

WNV Human Cases--  
Michigan, 2003  
and  
2004 WNV Surveillance Menu

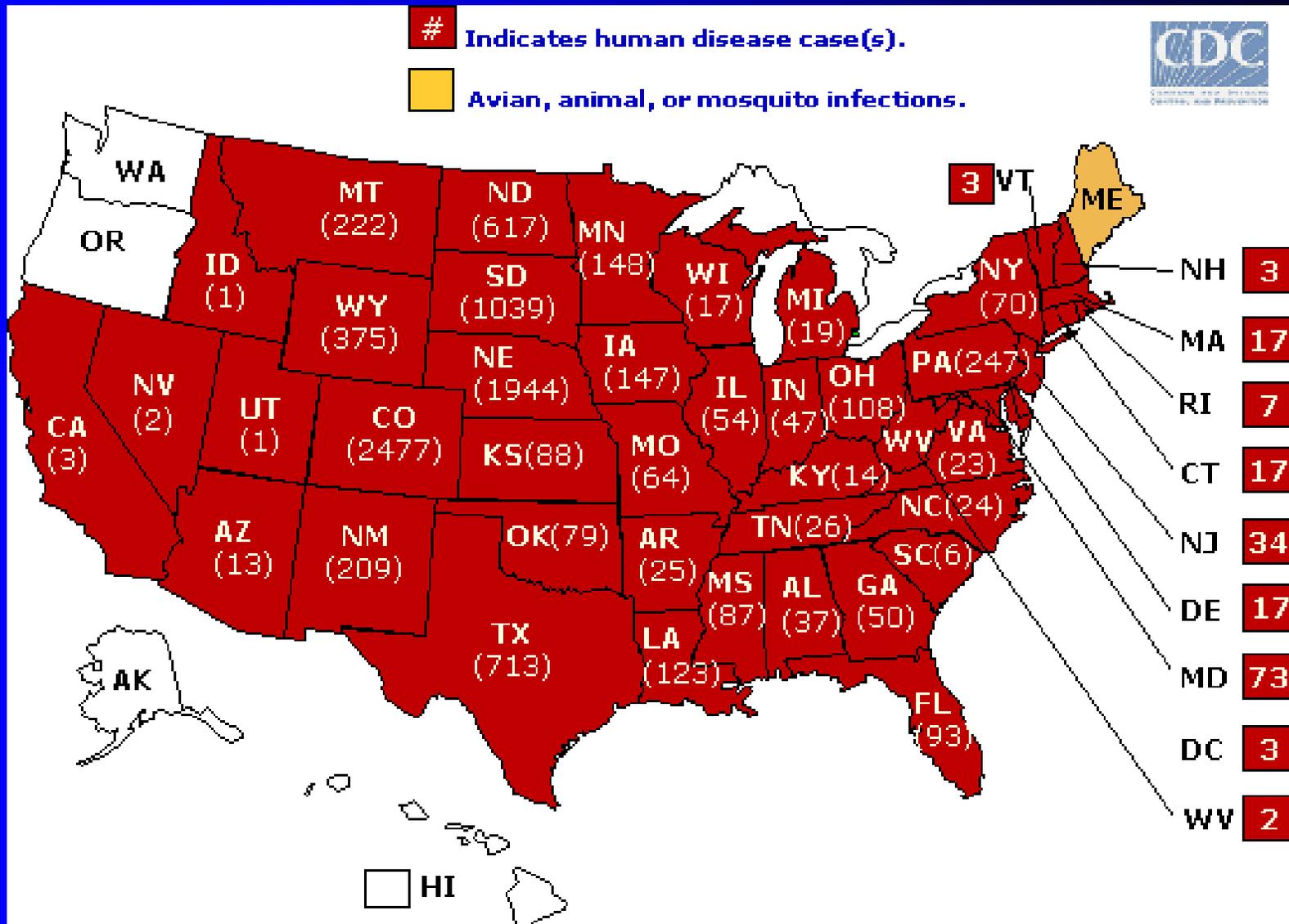
Kimberly Signs, DVM

