



For Immediate Release: July 18, 2006

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Local Public Health Study Warns About the Long-Term Effects of West Nile Virus and the Importance of Prevention

Tri-County Health Department, which serves Adams, Arapahoe and Douglas counties, and Boulder County Public Health have just published a study in *Emerging Infectious Diseases* the monthly journal of the Centers for Disease Control and Prevention (CDC). The study, published this month, reveals the considerable extent and ongoing harmful effects of West Nile virus infection as well as the substantial economic impact in terms of healthcare costs and days of missed work.

The agencies state that the study should serve as an important warning as we enter the height of West Nile virus season. Recent heavy rains and hot summer temperatures have produced the perfect breeding conditions for mosquitoes that might carry West Nile virus (WNV).

The two agencies collaborated on a follow-up study of all West Nile virus cases reported in their counties in 2003. That year, Colorado experienced the largest West Nile virus epidemic ever recorded in the U.S., with 2,947 confirmed human cases and 63 deaths. This accounted for 29.9% of the nation's 9,862 reported cases.

A total of 656 patients who were infected with West Nile virus completed the survey. Of these, 80.9% had a diagnosis of West Nile virus fever, 12.8% had a diagnosis of meningitis (inflammation of the brain's lining), and 6.3% had a diagnosis of encephalitis (inflammation of the brain). Though West Nile virus fever had previously been classified as a "mild illness" this study found that 20% of patients with a WNV fever diagnosis had symptoms for three months or longer.

The study reveals that missing time from work was common, ranging from a median of 65 days among encephalitis patients to a median of 16 days for fever patients. In addition, 91% of all patients reported that their routine daily activities were prevented by their WNV infection.

"We have also learned from another Colorado survey that the vast majority of people who get West Nile virus are bitten by infected mosquitoes around their own home, not while on an outdoor adventure," states Richard L. Vogt, MD, Executive Director of Tri-County Health Department.

"This tells us that people need to eliminate mosquito breeding areas around their home, and also use

insect repellent to protect themselves from mosquito bites every time they are outdoors ... whether in the backwoods or in the back yard.”

Mosquitoes lay their eggs in standing water, and the larvae hatch in 7 to 10 days. Mosquito breeding is not limited to ponds and streams, so eliminating even small amounts of standing water around the house weekly is a good prevention measure. Common household items that can hold enough water for mosquitoes to breed include flowerpots and saucers; clogged rain gutters; tires and tire swings; sandbox toys; tin cans; and jars. Pet water bowls should be cleaned daily and birdbaths and wading pools should be hosed out weekly.

Recommended mosquito precautions include the five D's:

- DRAIN all standing water around the house to eliminate any mosquito-breeding sites
- DRESS in long-sleeved shirts, long pants, shoes and socks
- Avoid outdoor activities at DUSK and DAWN when mosquitoes are most active
- Use mosquito repellents that contain DEET while outdoors

In addition to DEET, the CDC and the Environmental Protection Agency have approved two new ingredients for use in insect repellents, picaridin and oil of lemon eucalyptus.

West Nile virus is carried long distances by infected birds and then spread locally by mosquitoes that bite these birds. Infected mosquitoes can then bite and pass the virus to humans. House pets do not become ill if bitten and do not spread the illness, and there is no human-to-human transmission by someone who already has the virus.

Most infections are mild and symptoms can include fever, headache, body aches, skin rashes and swollen lymph nodes. Symptoms usually appear 3 to 14 days after exposure. All residents of areas where West Nile virus activity has been confirmed are at risk, but people over age 50 seem to be especially vulnerable to the most severe forms of disease.

Signs of more severe illness may include headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, muscle weakness or convulsions. Persons with these symptoms should seek medical attention immediately, because West Nile virus can also cause paralysis, encephalitis and/or meningitis. In some cases, it can be fatal.

Extensive information on West Nile virus along with a detailed Home and Garden checklist can be found at www.FightTheBiteColorado.com. The complete study can be found online at www.cdc.gov/ncidod/EID/vol12no07/05-1399.htm.