City and County of San Francisco



Community Health Epidemiology & Disease Control 101 Grove Street, Room 408 San Francisco, CA 94102 Phone: (415) 554-2830 Fax: (415) 554-2848 www.sfdph.org

WEST NILE VIRUS (WNV) APRIL 2005 UPDATE

This update provides information about WNV recognition, testing, reporting procedures, surveillance activities, and information resources for San Francisco. This update and additional information on WNV is posted on the SFDPH website (www.sfdph.org). Click on the Main Menu link and then click on the mosquito icon to view "Physician/Lab Information for WNV Reporting and Testing".

ACTIONS REQUESTED OF ALL CLINICIANS:

- 1. Be alert for human cases of WNV. (See description of clinical illness below.)
- 2. **Report** suspect cases and positive test results from commercial and hospital labs to the **Communicable Disease Control Unit (CDCU) at (415) 554-2830**. **Fax** the WNV Case History Form to **(415) 554-2848**.
- 3. If requesting WNV testing, **obtain CDCU approval** and follow guidelines (see below) for collecting and sending clinical specimens to the **SFDPH Public Health Laboratory.**

Background Information

WNV, an arbovirus in the flavivirus family, is transmitted by a mosquito bite. Mosquitoes become infected when they feed on infected birds, the reservoir for WNV. Human-to-human transmission of WNV generally does not occur; however, human WNV infections have been associated with blood transfusions and organ transplants.

WNV was first identified in the United States in 1999 and has since been found in mosquitoes, birds, mammals or humans in every state except Alaska and Hawaii. In 2004, 2470 human cases with 88 deaths nationwide were reported to the CDC. In California in 2004, 830 human infections and 28 human fatalities were reported from 23 counties, predominantly in the southern region, and WNV-infected birds were found in all counties. In 2005, over 50 infected birds have been found in 20 California counties, including Alameda, Contra Costa, San Mateo, and Santa Clara in the Bay Area. As of April 15, 2005, no human cases have been reported in California and no cases of WNV in San Francisco birds have been detected this year, but substantial WNV activity is expected to occur statewide in the coming months.

Clinical Description

Less than 1% of WNV infections result in neuroinvasive disease (WNV NID). The central nervous system (CNS) syndromes caused by WNV are clinically similar to those caused by other infectious agents. Possible clinical manifestations of WNV NID include:

- <u>WNV encephalitis</u>: fever, headache, and altered mental status, at times complicated by seizures. *Report and pursue testing in all cases of suspected WNV encephalitis*.
- <u>WNV meningitis</u>: fever, headache, stiff neck, and pleocytosis in cerebral spinal fluid. *Report* and pursue testing in suspect cases that are18 years of age or older. In suspect cases younger than 18 years please evaluate for enteroviruses prior to reporting and pursuing WNV testing.
- <u>WNV poliomyelitis</u>: acute onset of asymmetric limb weakness or paralysis in the absence of sensory loss, sometimes preceded by pain. The paralysis can occur in the absence of fever, headache, or other symptoms commonly seen in WNV infection. Respiratory failure may occur. *Report and pursue testing in all cases of WNV poliomyelitis*.

Approximately 20% of infected people will experience:

• <u>West Nile Fever</u>: fever (T ≥ 38°C), commonly associated with headache, muscle pain or weakness, and fatigue. Other symptoms include rash, neck or joint pain, vomiting, and lymph node swelling. *Report cases of febrile illness compatible with West Nile Fever lasting* ≥ 7 *days and seen by a health care provider. Testing for West Nile Fever will be recommended on a case-by-case basis in consultation with the CDCU.*

Human Case Reporting

Please help us to monitor SF WNV activity. **Report suspect cases and positive WNV test results from commercial and hospital labs to the CDCU (554-2830).** Use the WNV Case History Form provided in this update to report cases and/or request testing for WNV. WNV is expected to become a legally reportable disease in California in 2005. Your reports help us to assess the burden of illness and to target mosquito control and public education activities.