Zoonotic Disease Epidemiologist

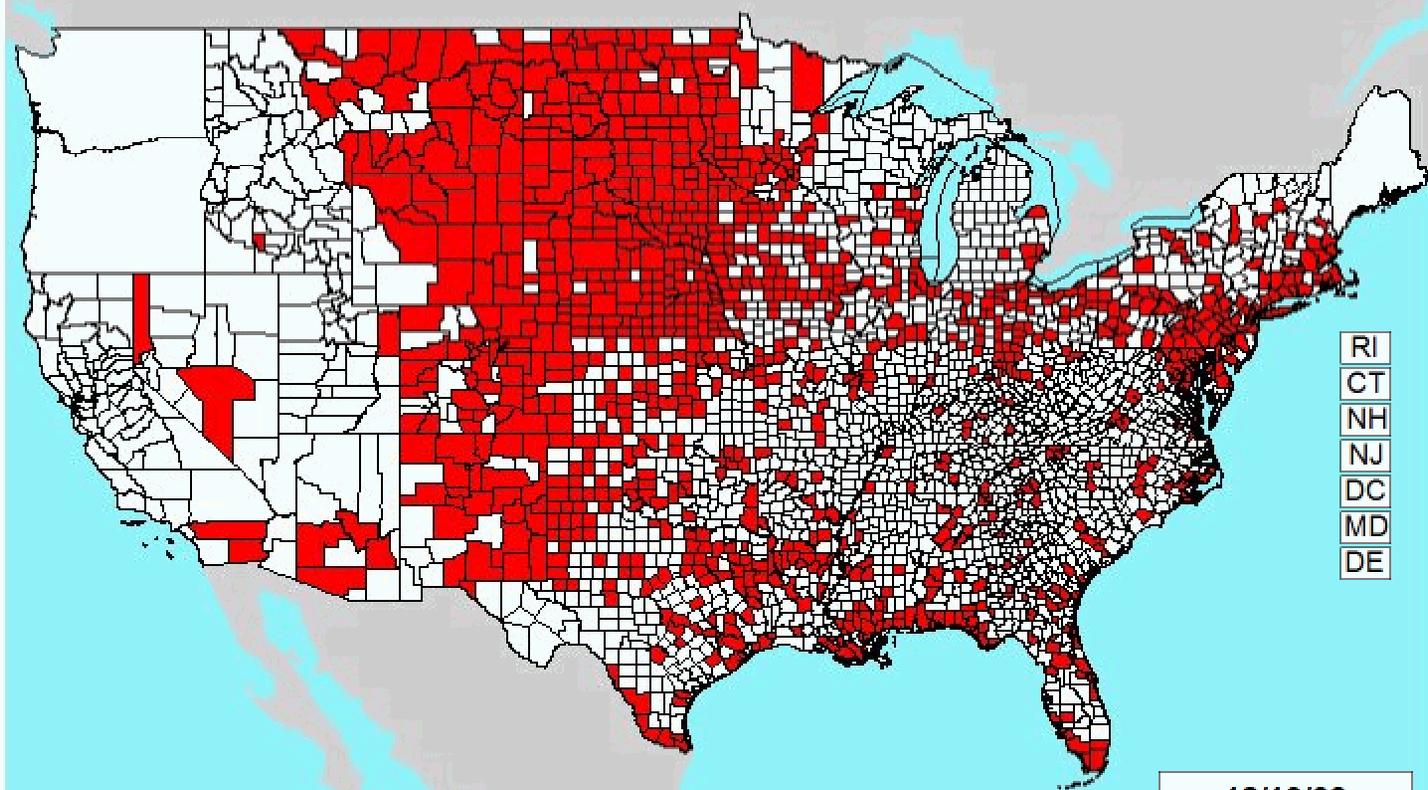
Communicable Disease and Immunization Division

