

## **Arthropod-Borne Encephalitis in Louisiana**

*Arthropod-borne Encephalitis is a Class B Disease and must be reported to the state within one business day.*

Human and equine encephalitides caused by arthropod-borne viruses (arboviruses) have occurred periodically in Louisiana for many years with occasional outbreaks. The viruses which have been identified in these cases and outbreaks have been:

- St. Louis Encephalitis (SLE), a Flavivirus
- West Nile Virus (WNV), a Flavivirus
- Eastern Equine Encephalitis (EEE), an Alphavirus
- La Crosse Encephalitis (LAC), a California-group Bunyavirus

All of these viruses are maintained in complex life cycles transmitted between reservoir hosts and mosquitoes. The reservoir hosts for SLE, EEE and WNV are wild birds. Small wild mammals are the reservoir hosts for LAC. These viruses are transmitted to humans and animals by infected mosquito vectors only after previously biting infected reservoir hosts. Mosquitoes are not syringes, as the virus must alternate between replication in mosquitoes and vertebrate hosts. Transmission between humans or horses is not known to occur. Humans and horses break the transmission cycle and are considered dead-end hosts.

Persons of all ages are considered equally susceptible to infection. Most immuno-competent persons will have unapparent or undiagnosed infections. Risk factors for the development of clinical disease varies with each virus; LAC is more likely among children under sixteen years, while the severity of SLE increases with age and is more common among the elderly.

Symptoms of Arboviral Encephalitis can range from mild (febrile headache or aseptic meningitis) to severe (headache, high fever, meningeal signs, stupor, disorientation, coma and tremors). Case-fatality rates range from 0.3% - 60%. Occurrence of neurological sequelae varies with age and infecting agent.

### **Surveillance**

Surveillance activities include: laboratory testing of blood and/or spinal fluid from horses with symptoms of central nervous system infection; laboratory testing of blood and/or spinal fluid from humans with fever symptoms or central nervous system infections; collection and laboratory testing of mosquitoes for the presence of arboviruses; monitoring of sentinel chicken flocks\*; testing wild birds for the presence of the virus.

Sentinel chickens are used as an early warning system for arboviruses. These chickens are in secure cages that are strategically placed and bled regularly (weekly or biweekly). Serological

tests performed on the sentinel chickens provide information of current and local transmission of many arboviruses. The use of sentinel chickens is up to the individual Mosquito Abatement District. Sentinel chickens are not used as much as they were when the virus was first detected in the state.

At the inception of the Arbovirus Surveillance program, dead bird testing was a valuable component of the surveillance program. The public could report dead birds to the health department or mosquito abatement districts which would then collect and test the dead birds for arboviruses. West Nile virus is now endemic throughout the state which makes dead bird testing not as valuable as before. Dead bird testing is no longer conducted in Louisiana.