Human Diagnostic Testing

Testing for WNV infection is based on clinical suspicion and risk for exposure such as residence, travel, or outdoor activity in an area with WNV activity. Paired acute and convalescent serum samples should be collected whenever WNV is suspected. Although a single acute serum may provide evidence of recent WNV infection, a negative acute serum may not rule out infection if collected too early to demonstrate antibody response. Thus, if WNV is highly suspected, request a second serum sample to be collected 3 to 5 days after the first acute serum sample.

Tests	Results	Interpretation
IgM	negative	Antibody not detected
IgG	negative	
IgM	negative	Infection with a flavivirus at undetermined time
IgG	positive	
IgM	positive	Possible evidence of recent or current infection;
IgG	negative	further confirmatory testing necessary**
IgM	positive	Evidence of recent or current infection
IgG	positive	
IgM	indeterminate	Inconclusive
IgG	negative	***request convalescent serum

Interpretation of West Nile Virus antibody test results*

* Due to heterotypic antibody responses and/or cross-reactions, serologic results should be interpreted on the basis of clinical and epidemiological information

** False positive IgM results may occur

*** Paired acute and convalescent serum samples may demonstrate seroconversion

The SFDPH Public Health Lab will test serum for antibodies against WNV free of charge and forward specimens to the state Viral and Rickettsial Diseases Lab for confirmatory testing. If CSF sample is available, it will also be forwarded for testing at the state laboratory. The CDCU must approve requests for WNV testing and receive a completed Case History Form. See the following "WNV Lab Testing Guidelines" for details regarding specimen collection and transport. Some commercial laboratories offer testing for WNV but positive tests should be considered preliminary until confirmed by the Public Health Lab system.

Treatment

Treatment is supportive and includes hospitalization, intravenous fluids, and respiratory support. Potential therapies being studied include interferon- α , high-titer anti-WNV immunoglobulin (IG), and 3rd generation anti-sense (viral replication inhibitor). These agents have shown some promise in animal models, human case reports, or unblinded trials; randomized, double-blinded, placebo-controlled trials are currently underway in the U.S. Information on treatment trials is available at http://westnile.ca.gov/clinician.htm.

Animal Surveillance

Animal surveillance for WNV in California includes testing of mosquitoes, sentinel chickens, dead birds and horses with encephalitis. To report a dead bird, please call **1-877-WNV-BIRD**.

Prevention

Currently no human vaccine is available, although several are in trials. WNV prevention relies upon controlling mosquito sources and educating the public to avoid exposure to infective mosquitoes:

- Drain standing water; as little as a tablespoon of water can support mosquito breeding.
- Install or repair screens on doors and windows.
- Avoid outdoor activity when mosquitoes are most active (dawn and dusk).
- Wear protective clothing with long pants and long sleeves.
- Apply a repellent containing permethrin or DEET. For guidance on use of DEET on children refer to the CDC website below.
- Report significant mosquito activity or standing water in San Francisco to the SFDPH Mosquito Control program at (415) 252-3806.

Informational Links

SFDPH: <u>www.sfdph.org/ehs/hn/WestNile/WestNilePrevention.htm</u> California State: WNV website: <u>www.westnile.ca.gov</u>; WNV Hotline: 1-877-WNV-BIRD. CDC: <u>www.cdc.gov/ncidod/dvbid/westnile/index.htm</u>. USGS (US Geological Survey) for maps of WNV activity: <u>www.nwhc.usgs.gov/research/west_nile/west_nile.html</u>



City and County of San Francisco Public Health Laboratory

West Nile Virus Laboratory Testing Guidelines

The San Francisco Public Health Laboratory <u>must</u> be notified prior to submission of specimens. Tel: 415-554-2800/ Fax: 415-431-0651

WNV testing is recommended on individuals with the following:

- A. Encephalitis
- B. Aseptic Meningitis (individuals > 18 years of age)
- C. Aseptic Meningitis (individuals < 18 years of age):

 After workup for enteroviruses (e.g. CSF PCR, throat or stool isolation)
- D. Acute Flaccid Paralysis/Atypical Guillain-Barré Syndrome/Transverse Myelitis
- E. Febrile illness:
 - Illness compatible with West Nile fever and lasting ≥ 7 days
 - Must be seen by a health care provider.