Michigan Department of Community Health

# West Nile Virus Activity, 2003

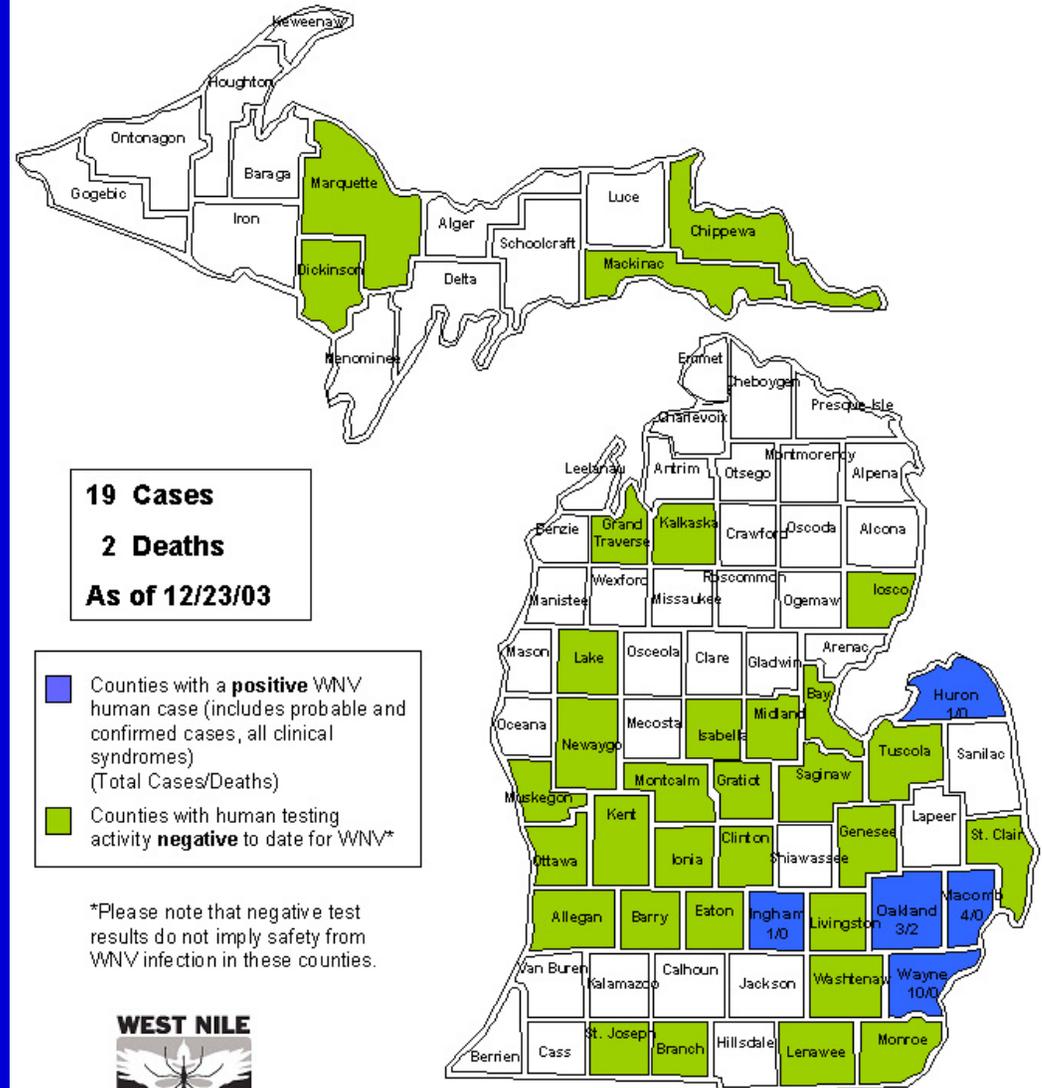


# Human WNV Cases, 2003



12/10/03  
Humans:  
Positive Test Results  
No Data

## 2003 Michigan West Nile Virus Human Testing & Cases As of December 23, 2003



**19 Cases**  
**2 Deaths**  
**As of 12/23/03**

Legend:  
■ Counties with a **positive** WNV human case (includes probable and confirmed cases, all clinical syndromes) (Total Cases/Deaths)  
■ Counties with human testing activity **negative** to date for WNV\*

\*Please note that negative test results do not imply safety from WNV infection in these counties.



