ENCEPHALITIS, ARBOVIRAL

Arboviral infections are viruses transmitted to humans by an arthropod vector, usually a mosquito. These infections may be asymptomatic or result in a febrile illness of variable severity associated with neurologic symptoms ranging from headache to aseptic meningitis or encephalitis. Arboviral encephalitis is characterized by fever, headache, and altered mental status ranging from confusion to coma with or without additional signs of brain dysfunction. Arboviruses causing encephalitis in the United States include: St. Louis encephalitis, Western equine encephalitis, Eastern equine encephalitis, California Group encephalitis (includes LaCrosse virus), and West Nile Virus. Any central nervous system infection transmitted by mosquitoes, ticks or midges is reportable both nationally and to the state as an unusual occurrence.

Laboratory Criteria for Confirmation:

- Fourfold or greater change in virus-specific serum antibody, **OR**
- Isolation of virus from or demonstration of specific viral antigen or genomic sequences in tissue, blood, cerebrospinal fluid (CSF), or other body fluid, **OR**
- Virus-specific IgM antibodies demonstrated in CSF by antibody-capture enzyme immunoassay (EIA) **OR**
- Virus-specific IgM antibodies demonstrated in serum by antibody-capture EIA and confirmed by demonstration of IgG antibodies in the same or a later specimen by another serologic assay.

Case Classification

Confirmed: A clinically compatible case that is laboratory confirmed.

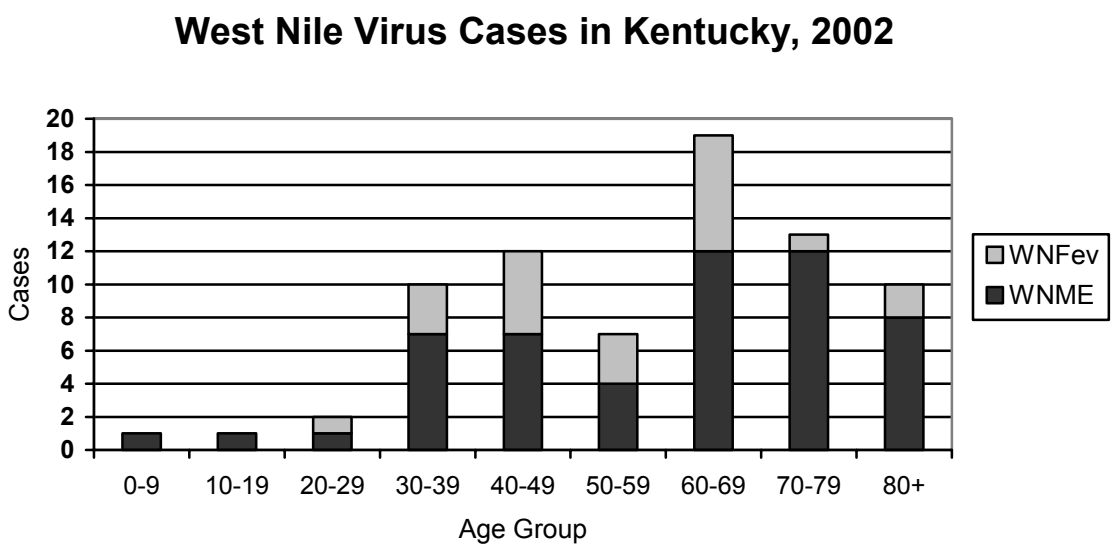
Probable: A clinically compatible case occurring during a period when arboviral transmission is likely, and with the following supportive serology: a stable (≤ twofold change) elevated antibody titer to an arbovirus (e.g., ≥ 320 by hemagglutination inhibition , ≥ 128 by complement fixation, ≥ 256 by immunofluorescence, and ≥160 by neutralization, or ≥400 by enzyme immunoassay IgM).

Epidemiology (Case numbers include confirmed and probable cases.)

