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The full report is titled "Clinical Characteristics and Functional Outcomes of West Nile Fever." It is in the 7 September 2004 issue of *Annals of Internal Medicine* (volume 141, pages 360-365). The authors are J.T. Watson, P.E. Pertel, R.C. Jones, A.M. Siston, W.S. Paul, C.C. Austin, and S.I. Gerber.

## Clinical Characteristics and Consequences of West Nile Fever

### What is the problem and what is known about it so far?

Infections caused by the West Nile virus have recently appeared in most parts of the United States. Transmission of the virus to humans occurs through the bite of an infected mosquito. In 2003, doctors confirmed more than 9000 cases of West Nile virus infection in the United States, which caused death in more than 250 patients. Most of the clinical research regarding this disease has focused on patients who have developed infection of the brain (encephalitis) or its coverings (meningitis), conditions that can lead to a type of paralysis known as acute flaccid paralysis. However, only about 20% of infected people have any symptoms that can be attributed to the virus; the rest do not know they have been infected and can be identified only through blood-screening surveys. Most people with symptoms of West Nile virus infection develop fever, loss of appetite, vomiting, eye pain, headache, muscle pain, and skin rash. When these symptoms occur without severe injury to the nervous system, the condition is known as West Nile fever. Very little information is available about the usual clinical course of West Nile fever.

### Why did the researchers do this particular study?

To determine the usual duration and severity of West Nile fever in people without severe nervous system involvement.

### Who was studied?

98 people identified by the Illinois Department of Health as having West Nile fever without any signs of acute flaccid paralysis.

### How was the study done?

Participants were interviewed by telephone using a standard questionnaire to find out if they had any of 18 different symptoms; whether they had been hospitalized or had other medical visits, had taken any medication, had noticed any impact on their daily activities, or had missed any school or work; and whether they had any underlying medical conditions.

### What did the researchers find?

Almost all of the participants reported fatigue, and in half of them it lasted 30 days or longer. More than half also had fever, headache, muscle pain, muscle weakness, neck pain, and difficulty concentrating. Eighty-three percent of people who had muscle weakness reported that it lasted more than 7 days. Almost a third of the participants were hospitalized for periods that lasted from 1 to 56 days. Eighty-nine percent reduced their out-of-home activities, and among those who normally attended school or work, 79% missed days because of the infection. The usual length of time it took to return to previous health was 60 days.

### What were the limitations of the study?

Interviews took place several months after the outbreak of West Nile virus infection, and participants' recall of the facts may have faded. Also, it is possible that some of the participants who were classified as having West Nile fever may actually have had unrecognized acute flaccid paralysis, meningitis, or encephalitis.

### What are the implications of the study?

West Nile fever is a more debilitating disease than previously recognized. It has a substantial and relatively long-lasting effect on people who are infected.

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