Michigan Department of Agriculture  
 Michigan Department of Community Health  
 United States Department of Agriculture  
 Michigan Department of Natural Resources  
 Michigan Department of Environmental Quality  
 Michigan State University

Note: In 2002, there were 644 human cases in 28 counties with 51 deaths in 8 counties.

# WNV Human Cases, 2003

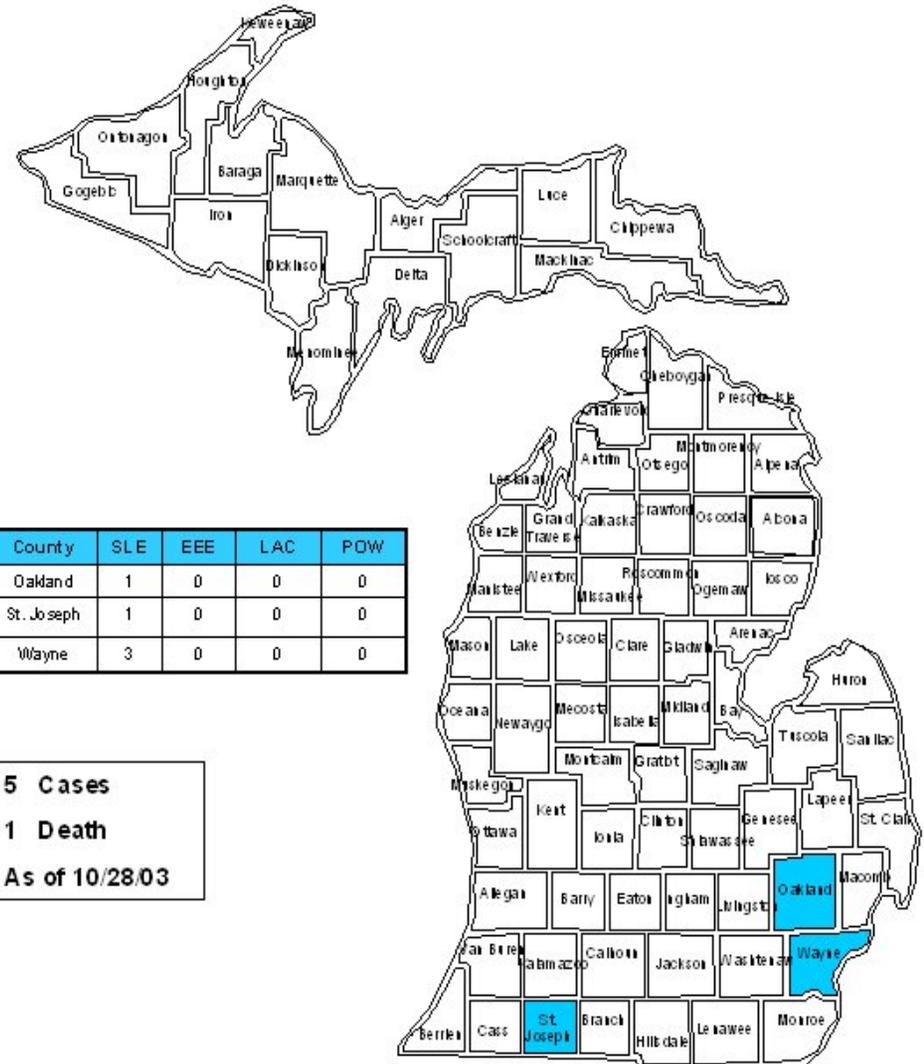
# Michigan Human Cases, 2003

## 19 Total

- 15 cases identified due to illness and testing
- Only 1 was positive on CSF testing
- Others required PRNT testing, delaying positive results for 2-3 weeks
- 4 cases identified through blood donor screening
- Confirmatory testing took 2-3 weeks

# Other Arbovirus Human Infections, 2003

## Other Arboviruses in Michigan, 2003



Note: In 2002, there were three cases of SLE, six cases of EEE, eleven cases of LAC, and one case of POW in Michigan.

