes. There are concerns that *Aedes albopictus*, the Asian Tiger mosquito, which is common in Louisiana, is also a vector. The discovery of LAC virus in wild populations of *Aedes albopictus*, coupled with the mosquito's expanding distribution in the southeastern United States, suggests that this mosquito may become an important accessory vector, with the potential to increase the number of human cases in endemic foci or expand the range of the disease. Mosquitoes become infected from feeding on viremic small mammals such as chipmunks and tree squirrels.

Sporadic human cases of LAC have occurred in Louisiana (Figure 4).

Figure 4: Human La Crosse Encephalitis Cases - Louisiana, 1990-2021



There probably are more cases than those that are sporadically reported, as evidenced by the results of a 2001 OPH seroprevalence study that found the presence of LAC antibodies in 30% of Ouachita residents aged 60 years and older.