

WEST NILE VIRUS:

Testing and Reporting Guidelines for Cases of Viral Encephalitis and Meningitis, West Nile and other Arboviral Infections

(Revised June, 2012)

- Test all suspected cases of West Nile viral disease.
- The IgM enzyme immunoassay (EIA) on cerebrospinal fluid and/or serum is currently the most sensitive screening test for West Nile virus.
- The Wadsworth Center Viral Encephalitis Laboratory performs a PCR test for a panel of encephalitic viruses for currently hospitalized patients with encephalitis only.
- West Nile virus infections, encephalitis, viral meningitis, and all laboratory-diagnosed arboviral infections are reportable conditions in New York City.

WHEN TO CONSIDER WEST NILE VIRAL TESTING FOR YOUR PATIENT

During peak adult mosquito season (July through October) consider and test for West Nile virus in patients suspected to have any of the following clinical syndromes:

(A) **Viral encephalitis**, characterized by:

- Fever >38°C or 100°F and,
- CNS involvement, including altered mental status (altered level of consciousness, confusion, agitation, or lethargy) or other cortical signs (cranial nerve palsies, paresis or paralysis, or convulsions) and,
- Abnormal CSF profile suggesting a viral etiology (negative bacterial Gram stain and culture with a pleocytosis [WBC between 5 and 1500 cells/mm³] and/or elevated protein level [≥40 mg/dl]).

(B) **Viral meningitis**, characterized by:

- Fever >38°C or 100°F and,
- Headache, stiff neck and/or other meningeal signs and,
- Abnormal CSF profile suggesting viral etiology (negative bacterial Gram stain and culture with a pleocytosis [WBC of 5-1500 cells/mm³] and/or elevated protein level [≥40 mg/dl]).

(C) **Poliomyelitis-like syndromes**: acute flaccid paralysis or paresis, which may resemble Guillain-Barré syndrome, or other unexplained movement disorders such as tremor, myoclonus or Parkinson’s-like symptoms, especially if associated with atypical features, such as fever, altered mental status and/or a CSF pleocytosis. Afebrile patients with asymmetric weakness, with or without areflexia have also been reported in association with West Nile virus.

(D) **Unexplained febrile illness**, especially if accompanied by headache, fatigue, myalgias, stiff neck, or rash.

DIAGNOSIS OF WEST NILE VIRUS INFECTION

The IgM enzyme immunoassay (EIA) on CSF and/or serum is currently the most sensitive screening test for West Nile virus in humans. Because West Nile IgM may not be positive until up to 8 days following onset of illness, specimens collected less than 8 days after onset may be negative for IgM, and testing should be repeated. A positive West Nile IgG in the absence of a positive West Nile IgM is consistent with past infection with a flavivirus and does not by itself suggest acute West Nile virus infection. If acute West Nile virus infection is suspected, it is best to collect both acute and convalescent sera. Convalescent specimens should be collected 2-3 weeks after acute specimens.

Other methods, including PCR testing on CSF and immunohistochemical (IHC) staining of brain tissue can also be helpful, but are significantly less sensitive than antibody tests. These methods may be

useful in diagnosing West Nile virus infection in immunocompromised individuals.

Alternative causes of encephalitis and aseptic meningitis (e.g., herpes simplex virus (HSV), enterovirus) should be considered, and can be diagnosed via PCR testing, viral culture of CSF or other specimens, or serologic testing.

COMMERCIAL TESTING FOR WEST NILE VIRUS

Physicians are encouraged to seek West Nile virus antibody testing at commercial laboratories, or at your hospital laboratory if available. Providers may also arrange for commercial PCR testing or viral isolation for patients with aseptic meningitis or if a specific agent other than West Nile virus is suspected (e.g., HSV, varicella zoster virus, or enterovirus). Commercial laboratories offering testing for West Nile virus by EIA and for common encephalitis viruses by PCR include:

(This is not a complete list of all laboratories that perform West Nile virus serologic and PCR testing)

