West Nile Virus in Humans

Presentation to: Georgia Mosquito Control Association
Presented by: Melissa Ivey, MPH
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West Nile Virus in Humans

• FAQ
  o What is WNV?
  o How do you get WNV?
  o What are the symptoms?
  o How soon will I get sick?
  o How is WNV treated?
  o How can I prevent WNV?

• Historical data (2001-2011)

• Current data (2012)
• What is West Nile Virus (WNV)?
  o West Nile Virus is a flavivirus transmitted by mosquitoes that has been found historically in Africa, West Asia, and the Middle East.
  o The virus can infect humans, birds, mosquitoes, horses and some other mammals.
  o First identified in the United States in 1999, WNV is now established as a seasonal epidemic in North America that typically begins in the summer and continues into the fall.
West Nile Virus FAQ - 2

• How do you get WNV?
  o WNV is usually spread by infected mosquitoes.
  o Rarely, WNV may also be transmitted through
    ▪ blood transfusions
    ▪ organ transplants
    ▪ during pregnancy
    ▪ breastfeeding
  o WNV is not spread through normal person-to-person contact.
West Nile Virus FAQ - 3

- What are the symptoms of WNV?
  - Most people infected with WNV (80%) do not experience any symptoms.
  - Up to 20% of people infected with WNV will experience mild symptoms.
    - Fever
    - Headache
    - Body or muscle aches
    - Nausea/vomiting
    - Rash (rarely)
  - Less than 1% of people infected with WNV will experience serious symptoms.
    - Meningitis
    - Encephalitis
    - Altered mental status
    - Vision loss
    - Paralysis
West Nile Virus FAQ - 4

• How soon will I get sick?
  ○ People typically develop symptoms 3-14 days after a bite from an infected mosquito.

• How is WNV treated?
  ○ There is no specific treatment for WNV.
  ○ Mild illness generally improves on its own; people often do not need medical attention.
  ○ Severe illness usually results in hospitalization where people can receive supportive therapy (e.g., IV fluids).
How can I prevent WNV infection?

- Avoid mosquito bites
  - Minimize time outdoors when mosquitoes are biting (usually dusk and dawn).
  - Wear long sleeves, pants, socks, and shoes when outdoors.
  - Apply insect repellant with DEET on uncovered skin and under the ends of sleeves and pant legs.
  - Make sure your home has tight fitting screens on doors and windows.
  - Eliminate standing water around your home.
History of West Nile Virus

- 1999: first detected in United States (New York)
- 2001: first detected in Georgia when a bird tested positive for the virus
  - First human cases occurred the same year
History of West Nile Virus

Human Cases of WNV in Georgia

Human Cases of WNV in United States
History of West Nile Virus

- From 2001-2011, Georgia identified 259 cases of WNV.

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<table>
<thead>
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<tbody>
<tr>
<td>Gender</td>
<td>66% male</td>
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<td>34% female</td>
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<td>Severity</td>
<td>42% neuroinvasive</td>
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<td>58% uncomplicated fever or asymptomatic</td>
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History of West Nile Virus

- Most cases occur in summer or early fall.

Human WNV Cases in Georgia by Month, 2001-2011
West Nile Virus Surveillance 2012

- WNV cases are reported to Georgia Department of Public Health (GDPH) or local Health Districts by providers, laboratories, and blood banks.
- To be considered an acute case, individuals must have at least one positive IgM antibody result from blood/serum or cerebrospinal fluid (CSF).
  - Many individuals test positive for IgG antibodies but not IgM antibodies. These are not considered to be acute cases.
- Cases are “released” to the CDC, public, and media once investigation is completed.
  - All pending laboratory results have been received and the patient, provider, and/or family has been interviewed for clinical and exposure history.
West Nile Virus Surveillance 2012

• WNV cases are typically underreported.
  ○ Laboratory evidence must show signs of acute infection.
  ○ Physicians must order laboratory test.
  ○ Patient/case must be sick enough to visit a physician.

• Data show a higher percentage of neuroinvasive/severe cases than the actual value.

• With the current surveillance method in place around the United States, it is impossible to document ALL cases of WNV.
West Nile Virus Surveillance 2012

- As of October 16:
  - Nationally, 4,531 cases of WNV have been reported, including 183 deaths.
West Nile Virus Surveillance 2012

- As of October 16:
  - Georgia reported 58 cases of WNV, including 4 deaths.

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| **Gender** | **77% male**  
             | 23% female        |
| **Race**   | 74% white          
             | 23% black         
             | 3% other or unknown |
| **Age**    | 3% less than 20 years 
             | 12% 20-39 years   
             | 19% 40-49 years   
             | 16% 50-59 years   
             | 50% 60 years or older |
| **Severity** | **58% neuroinvasive** 
               | 42% uncomplicated fever or asymptomatic |
West Nile Surveillance 2012

- Most cases were reported during summer, as usual.

Human West Nile Virus Cases in **Georgia** by Month of Onset, 2012
West Nile Virus Surveillance 2012

- Most cases were reported during summer, as usual.

Human West Nile Virus Cases in the United States by Month of Onset, 2012
West Nile Virus Surveillance 2012

• Why are we seeing higher numbers of WNV cases in Georgia and across the United States?
  o No one really knows.
  o Mild winter?
  o Natural cyclical patterns every few years?

• Should I be concerned about the increase in cases?
  o WNV is known to exist across Georgia and the United States.
  o It has not spread to previously unaffected areas.
  o Cases are following the normal patterns of onset (summer/fall).
  o Prevention message is the same – **Reduce your risk of mosquito bites!**
Questions?

• References

• Contact Info
  Melissa Ivey, MPH
  Georgia Department of Public Health
  [mlhall1@dhr.state.ga.us](mailto:mlhall1@dhr.state.ga.us)
  404-657-2604