

US West Nile virus cases double in one week

By Naomi Spencer
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Over the past week, documented cases of West Nile virus have doubled across the US, officials with the federal Centers for Disease Control and Prevention (CDC) reported Wednesday.

The dramatic increase “indicates that we are in one of the biggest West Nile virus outbreaks we have ever seen in this country,” said Lyle Petersen, director of the CDC’s Division of Vector-borne Infectious Diseases. In an August 22 press briefing, Petersen noted that the number was the highest the CDC had ever registered since the virus was first detected in the US in 1999.

At least 43 people have died and 1,221 others have been confirmed as infected across 38 states. West Nile virus has been detected in humans, mosquitoes, or birds in all but three states (Alaska, Hawaii, and Vermont). “In comparison, one month ago, there were only 25 people with West Nile virus disease reported to the CDC,” Petersen said.

The virus is spread to humans by mosquitoes that contract the virus from infected birds. Approximately 20 percent of people who contract West Nile develop symptoms including high fever, headaches, swollen lymph glands, and a rash across the chest. A small number of those afflicted by fever will develop potentially fatal neurological complications, including inflammation of the brain or spinal cord. The elderly and those with weakened immune systems are most vulnerable to the illness.

Health officials expect that cases will continue to rise through the end of September. West Nile virus typically peaks in mid-August, but symptoms of the illness can take a couple of weeks to develop, delaying diagnosis and reporting. Cases recently reported reflect infections from early August.

Three-quarters of the cases have been reported from five states: Texas, Mississippi, Louisiana, South Dakota and Oklahoma. Half of all cases are from Texas, with a concentration of the virus in Dallas and a four-county surrounding area.

As of Wednesday, Texas reported 23 deaths and 640

other cases of the virus. Tarrant County had 112 cases, Denton County had 105, and Collin County reported 40 cases as of Wednesday.

Dallas County registered 288 cases as of Thursday, up by 10 from the day before. Local health officials said that more than 50 percent of the confirmed cases are neuroinvasive, the most severe stage of illness. At least 11 people have died. “To give a little bit of perspective on that, if you look at Dallas County data and add up the total deaths from 2003 to 2011 they had ten deaths,” Texas Department of State Health Services commissioner David Lakey told the press. “We’re now in this year, in Dallas County, [we] have more deaths than their entire history in the past.”

Denton County declared a health emergency Wednesday afternoon after the county Health Department director Bing Burton said that they were contending with “the highest West Nile virus incidence rate in the state.” The outbreak “has caused and continues to cause widespread severe illness and threat to loss of life at the peril of public health and safety.”

The emergency declaration allows the county to ask for help from state and federal agencies in combating the illness with aerial pesticide spraying. The county had been attempting to combat mosquitoes with larvicide in standing water, but Burton stated that “it has not been successful in containing this disease outbreak... We are wondering maybe we need to be more aggressive because we got the highest attack rate.”

Extreme weather has created more favorable conditions for Culex mosquitoes, the type that carry the virus. Across the US, Petersen of the CDC said, “the unusually mild winter, early spring, and hot summer in many parts of the country might have fostered conditions favorable to the spread of West Nile virus to people.” Culex mosquitoes lay their eggs in stagnant water.

Hotter weather promotes faster larvae maturation to adulthood and also allows better conditions for the virus to develop in the mosquitoes’ salivary glands, according to CDC mosquito-borne disease expert Roger Nasci. “Put

these things together: more rapid mosquito development, faster growth of the virus in the mosquito...the result is a high number of infected mosquitoes in the environment—some of which feed on humans and transmit the virus.”

High temperatures and drought may have driven large numbers of birds into urban areas in search of water. Mosquitoes have followed their migration. “In Texas, the severity of the drought was probably greater than anywhere else in the United States,” Dr. B. Graeme Lockaby, School of Forestry & Wildlife Sciences professor at Alabama’s Auburn University, told CNN. During a drought, standing water evaporates down to leave fetid pools where insects and bacteria thrive.

While the ecological conditions for West Nile and other vector diseases are exacerbated, budget for local health departments and insect control have been subjected to relentless cuts. Nearly all of the 1,100 mosquito control districts in the US are “getting hit” with budget cuts, Joe Conlon of the American Mosquito Control Association told *USA Today*. A comparative study of Michigan counties after a 2002 West Nile outbreak found residents in counties without mosquito abatement programs had a 10-fold elevated risk of contracting the virus.

A survey of selected mosquito abatement programs by *USA Today* revealed a substantial decrease in funding across the country. The Lee County Mosquito Control District in Florida, the largest in the nation, has seen a 13 percent cut in funding since 2007. Similarly, funding in California’s Sacramento and Yolo counties has dropped by 10 percent since the onset of the economic crisis.

The collapse in the housing markets in both states has left many homes with swimming pools unmaintained, creating ideal environs for mosquitoes. Abandoned pools in some California neighborhoods have become breeding grounds producing “literally millions of mosquitoes a week,” according to the manager of the Sacramento area vector control.

Delaware’s mosquito control budget has been cut by 25 percent in the past three years. West Virginia’s Kanawha County lost all funding for abatement three years ago. The county has “equipment, traps, nets and microscopes, but no bodies or training” to make use of the resources, said Kanawha County Health Department director Rahul Gupta.

Fort Collins, Colorado, home to the CDC’s national mosquito-borne disease program, cut its abatement program by one-third last year.

North Carolina laid off the entire staff of its Public Pest

Management agency last year and reduced abatement programs across the state from 103 to 50. “It’s a disaster happening all across the United States,” North Carolina’s former state entomologist, Bruce Harrison, told *USA Today*. Harrison, who was among those laid off in 2011, said the budget cuts have created a vulnerability to epidemics that kept him “up at night.” “All it would take is another alien virus to come in, some African strain to come over that affects our livestock and humans and we’d be caught flat-footed.”

Scientists have warned that the combination of severe weather due to climate change and austerity creates the conditions for outbreaks of other diseases, including malaria. Dr. David J. Dausey, chair of the public health department at Mercyhurst University in Erie, Pennsylvania and director of the Mercyhurst Institute for Public Health, told CNN that the US was unprepared for an epidemic. Officials should have anticipated the West Nile outbreak this year, Dausey said. “Everyone is caught off guard. To me, it’s not a big shocker at all.”

Urban areas are most at risk. In Detroit, entomologists and public health officials have expressed frustration at the lack of funding for mosquito control. “There are no public resources for this in southeast Michigan,” Michigan State University entomologist Ned Walker told the *Detroit Free Press* Friday. On Thursday, the state confirmed a third West Nile death. At least 47 cases have been confirmed statewide, 35 in the Detroit metro-area.

Testing of mosquitoes in Detroit’s Wayne County revealed that 31 in 1,000 of the insects carried the virus. In areas with control programs, only 4 in 1,000 mosquitoes tested positive. Detroit, along with the Wayne, Oakland, and Macomb county public health departments, does not spray for mosquitoes and relies primarily on awareness programs and individual precautions instead.

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