# 2002 vs 2003: National

## 2002:

- 4156 cases total
- 284 deaths
- 2944 with serious neurological illness

## 2003:

- 9,388 cases total
- 246 deaths
- 2773 with serious neurological illness

# 2002 vs 2003: Michigan

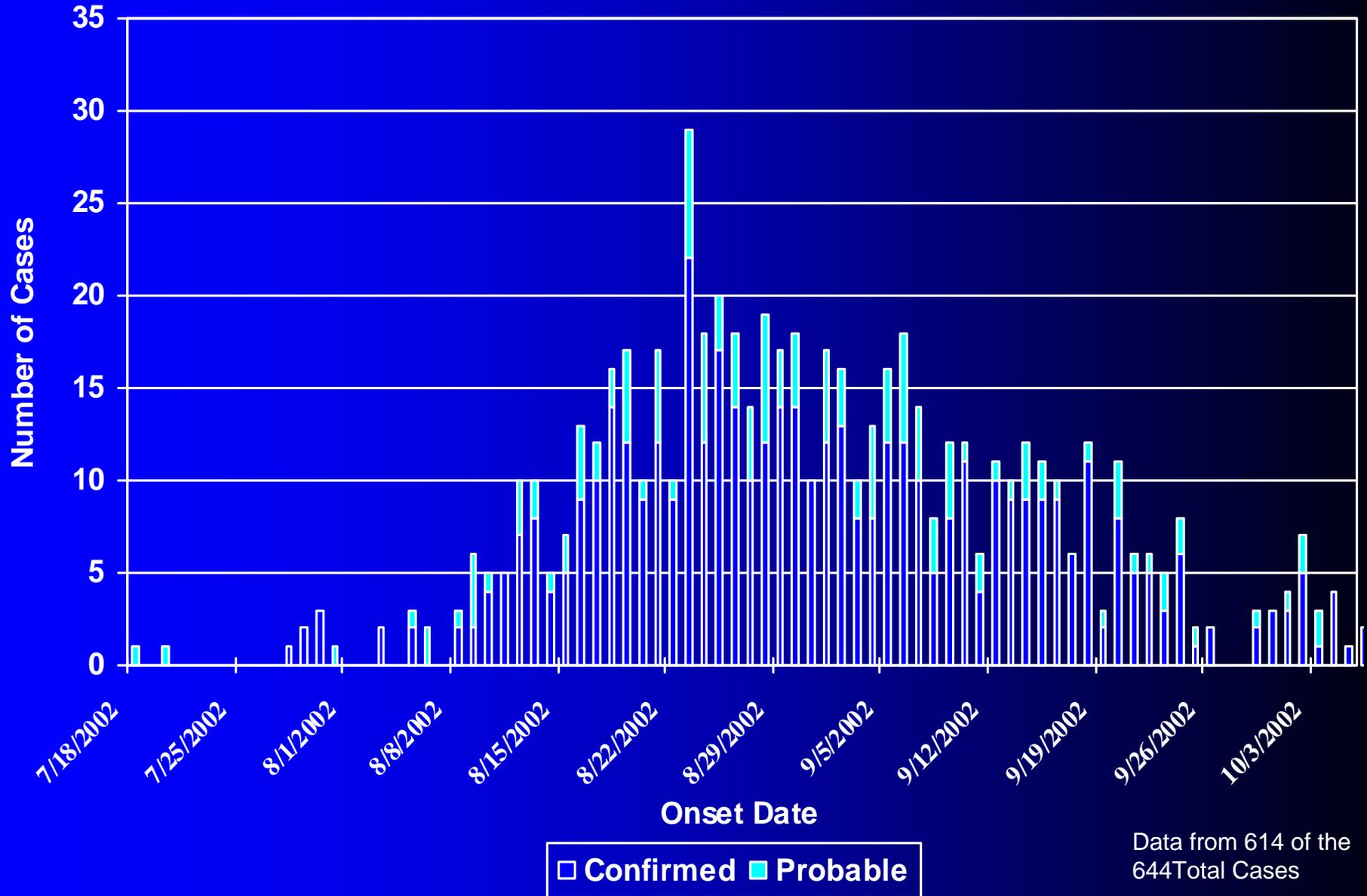
## 2002:

- 644 cases
- 51 deaths
- 559 cases of serious neurological illness (87%)

## 2003:

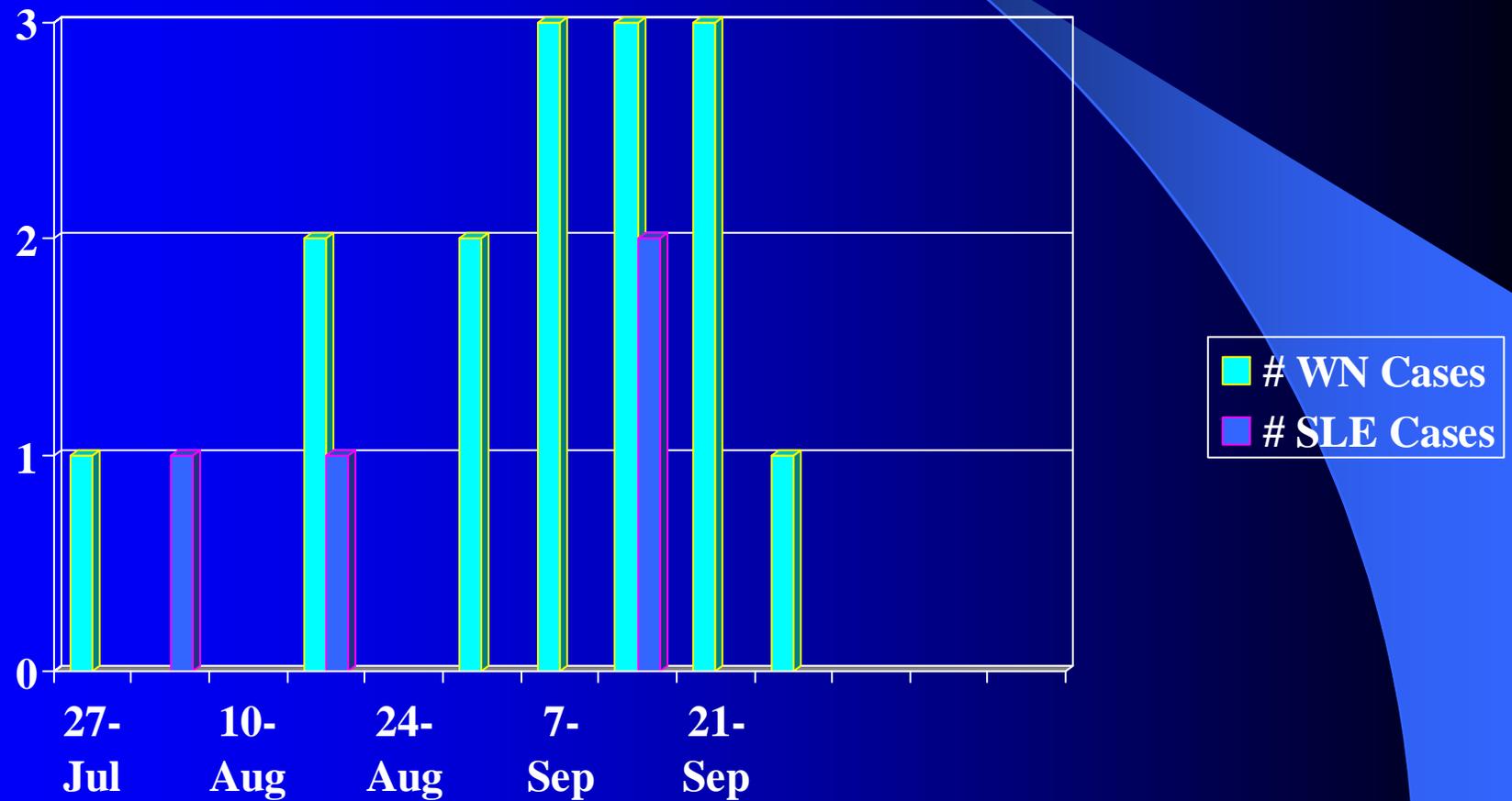
- 19 cases
- 2 deaths
- 15 cases of serious neurological illness (79%)