Instructions For Sending Specimens

<u>Prior to sending specimens a completed West Nile Case History must be faxed to the</u> <u>Communicable Disease Control Unit (CDCU) at 554-2848 and approval for testing obtained</u> <u>from the CDCU at 554-2830.</u>

- Acute Serum (Serum is the best specimen): ≥ 2cc serum or a full (8.0 cc) red top tube collected ≤ 7 days after onset. Specimen may be stored at 2 8°C for up to five days.
- Cerebral Spinal Fluid (If lumbar puncture is performed): 1-2cc CSF. Store frozen.
- A **2**nd **serum** (If WNV is highly suspected): ≥ 2 cc serum or a full (8.0 cc) red top tube collected 3-5 days after the acute serum.
- Each specimen should be labeled with date of collection, specimen type, and patient name
- For hospital-based patients, send specimens to the hospital clinical laboratory.
- For non-hospital-based patients, send specimens with a completed San Francisco Public Health Laboratory Form (<u>www.dph.sf.ca.us/HealthInfo/WestNileVirus/SF_LABFORM4.pdf</u>) to:

San Francisco Public Health Laboratory 101 Grove Street, Room 412 San Francisco, CA 94102

 Specimens should be sent on <u>cold pack</u> using an overnight courier. Refrigerate/freeze specimens overnight/weekend & send on the following morning or Monday if it can't be delivered within 24 hours and before 4 PM.

For Questions or to Obtain Forms Call: 415-554-2800



Communicable Disease Control Unit, San Francisco Department of Public Health

2005 West Nile Case History Form Case history form is required for specimen testing. See West Nile Virus Laboratory Testing Guidelines for clinical criteria for testing at the public health laboratory

Investigator #	Date of Report to Sat	n Francisco Department	of Public Health://			
Patient Information:						
Last name	First name	Middle Name	DOB/ Age:			
			State:Zip Code			
	Work :					
	o Unk Ethnicity: o Hispanio		Job/Type of Work:			
	o Native American o Asian/Pacifi	-				
			_			
Physician Information						
lame:	Facility:		Telephone:			
'ager:	Cell: Fa					
Symptom Onset:/	/ /		Exposures within 4 wks of onset(specify location, da Mosquito bites/exposure: o Yes o No o Unk			
	o Outpatient/Not admitted	wosquito bites/exp	osule. o res o no o ul			
	Discharge date://	Outdoor activity (hi	king, gardening, etc.) o Yes o No o Ur			
	e of death/ o Unk					
		Received blood tra	nsfusion or organ transplant: o Yes o			
n ICU	anytime during current illness: o Yes o No o Unk	If yes, Date:	Туре:			
		Exact location:	Exact location:			
ever <u>></u> 38°C (100.4°F)						
	# days fever		vks of onset (specify location, dates			
leadache	o Yes o No o Unk	Within California (o	ut of SF) o Yes o No o Ur			
ash tiff neck	oYes oNo oUnk oYes oNo oUnk	Within the United S	states? o Yes o No o Ur			
luscle Weakness	o Yes o No o Unk					
Itered Consciousness	o Yes o No o Unk	Outside of the US?	o Yes o No o Ur			
Seizures	o Yes o No o Unk	Ever traveled outsid	de the US? o Yes o No o Ur			
Clinical Syndrome:						
Incephalitis	oYes oNo oUnk	Other pertinent in				
Aseptic Meningitis	oYes oNo oUnk	Immunocompromis	ed patient: o Yes o No o Ur			
Flaccid Paralysis	o Yes o No o Unk	Yellow fever vaccin	nation: o Yes o No o Ur			
Suspect West Nile Fever	o Yes o No o Unk	Date:				
Asymptomatic	o Yes o No o Unk	Military service:	o Yes o No o Ur			
Other (specify)		Dates: Current pregnancy	o Yes o No o Ur			
CSF Results	CBC Results	Week of gestation:				
Date:// RBC:	_ Date:// WBC:	Breast feeding?	o Yes o No o Ur			
WBC:	%Diff:	Donated blood with	in 4 wks of onset: o Yes o No o Ur			
%Diff:	HCT:	If yes, Date:	Exact location:			
Protein: Glucose:	Plt:	Donated organ with	nin 4 wks of onset: o Yes o No o Ur			
	CT, LFTs, etc.):	If yes, Date:	Exact location:			
other lab results (WRI/C	, I, LFTS, etc.):	If infant, breast-fed	? oYes oNo oUr			
		Significant Past H	listory (medical, social, family) and o			
ast medical history:		-	istory (medical, social, family) and of			
lypertension:	o Yes o No o Unk					
Diabetes Type	o Yes o No o Unk					
Tor	eport by phone or for question	ns regarding testing or s	pecimen submission.			
call the CD Co	ontrol Unit, at 415-554-2830 (24	4 hours/7 days a week).	Fax this form to (415) 554-2848.			
-			reet, Room 412, SF, CA 94102			
or CDCU Use ONLY: 1	Meets WNV criteria? o Yes o No	2. Specimen submitted? oY	\prime es o No 3. If yes, date submitted?/_			

