

West Nile Virus – Update 2008 (Answers)

1. False. 80% subclinical.
2. True. 80% subclinical, 20% WNF, and less than 1% neuroinvasive, mostly in men over age 50.
3. False. House mosquitoes – Culex pipens, Culex quinque fasciatus
4. False. They feed at sunrise and sunset.
5. False. Birds are the reservoir.
6. True. Also below normal temperatures in April and dry Julys favor culex.
7. False. Sensory loss is uncommon, although pain may occur.



STATE OF TENNESSEE
DEPARTMENT OF HEALTH
COMMUNICABLE AND ENVIRONMENTAL DISEASE SERVICES
CORDELL HULL BUILDING
425 5th AVENUE NORTH
NASHVILLE, TENNESSEE 37243

*File
West Nile
Recall
next word
month*

June 1, 2007

Dear Colleague,

In preparation for the possibility of West Nile virus human cases this summer, the Tennessee Department of Health has prepared the attached information on laboratory testing for your use. Should you have any further questions or need additional information, please contact your local or regional health department, or our office at the numbers listed below.

Sincerely,

Allen Craig, MD
State Epidemiologist
Communicable and Environmental Disease Services
Tennessee Department of Health
Telephone (615) 741-7247 (24/7)
FAX (615) 741-3857

Tennessee Guidance for West Nile Virus Testing in Humans **JUNE 2007**

Tennessee has experienced human cases of West Nile virus (WNV) since 2002 and we expect continued activity in 2007. Suspect cases can be tested for WNV by the three methods explained below.

Testing human specimens for WNV can be accomplished as follows:

1. Hospitalized patients with possible encephalitis and at least 24 hours of altered mental status may be enrolled in the Tennessee Unexplained Encephalitis Surveillance (TUES) Project at Vanderbilt University. The TUES study provides comprehensive diagnostic testing for a variety of pathogens, at no charge, including WNV during appropriate times of year. Testing for WNV is performed at the TDH State Laboratory. TUES study personnel will obtain patient consent and arrange for testing. For additional information and patient enrollment instructions, please contact the study coordinators at Vanderbilt University, (615) 322-1519 or toll-free, (877) 756-5800.
2. Commercial ELISA laboratory tests for WNV are also available. The local or regional health department should be immediately notified of all WNV positive results received from commercial laboratories and arrangements made to verify the infection.
3. Patients who are not eligible or decline enrollment in the TUES study may have their WNV testing performed at the TDH State Laboratory. The State Laboratory will test CSF/serum specimens for WNV by IgM capture ELISA from patients with neuroinvasive disease or fever. WNV IgM antibody in CSF/serum is detectable (99% of the time) upon onset of symptoms and is specific for WNV. WNV IgG antibody in serum is detectable by day 7 after onset of symptoms. We recommend including a CSF specimen whenever possible since a positive IgM in acute CSF with compatible symptoms is confirmatory for WNV infection without further testing. Serologic confirmation of WNV infection requires testing of both acute and convalescent serum specimens. Medical providers should contact their local or regional health department to report suspect clinical cases and arrange for laboratory testing.

How to Report:

Contact the communicable disease staff of your local or regional health department. All WNV infections (**WN encephalitis, meningitis, and WN fever**) are required to be reported in Tennessee.

Obtaining Specimens:

CSF- two tubes, containing at least 1cc each. Keep specimens refrigerated.

Serum- centrifuge, dispense at least 2 cc of supernatant into a sterile tube for transport. Refrigerate (do not freeze). Send acute serum and follow with convalescent serum 3-4 weeks later.

Labeling Specimens: All specimens should be labeled with the patient's name, date of birth, onset date, specimen type, date of collection and provider contact information. Appropriate laboratory slips are available at local and regional health departments.

Questions regarding these procedures may be directed to your local health department or the Tennessee Department of Health, Communicable and Environmental Disease Services Section, (615) 741-7247.

Specimen Submission: Specimens that have been approved for testing at the State Laboratory should be shipped via overnight commercial carrier on ice packs (to ensure that they remain cold) to the following address. Check with the carrier for the latest IATA shipping regulations.

Laboratory Services
Tennessee Department of Health
Attn: SEROLOGY
630 Hart Lane
Nashville, TN 27247-0801
(615) 262-6374

WNV Case Classification:

Confirmed:

Clinical encephalitis or meningitis case that is laboratory confirmed by one of the following methods:

1. Virus-specific immunoglobulin M (IgM) antibodies demonstrated in CSF by antibody-capture ELISA, or
2. Fourfold or greater change in virus-specific serum antibody titer, or
3. Isolation of virus from or demonstration of specific viral antigen or genomic sequences in tissue, blood, cerebrospinal (CSF), or other body fluid, or
4. Virus-specific IgM antibodies demonstrated in serum by antibody-capture ELISA and confirmed by demonstration of virus-specific serum immunoglobulin G (IgG) antibodies in the same or a later specimen by another serologic assay (e.g., neutralization or hemagglutination inhibition).

Probable:

1. Encephalitis or meningitis case occurring during a period when arboviral transmission is likely (Jul-Oct).
2. Supportive serology:
 - a) A single or stable (less than or equal to twofold change) but elevated titer of virus-specific serum antibodies, or
 - b) Virus-specific serum IgM antibodies detected by antibody-capture ELISA but with no available results of a confirmatory test for virus-specific serum IgG antibodies in the same or a later specimen.