# Onset Date of Symptoms Among Human West Nile Virus Cases in Michigan for 2002



Data from 614 of the 644 Total Cases

# Onset dates, 2003



# Testing Issues

- Increased availability of commercial tests
- Poor performance of commercial tests in many states
  - CDC survey of state health department labs found less than 50% agreement with commercial lab results
  - Lack of experience and standardization of new test protocols
  - Low prevalence areas-tests performed poorly
  - Do not differentiate WNV/SLE

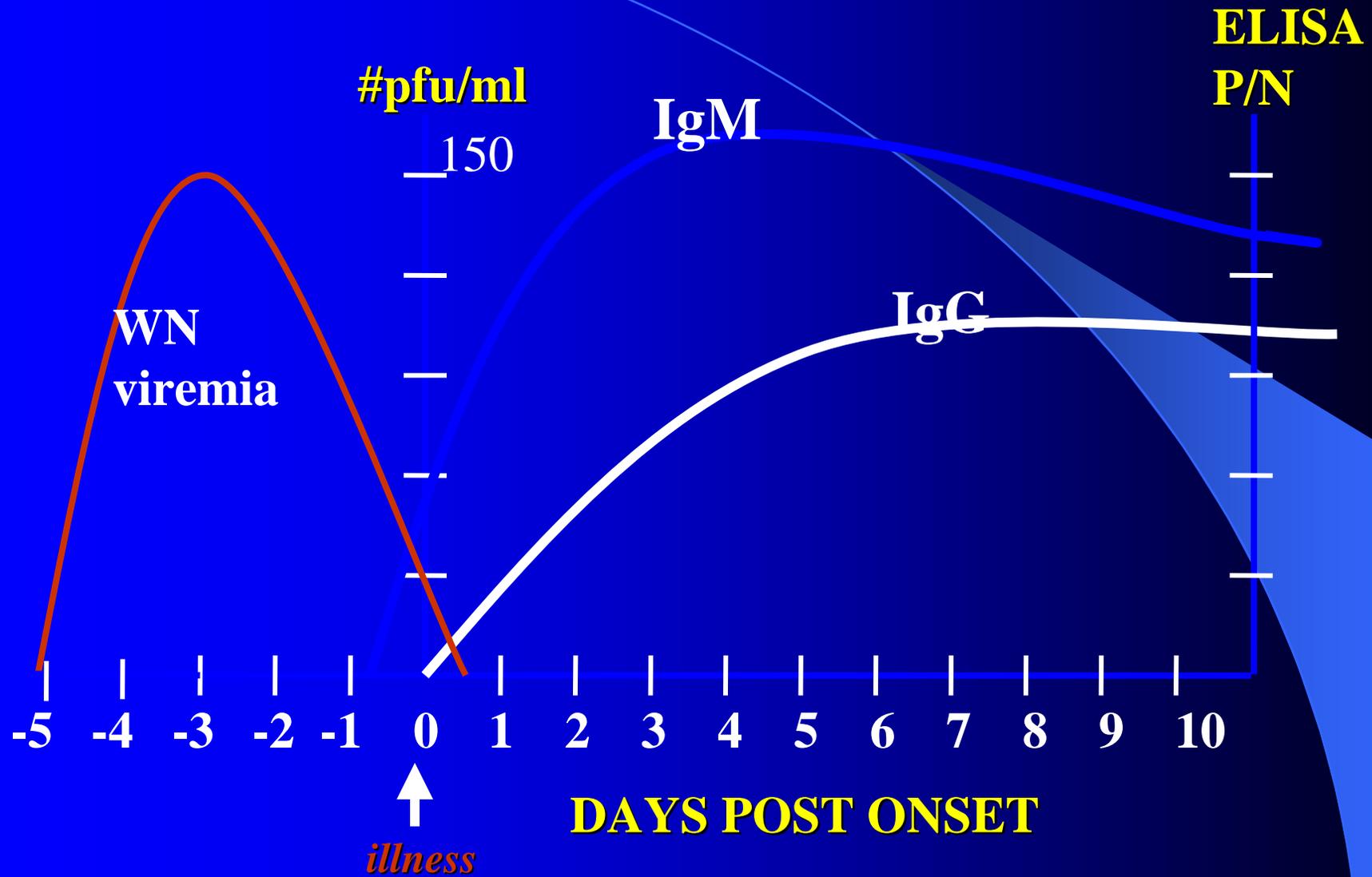
# Testing Issues-Michigan

- Low prevalence of the disease in Michigan resulted in few cases positive on CSF testing (1 WNV and 5 SLE's)
- CSF testing complete in 48 hrs
- PRNT testing complete in 2-3 weeks
- Identification of human cases was weeks delayed, and therefore not useful for early warning of viral activity

# Blood Donor Screening

- Experimental screening tests using PCR testing on pooled donor specimens (6-16 in each pool)
- Positive pools lead to testing of individual donations to detect reactor
- Reactor samples sent for confirmatory testing
- Process took 2-3 weeks

# Immune Response in WNV Infection



Ref: 4th National WNV Conf. 2003 [www.cdc.gov](http://www.cdc.gov)

# Blood Donor Screening (con't)

- As of Sept. 2003, blood collection agencies screened 2.5 million donations since July 2003
- Approximately 601 viremic donors had been identified, with testing pending on 209 others
- 2 cases of transfusion-related WNV in 2003 (TX, NE), compared to 23 cases from 16 donors in 2002

# Summary

- West Nile virus infection was widespread in Michigan mosquito and bird populations in 2003, with little apparent spillover to humans (19 known cases)
