

# West Nile Fever spreading throughout US

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The outbreak of illnesses associated with the West Nile virus has reached epidemic proportions, with new cases reported in Ohio, Illinois, Maryland, New York City, Michigan and Georgia. In Georgia two men, a 51-year-old and a 76-year-old died, on Thursday.

Across the country the number of cases is over 250 and rising. Last week, the director for the Centers for Disease Control (CDC), Dr. Julie Gerberding, characterized this summer's record number of cases as an "emerging infectious disease epidemic."

The virus has crossed the Mississippi River, with cases reported in Missouri and infected livestock and birds in Colorado and Wyoming, making it only a matter of time before it reaches the West Coast. Infected birds have also been found in southern Ontario, but as of yet there have been no reported cases of the fever among humans in Canada.

Already at least 13 deaths have been attributed to the virus: eight in Louisiana, two each in Mississippi and Georgia and one in Illinois. This number surpasses the total number of deaths for last year, and the peak period for the disease is still two weeks away.

According to Lyle Petersen, an expert on the West Nile virus at the CDC, the number of seriously ill people could exceed 1,000, with 100 dying from the disease. "It's safe to assume we can expect more cases, and potentially a lot more cases," he said. It is likely that only the end of summer will halt the spread of the disease in most states.

At the end of last week, Petersen reported that at least 160 people in nine states and Washington DC had been hospitalized with serious and even life-threatening symptoms, including brain infections, meningitis and encephalitis. Scientists have yet to determine why 147 of these more serious cases—62 new cases the previous week—are clustered in the state of Louisiana. The seriousness of the outbreak in that state prompted Louisiana state epidemiologist Raoult Ratard to

comment, "An epidemic this size is like a hurricane. If you don't take shelter, you may be swept away."

What has alarmed some researchers who have followed the history and etiology of the virus since it first appeared in New York City in the summer of 1999 is that the age range for serious illness has dropped considerably, an indication that the virus is becoming more virulent. The median age for contracting West Nile encephalitis is currently 55, which is 10 years younger than the median age at the time of the 1999 outbreak. Two new cases in the Chicago area last week involved women in their forties.

Where the disease has established itself over a longer period of time—North Africa, the Middle East and parts of Eastern Europe—the frequency of its more severe manifestations has increased. Because the disease in its milder form may show no symptoms, or be confused with other ailments, it is very difficult to ascertain what percentage of the populations of these regions is actually infected.

While infants and the elderly continue to have the greatest risk of mortality from the virus, any person with a compromised immune system is threatened. The vast majority of individuals who contract the virus develop immunity to the disease, although it is not clear whether this immunity is life-long.

The disease is often called West Nile Fever, which is a generic term for a non-contagious illness exhibiting a variety of symptoms that range from mild flu-like aches and fever, sometimes accompanied by a rash, muscle weakness and malaise, to life-threatening infections of the brain (encephalitis) and its outer covering (meningitis). The effects of the illness can be long-term, with some survivors of the original outbreak still suffering from muscle weakness, memory loss, sleep impairment and depression.

The West Nile virus is a mosquito-borne pathogen belonging to a family of viruses called flaviviridae

(Genus Flavivirus). While foreign in origin, the West Nile strain is related to US-based viruses that cause Eastern Equine Encephalitis (EEE) and St Louis encephalitis. Last year there were four deaths in Louisiana from the latter disease. Another term associated with the West Nile virus and its relatives is Arbovirus, because of its penchant for attacking the brain and central nervous system.

Scientists are not certain how the virus reached North America, since it appears to use mosquitoes of the Genus Culex as its vector. While the cycle for the transmission of the virus involves its being passed from an infected bird to a mosquito, and then to a human, it is as yet unclear how the bird becomes infected. What makes the current outbreak unusual, when compared to transmission cycles of the disease in other parts of the world, is that only in Israel has West Nile been associated with infected birds.

The West Nile virus was first isolated in 1937 by doctors testing a woman for African sleeping sickness in the West Nile district of Uganda. Since then it has made its way throughout much of Africa, Asia and Europe, and is one of several viruses that make up the Japanese Encephalitis Serocomplex.

There is no vaccine or cure for West Nile disease. However, the US Food and Drug Administration has begun tests in New York City with the drug interferon. Interferon has shown some promising results in combating the virus that causes Hepatitis C, and in the treatment of Kaposi's sarcoma in AIDS patients.

Viruses, unlike bacteria, lack cellular structure, and are for this reason not considered to be living organisms, which is probably why they are generally unresponsive to antibiotics. A West Nile fact sheet produced by the CDC explains that treatment for West Nile encephalitis would include "hospitalization, intravenous fluids, airway management, respiratory support (ventilator), prevention of secondary infection (pneumonia, urinary tract, etc.), and good nursing care." The last factor may become critically important in the event of West Nile's spread, since there is an acute nursing shortage in many US hospitals.



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