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IDAHO DISEASE Bulletin

IDAHO DEPARTMENT OF HEALTH & WELFARE

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West Nile Virus

West Nile virus is a zoonotic, vector-borne virus. Its first US detection was in the greater New York City area in the fall of 1999. Since then, the virus has moved steadily westward across the US. Idaho first detected mosquito-borne transmission within the state in 2004 (Table 1): eleven counties reported a total of three human cases and activity in a handful of positive sentinel species (*e.g*, horses and corvid and raptor bird species). In 2005, virus activity expanded slightly, with 15 Idaho counties reporting ill humans and/or affected sentinel species and positive vector mosquitoes.

Table 1. WNV Surveillance Findings – Idaho, 2004–2006

Year	*Humans*	*Birds*	*Horses*	*Mosquito pools**
2004	3	7	22	0
2005	13	15	113	17
2006	996†	127	338	238

* A mosquito pool is defined as up to 50 *Culex tarsalis* or *Culex pipiens* mosquitoes pooled into one test.

† This does not include 20 reported asymptomatic blood donors which brings the total to 1016 reported human infections.

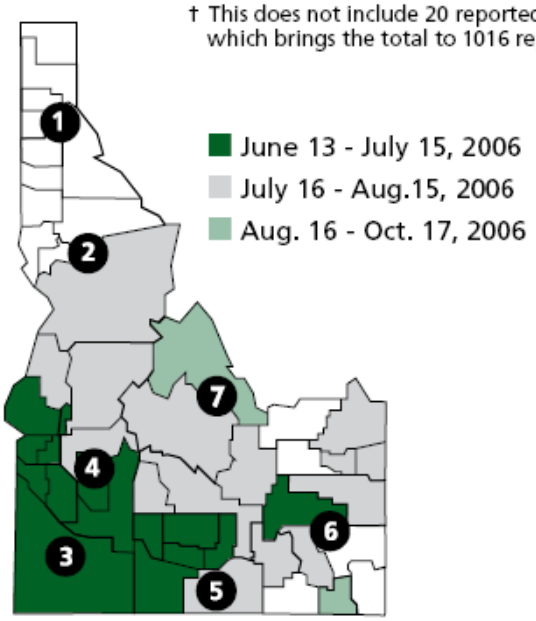

Figure 1. Timing of Initial WNV Onset Dates, in Humans, by County – Idaho, 2006*

* Counties are only shown if evidence of local transmission was reported in humans. Lemhi County is designated by diagnosis date (onset dates unavailable).

WNV in 2006

A significant geographic expansion of virus activity in Idaho was seen in 2006. Idaho recorded the nation's highest number of cases, representing 23.4% of the U.S. total. Of the 44 counties in Idaho, 38 reported human cases, positive sentinel species, or both (imported or locally-acquired). Evidence of local transmission was documented in 35 of the 38 counties, while the three remaining counties reported imported infections only (Kootenai and Clearwater [human cases] and Latah [equine case]). Counties that did not report local WNV transmission in 2006 were all located in northern Idaho. Figure 1

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depicts the 30 counties reporting locally-acquired human infections and shows the expansion across the state over the summer months, by illness onset date. Counties reporting only animal cases were Bear Lake, Caribou, Clark, Oneida, and Teton.

During 2006, the Idaho Division of Health received 996 reports of symptomatic Idaho residents (68 cases per 100,000 people, with significant local variation). Additionally, 20 asymptomatic blood donors were identified bringing the total number of reports to 1016. Of the 996 symptomatic reports, 825 were considered non-neuroinvasive (i.e., West Nile fever) and 171 were considered neuroinvasive (i.e., meningitis, encephalitis, meningoencephalitis, acute flaccid paralysis, or other neurologic symptoms). The epidemiologic curve (Figure 2) demonstrates the seasonality of WNV infections (neurologic and non-neurologic). The counties with the highest number of infections were Ada, Canyon, and Bingham; the county with the highest incidence of infection (per 100,000) was Bingham.

Selected summary data is shown in Table 2. Although illness can occur in people of any age, the severity of West Nile virus infections increases with age. The median age for those with any clinical manifestation of WNV infection was 48 years, ranging from three months to 92 years of age. The group with non-neuroinvasive illness had a median age of 48 years (age range: 3 mos to 89 yrs) as compared to a median age of 57 years (age range: 1 yr to 92 yrs) for those with neuroinvasive illness. Neuroinvasive illness was typically severe: approximately 80% of these cases required hospitalization. Among neuroinvasive cases for which data are complete, 47.1% were reported with meningitis, 21.8% with meningoencephalitis, 18.5% with encephalitis and 12.6% were reported with some degree of acute flaccid paralysis. Because the clinical picture may change over time, these percentages may be underestimates of the clinical outcomes. Non-neuroinvasive cases were also severe enough to require hospitalization 11.8% of the time.

Twenty-three WNV-related deaths were reported. The people who died had a median age of 77 years (age range: 41 yrs to 92 yrs); all but three were ≥ 60 years of age and most had significant underlying medical conditions. The average difference between onset date and date of death in persons diagnosed antemortem was 45 days, with a range of 4 days to 234 days.