- Nationwide, West Nile virus activity was present in 46 states, with most cases concentrated in the western and plains states.

# WNV Surveillance Menu, 2004

- Web-based dead bird reports
- Oral swab testing of dead corvids
- Wildlife surveillance
- Equine surveillance/testing
- Blood donor screening
- Human testing at MDCH
- Mosquito surveillance-targeted
- [www.michigan.gov/westnilevirus](http://www.michigan.gov/westnilevirus)

How do we get people to use  
DEET?

# Mississippi Study

- Survey to evaluate “Fight the Bite” campaign
- People who were “very worried” about WNV were most likely to use repellent
- Older people were less likely to use repellent

# Healthstyles National Survey

- CDC sponsored survey of 4,000 people
- 75% used some type of method to avoid mosquito bites (38% used repellent)
- Only 22% indicated they **had** DEET and **used** it
- Repellent use decreases with age, lowest in 55+ age group
- Poor are less likely to have DEET on hand

# Factors that Affect Actions

- Risk Perception
- Age
- Fear and Control Issues
- Outrage
- Media
- Issues with DEET/alternatives

Age targeted messages may be necessary to reach those most at risk for severe disease, but least likely to take personal protective action.

# 2004 National Conference on West Nile Virus in the United States

Presentations are available on the CDC's  
West Nile Virus website under "News and  
Highlights"

<http://www.cdc.gov/ncidod/dvbid/westnile/index.htm>

# Emerging Diseases Website

[www.michigan.gov/emergingdiseases](http://www.michigan.gov/emergingdiseases)