**Study of Patients with Tick Bite-Associated Rash Lesions
of Unknown Etiology in the Southern United States**

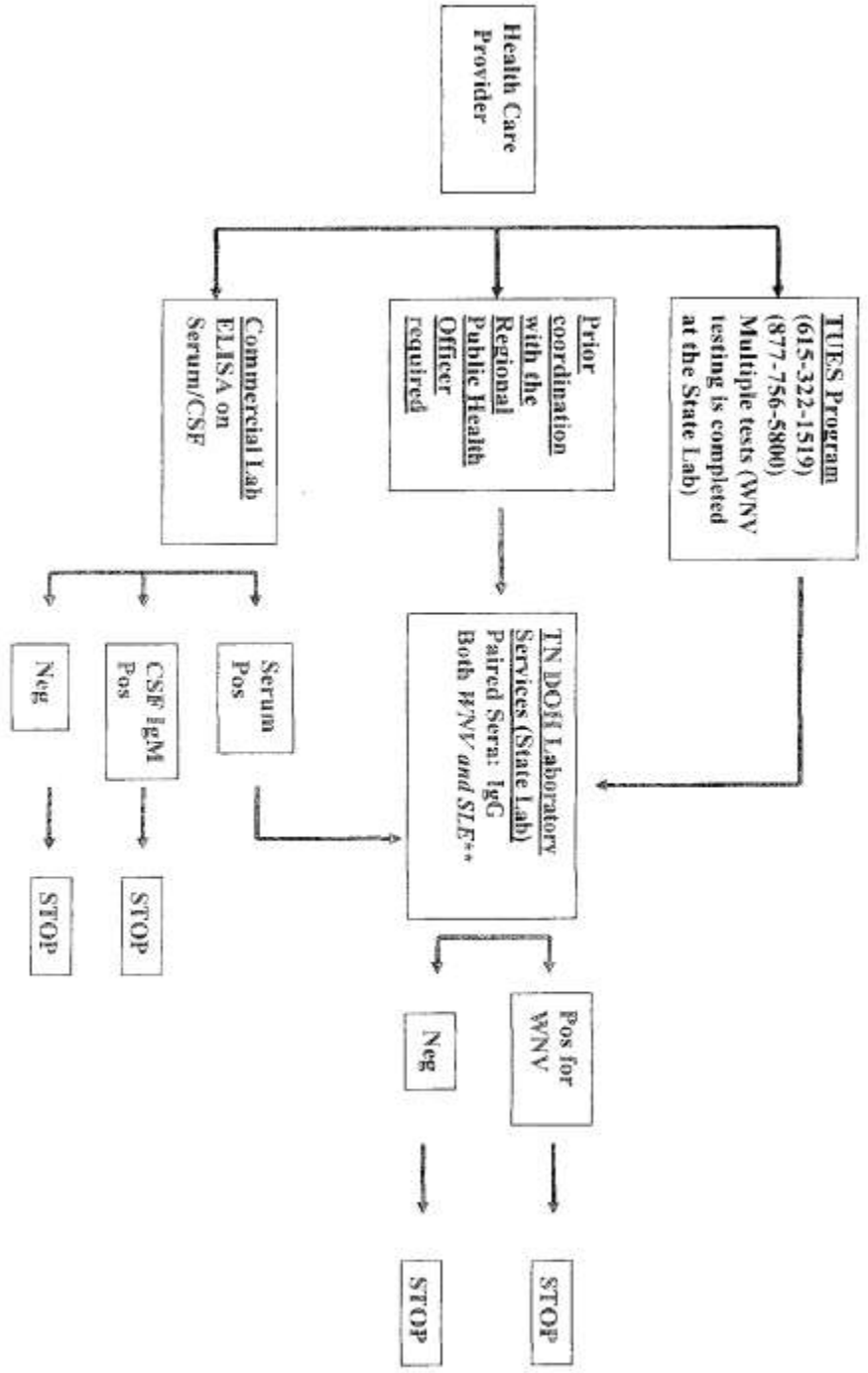
In the United States, the regions with the highest incidences of Lyme disease are the Northeast, Upper Midwest, and northern Pacific Coast. The characteristic annular, macular, erythematous skin lesion of early Lyme disease, *erythema migrans* (EM), occurs at the site of the infected tick bite, has an incubation period of 3-31 days, and typically expands over time, sometimes to a diameter of 30 cm.

Tick bite-associated EM-like lesions also occur in the southern United States, but the etiology of such lesions is unknown. Some appear to be associated with bites of the Lone Star tick, *Amblyomma americanum*, which is the most common human-biting tick in the region. Studies to date have failed to convincingly implicate *B. burgdorferi* as the cause of the rash.

To determine the etiology and epidemiology of tick-associated annular skin lesions in the South, scientists at the Centers for Disease Control and Prevention (CDC) are cooperating with the Tennessee Department of Health to collect appropriate clinical materials for this study. Please contact our Vector-Borne Diseases Branch at (615) 262-6357 to obtain biopsy kits and additional information on this important study.

Questions regarding these procedures may be directed to your local health department or the Tennessee Department of Health, Communicable and Environmental Disease Services Section, (615) 741-7247.

WNV Testing Options for Human Specimen



** WNV and SLE are antigenically closely related viruses and will cross react during serological testing. Since SLE and WNV are endemic viruses in TN, specimens must be tested for evidence of both viruses to ensure the correct diagnosis is made with certainty.