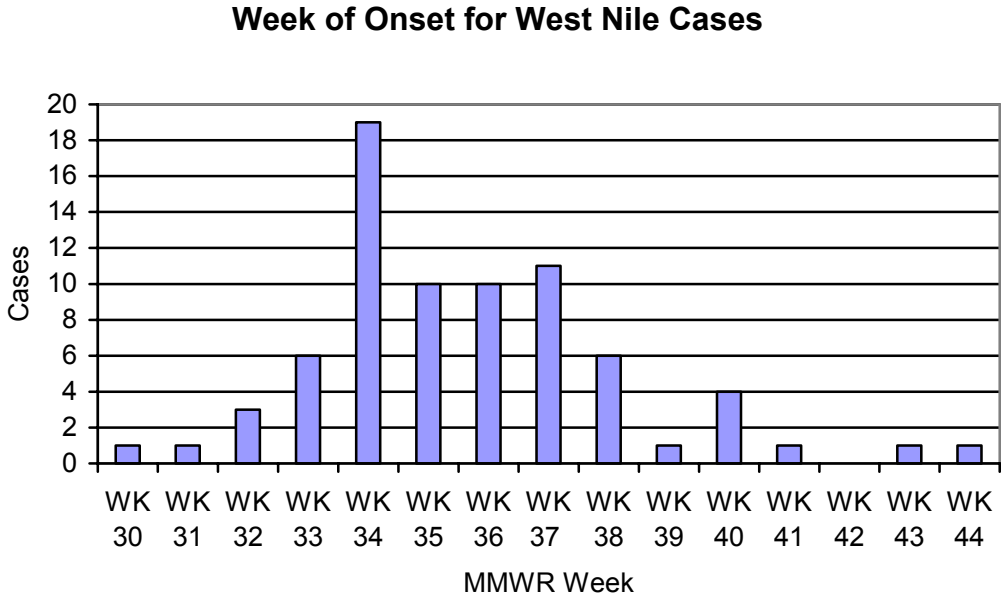
West Nile Virus Meningoencephalitis (WNME)			Number of WNME Deaths
Kentucky	2002	Rate per 100,000	5
Cases	53	1.3	
Cases by Gender			Case Fatality Rate for WNME
Female	26	1.3	9.4%
Male	27	1.4	

West Nile Fever

Kentucky	2002	Rate per 100,000
Cases	22	0.5

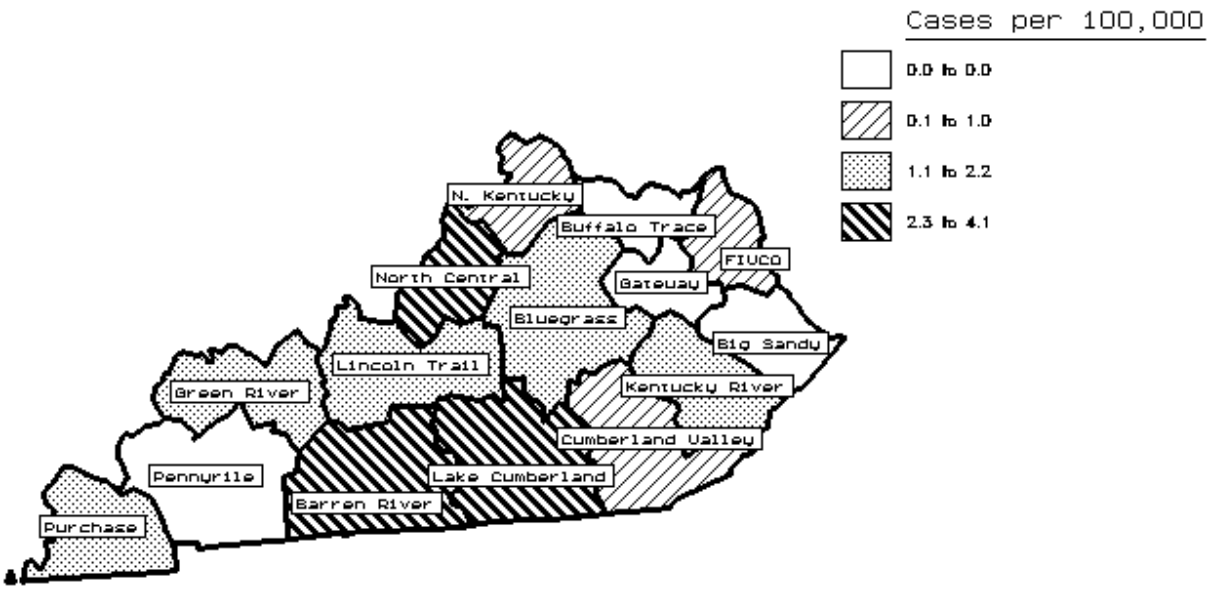


The average age for the WNME cases was 59 years and for the West Nile Fever cases was 55 years. The average age for the cases that resulted in death was 74 years.



Week 34, August 18-24, 2002 was the peak week for onset of symptoms.

Incidence of West Nile Virus by District, Kentucky, 2002



The highest rate of 4.1 cases per 100,000 was in the Lake Cumberland District, followed by Barren River District (3.9 cases per 100,000) and then the North Central District (3.3 cases per 100,000.)

The West Nile Surveillance program tracked humans, equines, dead birds and mosquitoes to document the extent of the West Nile virus activity in the State. Over 90% of the Kentucky Counties reported positive results in at least one of the surveillance areas. The complete surveillance report on West Nile is available in the Data Warehouse on the Public Health website under Epidemiology Programs.

LaCrosse Encephalitis

Kentucky	2002	Rate per 100,000	U. S. Rate (2001) per 100,000
Cases	2	0.05	0.05

Two confirmed cases in the Eastern part of the State. Both were males in the 5 to 9 year age group. A third case is classified as a probable, also from the Eastern part of state.