# Early West Nile Case May Bode Ill for Far West

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LOS ANGELES — The first human case of West Nile virus infection this year was diagnosed in Los Angeles in early February, perhaps setting the stage for an early and virulent season for the far western United States.

"Since West Nile virus was [first] detected in 1999, we've seen a lengthening period of transmission," said Ned Hayes, M.D., of the Centers for Disease Control and Prevention's Division of Vector-Borne Infectious Diseases in Fort Collins, Colo.

As the virus has spread south and west across the United States, new "ecological dynamics" have influenced transmission patterns, he explained.

A wetter than normal winter in California and the Southwest may suit mosquitoes well, meaning physicians will need to be especially alert to possible cases of the now reportable disease.

The Los Angeles County Department of Health Services announced an infection in an older man in east Los Angeles County on Feb. 8. As of mid-February, state and federal health officials had not completed confirmatory tests on the case.

Symptoms of West Nile infection include fever, headache, fatigue, body aches, skin rash, and swollen lymph nodes.

More serious manifestations of West Nile encephalitis or meningitis include neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, and a paralysis that can resemble polio.

"It doesn't matter whether we've had one case or five; if you see encephalitis or meningitis, you look for West Nile virus," said Laurene Mascola, M.D., chief of the acute communicable disease control unit of Los Angeles County.

The first bird carrying the virus was found in mid-January, whereas no bird evidence was confirmed in California until the end of March in 2004. Twelve birds in eight counties had been found to have the virus by mid-February. "It's pretty much all up and down the state," said Robert Miller, a spokesman for the California Department of Health Services in Sacramento.

Birds are an important player in the transmission cycle of West Nile virus and are carefully tracked, although mosquitoes are the direct vectors infecting humans.

California and the Southwest, where the disease struck hardest in 2004, have warmer climates than the northeastern states, where the virus first took hold in the United States. Mosquito vectors also differ, with *Culex pipiens* most common in the Northeast and *C. tarsalis* and *C. quinquefasciatus* often the culprits in the West.

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*C. tarsalis* was a common vector in Colorado, where West Nile virus infected almost 3,000 people in 2003, killing 63. "It's a very efficient vector. It avidly bites humans and also bites birds, and it seems to transmit the virus very well."

Dr. Hayes urged physicians to test for West Nile virus and report cases to their state health departments, which notify the CDC. "We have no way of knowing what's happening [in terms of transmission patterns] unless practicing physicians report their cases," he said in an interview.

A special online registry for physicians reporting pregnant patients infected with the virus has been established by the CDC at its Web site, www.cdc.gov. Additionally the CDC is organizing a voluntary birth outcome registry.

West Nile virus infected 2,470 people in 40 states in 2004, resulting in 88 deaths. The highest number of cases was in 2003, when 9,862 infections and 264 deaths were reported. States have been variably affected over time. For example, Nebraska had 1,942 cases in 2003 but just 49 in 2004.

Though some have speculated that disease patterns may reflect herd immunity, Dr. Hayes discounted that theory. He said that even in the most concentrated "hot zones," antibodies have been detected in just 3%-5% of the population.

On the other hand, changes in weather, bird migration and infection patterns, mosquito abatement, and basic prevention strategies such as wearing mosquito repellant, may change human infection rates over time. ■