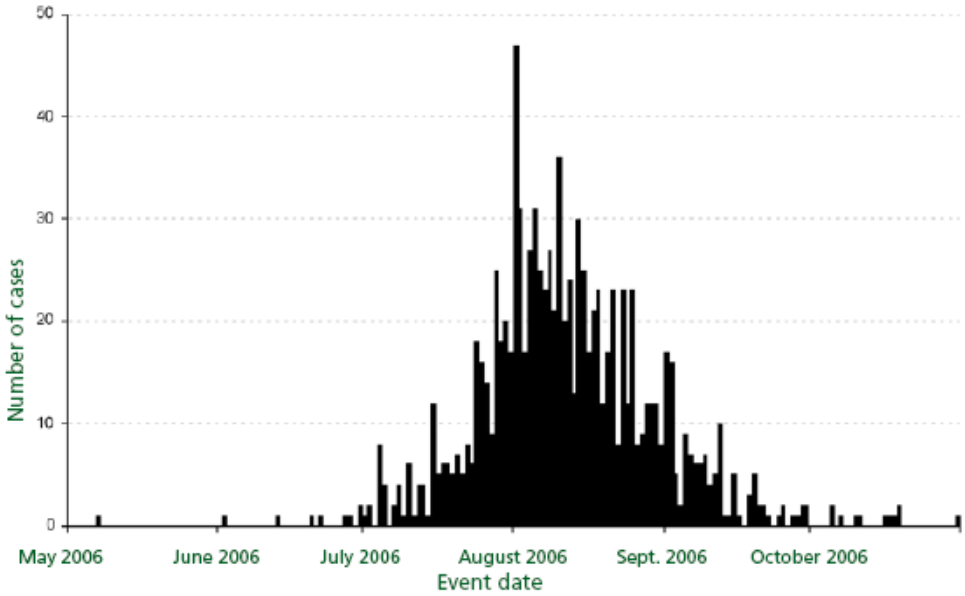

Figure 2. Epidemiologic curve of West Nile Virus infections by event date* – Idaho, 2006

* Event date refers to symptom onset date or when this is not available diagnosis date or report date

Table 2. WNV Summary Data — Idaho, 2006*

Condition	*Non-neuroinvasive*	*Neuroinvasive*	*Fatal*	*All Symptomatic Reports*
Total Cases	825	171	23	996
Age Range	3 mos – 89 yrs	1 yr – 92 yrs	41 yrs – 92 yrs	3 mos to 92 yrs
Median Age	48 yrs	57 yrs	77 yrs	48 yrs
Sex	53.3% female	54.7% male	70% male	52.5% female
Hospitalized	11.8%	80.5%	87.0%	24.9%

* Calculations are based on information gathered during case investigations. Blank or "unknown" responses were not included in calculations.

Emergency Declarations in 2006

In response to increasing evidence of WNV activity, six counties declared an emergency in order to access state funds to carry out extended mosquito abatement activities. Four of the counties, Ada, Bingham, Canyon and Elmore, carried out aerial adulticide spraying with the organophosphate nalad (Dibrom®), while Madison and Owyhee counties carried out other enhanced activities that did not involve aerial spraying.

Preparations for the 2007 Season

Many states previously affected by WNV have seen a decline in human cases after an epidemic year, such as the epidemic year Idaho experienced in 2006. Because it is difficult to predict the impact this virus will have in Idaho in 2007, Idaho state agencies, local health districts, and counties are preparing for a year similar to 2006 with the possibility of expansion into the northern region of the state.

Changes in Laboratory Testing for West Nile Virus in 2007

New!

CDC-approved WNV-specific diagnostic tests are widely available through commercial laboratories. Healthcare providers are encouraged to use commercial laboratories for the diagnosis of all suspected cases of WNV. The only situations where diagnostic tests will be available through the Idaho Bureau of Laboratories are for those individuals with severe illness (i.e., hospitalized or neuroinvasive cases).

Abatement District Formation

On March 3, 2007 House Bill 178 was passed and is now known as Idaho Code, Chapter 28, Section 39-2812. This bill allows for the emergency formation of interim mosquito abatement districts in counties planning on moving forward with the establishment of permanent abatement districts within two years of the emergency establishment of the district. At the time of writing this newsletter, Canyon and Elmore counties had moved forward with the emergency formation of a county-wide abatement district and other counties were considering this action.

Resources

Surveillance activities to detect WNV in sentinel species (e.g, birds, horses) and mosquitoes will be carried out again in 2007 by multiple state and local agencies. To access a complete table of 2007 WNV surveillance findings as they become available by county, go to the following web site frequently throughout the season: http://www.westnile.idaho.gov. Archived data tables are also available for 2004–2006. The WNV web site provides the opportunity to learn more about health concerns, pesticide use in adults and children, links to patient fact sheets about mosquito repellent use, ways to reduce mosquito breeding habitat around homes and in communities, and links to more information about WNV in horses and birds.

Safety precautions when using DEET on children can also be found at the American Academy of Pediatrics website: http://www.aap.org/family/wnv-jun03.htm

Updated brochures and posters in English or Spanish are available from your local public health district or can be downloaded on-line from http://www.westnile.idaho.gov

WNV Information Line

A new telephone information line is now available in Idaho! Statewide, callers can access this new free automated information line by dialing 1-877-333-WNV1 (9681). Callers from the greater Treasure Valley can access the same information line by dialing the local number 334-6500. Information is included on WNV disease, pesticide usage, mosquito breeding site reduction, laboratory testing and information on dead birds, horses and West Nile virus. Callers will be referred to local public health districts or health care providers if they need more information.

Statewide WNV Information Line
1-877-333-WNV1 (9681)

Treasure Valley WNV Information Line
334-6500

If you are one of the randomly selected readers who have received a letter from the Office of Epidemiology and Food Protection requesting your feedback to a short questionnaire, please send us your completed questionnaire. We would greatly appreciate it if you would also complete the online web survey by June 1 so that we can better serve our readership. Thank you for your participation!

ROUTINE 24-Hour Disease Reporting Line 1.800.632.5927
EMERGENCY 24-Hour Reporting Line 1.800.632.8000

An electronic version of the Rules and Regulations Governing Idaho Reportable Diseases may be found at http://adm.idaho.gov/adminrules/rules/idapa16/0210.pdf

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