Associated Regional and University Pathologists (ARUP)

www.aruplab.com

1-800-522-2787

Focus Diagnostics

www.focusdx.com/focus/1-reference_laboratory/index.asp

1-800-445-4032

LabCorp

<https://www.labcorp.com/wps/portal/provider/testmenu>

1-800-788-9091

Mayo Clinic

www.mayomedicallaboratories.com

1-800-533-1710

Quest Diagnostics

www.questdiagnostics.com/hcp/topics/featured_tests.html

1-800-631-1390

ViroMed Laboratories

www.viomed.com/services/services.htm

1-800-582-0077

CSF TESTING AT WADSWORTH CENTER - PCR VIRAL ENCEPHALITIS PANEL

The Wadsworth Center Viral Encephalitis Laboratory offers free testing of CSF by the viral encephalitis PCR panel. This service is **only available for currently hospitalized patients with encephalitis**. Serum should also be submitted along with CSF. Serum will be forwarded to Wadsworth's Diagnostic Immunology laboratory for arbovirus serology. CSF specimens from patients who do not have encephalitis or are not hospitalized will not be tested. PCR testing is done using a summer panel of viruses including arboviruses, adenovirus, enterovirus, herpes simplex viruses 1 and 2, Epstein-Barr virus, cytomegalovirus, varicella zoster virus, and human herpes virus 6. Clinicians wishing only to test for HSV or enterovirus should refer specimens instead to hospital or private pathology laboratories.

CSF must be frozen and shipped overnight on at least 5 lbs (2+Kg) of dry ice, or more for multiple samples. If CSF specimens arrive thawed, testing will not be performed. It is critical that the Infectious Diseases Requisition form be filled in completely and legibly for each specimen submitted. Include laboratory PFI, name and direct phone number for the laboratory contact, treating physician, and any known travel and/or arthropod contact with location and dates.

The following instructions, forms and information for submitting specimens to the Wadsworth Center VEL can be found at <http://www.wadsworth.org/divisions/infdis/enceph/form.htm>:

1. Collection and Submission of Specimens for Viral Encephalitis Testing Instructions (June 2010)
2. Viral Encephalitis/Meningitis Case Report Form
3. Infectious Diseases Requisition Form
4. The Wadsworth Center VEL shipping address for viral PCR panel specimens

To obtain results for testing performed at the Wadsworth Center, facilities that submit directly to the Wadsworth Center must have access to the Health Provider Network (HPN). Information for obtaining HPN accounts, which can be used for numerous other functions, can be obtained by calling the Electronic Clinical Laboratory Reporting System (ECLRS) Help Desk at 1 (866) 529-1890. Positive results will also be communicated to the treating medical provider or the submitting laboratory by telephone, not by FAX.

REPORTING

All cases of encephalitis, aseptic meningitis, West Nile virus and other laboratory-diagnosed arboviral infections must be reported to the New York City DOHMH Bureau of Communicable Disease.

What is Reportable:

Providers are required to report:

- Encephalitis
- Viral meningitis
- All arboviral infections with laboratory evidence of current or recent infection.

How to Report:

Report the above conditions directly to the Bureau of Communicable Disease electronically via NYC DOHMH's Reporting Central Home Page (you must have a NYC MED account to access Reporting Central at <http://nyc.gov/health/nycmed>; instructions for setting up a NYC MED account are available at: <http://www.nyc.gov/html/doh/html/hcp/hcp-urf1.shtml>).

You may also report using the "Universal Reporting Form" September 2009 version (downloadable form at <http://www.nyc.gov/html/doh/html/hcp/hcp-urf.shtml>); fax to the Bureau of Communicable Disease at 347-396-2632. You may also call in reports directly to the Bureau of Communicable Disease by phone at 347-396-2600.

FATAL ENCEPHALITIS CASES

Cases of fatal encephalitis whose etiology is unknown, but suspected to be due to an arboviral infection should be reported to the Bureau of Communicable Disease. If an autopsy is conducted, tissue samples, including brain, brainstem, and spinal cord can be submitted to the NYSDOH and the Centers for Disease Control and Prevention (CDC) for viral testing.

QUESTIONS?

During regular business hours, contact the:

- NYC DOHMH Bureau of Communicable Disease at 347-396-2600,
- NYSDOH Viral Encephalitis Laboratory at 518-474-4177 for questions about the PCR panel, or
- NYSDOH Diagnostic Immunology Laboratory at 518-474-4177 for questions about serologic testing.

To report a cluster of cases, or an individual urgent case, such as a suspected West Nile virus case due to transfusion or organ transplantation, call the:

- Bureau of Communicable Disease at 347-396-2600, during regular business hours, or
- After hours, contact the New York City Poison Control Center at 212-POISONS (212-764-7667) or 1-800-222-1222, and ask for the doctor on call.