SAN FRANCISCO DEP MICROBIOLOGY LABO 101 GROVE STREET, I SAN FRANCISCO, CA SALLY LISKA, Dr. P.H.	DRATORY ROOM 419 94102		For Laboratory Use OnlyLaboratory NumberDate/Time Received			
Tel:(415) 554-2800 Fax						
PLE/	ASE PRINT CLEAR	LY / ATTACH PRE-	PRINTED LABEL			
Patient's Name: Last,	Firet	_Gender:DOB:	OB:Race/Ethnicity:			
			Zip Code:			
Submitted By: (Clinic)	Requesting Clinician:					
	Medi-Cal/HAP #:		S-Code #:			
Reason For Testing: Pregnant	Treated Case	Immunity Status	Contact	Othe <u>r:</u>		
Bill To: Submitter	Medi-Cal	Family Pla	anning	Private Pay		
СНЕ	ECK BOTH TEST A	ND SOURCE WHER	RE REQUESTED			
SPECIMEN SOURCE	Date Specimen Taken:					
Blood Urine	Rectal Th	nroat	Rash/Lesion	Culture		
Serum Cervix	Feces Sp	outum	CSF	Slide		
Plasma Urethral	Genital Na	asopharyngeal	Oral Fluid	Other:		
BACTERIOLOGY	MOLECULAR D	DIAGNOSTICS	SEROLOGY			
N. gonorrhoeae Screen	Chlamydia		VDRL	TP-PA		
Enteric Screen	Gonorrhea		Measles IgG	West Nile Virus		
Special Bacteriology Culture			Rubella IgG	Hepatitis C Antibody		
Clearance for:	PARASITOLOGY		Herpes Simplex-2			
Other:	Ova and Parasites		Other:			
	Clearance for					
	Blood Smear					
MYCOBACTERIA	Cryptosporidia					
Acid Fast Smear	Cyclospora		HIV VIRAL LOAD (bDNA,			
Specimen for Isolation	Other:		Time Collected:			
Culture for Identification						
TB Susceptibility	VIROLOGY					
Direct Amplification Test	Herpes Culture					
QuantiFeron	Other:					
Commonte						
Comment:						

*Travel History Required: