



SAN LUIS OBISPO COUNTY *Messenger* Public Health Laboratory

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Endemic Agents detected in California: Plague, Saint Louis Encephalitis Virus, and Hantavirus.

In recent weeks, public health officials have documented with unusual frequency the appearance of agents of infection that have not been seen in some time.

Plague - *Yersinia Pestis*

Two recent cases of plague have been reported among persons likely exposed while camping in Yosemite National Park—the first time since 1959 for park users, and the first human cases in California since 2006. Plague historically has been detected in squirrels and chipmunks in rural areas of California, particularly in the Sierra Nevada and coastal areas. The San Luis Obispo Public Health Laboratory is among 14 local public health laboratories, along with the State laboratory, that is capable of confirming plague infection in humans or animals using high quality conventional and advance molecular testing.

St. Louis Encephalitis Virus

The State Public Health Department received report this month from the Riverside County mosquito control district of six mosquito pools collected near the Salton Sea with St. Louis encephalitis virus (SLEV) in *Culex tarsalis*. Samples were confirmed as SLEV positive by the UC Davis laboratories. SLEV was last detected in mosquitoes in California in 2003. St. Louis encephalitis is a rare infectious disease similar to West Nile virus (WNV) disease. While SLEV illness is often asymptomatic or mild flu-like illness, some individuals, especially the elderly, can suffer severe neuro-invasive illness -- similar to WNV. SLEV was commonly detected in *Cx. tarsalis* mosquitoes prior to the introduction of WNV into California, but seemingly disappeared thereafter, having been ostensibly displaced by WNV. However, SLEV also has been detected in Arizona, suggesting the virus may be re-emerging in the southwestern United States. The mechanism responsible for the disappearance of one virus when a new virus emerges in the same vector in the same geographic location remains elusive. Similarly, investigators are routinely confounded when an agent goes underground and then reappears.

Hantavirus Pulmonary Syndrome

State public health officials are working with the Mono County Public Health Department in the investigation of two cases of hantavirus pulmonary syndrome (HPS). Both patients became ill in July and both are from the same household. The most common cause of this illness is Sin Nombre Virus (SNV), present in the excreta of the deer mouse (*Peromyscus maniculatus*), the principal reservoir. HPS is endemic to the Western US, and cases often appear in the setting of cleaning rural outbuildings that have been invaded by deer mice that have left numerous droppings. Inhalation of aerosolized dust particles containing SNV leads to infection of the lungs and the onset of the syndrome.

These two cases represent the first identified family cluster in California, a unique finding in a disease that is not transmitted from person to person. In 2012, an outbreak of HPS occurred among persons who used a certain type of cabin in Yosemite National Park known to be especially vulnerable to invasion by deer mice.