

**Arizona Department of Agriculture  
Office of the State Veterinarian  
West Nile Virus (WNV) – April 2010**

***Suspected cases of any type of viral encephalitis in horses are reportable to the State Veterinarian (602-542-4293 or fax 542-4290) within four (4) hours of your suspicion.*** Mosquito season is here for southern Arizona and soon will be here for northern Arizona. If you haven't already done so, please begin recommending vaccination of your clients' horses for both Western Equine Encephalomyelitis (WEE) and WNV. In addition, please consider WNV and other arboviral encephalitides in your differentials of equine neurological diseases.

The Arizona Department of Health Services (ADHS) and the Arizona Veterinary Diagnostic Laboratory (AzVDL) coordinate surveillance for WNV in Arizona. Due to a WNV grant from the Centers for Disease Control & Prevention and a contract between ADHS and AzVDL, **there is no charge at the AzVDL for testing of horses for WNV.** Surveillance includes testing of human and equine specimens, mosquitoes, dead birds, sentinel chicken bloods, and occasionally other animal species such as camelids and tree squirrels. In response to WNV positive horses in areas with previously no known recent WNV activity for the season, county environmental health officials may respond with increasing surveillance in the area (e.g. mosquito trapping) and possibly mosquito abatement steps (alert public to reduce backyard sources of mosquito breeding, reduction of standing water, larvaciding, and when indicated – pesticide application for adult mosquito control).

**If arboviral testing is indicated in any of your equine patients, you will be instructed to send a serum sample directly to the AzVDL.** Call State Veterinarian's Office (602-542-4293) for an *Equine CNS Case Tracking Form*. If rabies is suspected, the serum sample may be included with the head when it is submitted to the AzVDL. If submission is made on Thursday or Friday, special coordination may need to be made with regards to rabies testing. At this time, there is no charge for ELISA blood testing or PCR testing of tissues. For detailed instructions on equine sample submission, see the accompanying instructions – "Protocol for Submission of Laboratory Specimens for Equine Neurological Disease Diagnosis and Surveillance–May 2008", or ask for a copy from the State Veterinarian's Office.

**Since no vaccination is 100% effective, please consider WNV as a differential diagnosis even if the horse is currently vaccinated.** Horses currently vaccinated for WNV may still become clinically ill due to WNV infection, but are less likely to develop severe illness or death due to WNV. The case definition for WNV in horses is as follows:

1. compatible clinical signs and positive IgM-capture ELISA at 1:400; or
2. compatible clinical signs and the demonstration of WNV DNA through either Polymerase Chain Reaction (PCR) testing of tissue samples; or immunohistochemistry testing of tissues

Vaccination of equines does NOT interfere with the results of IgM-capture ELISA; antibodies circulating in equines from WNV vaccination will not create a false positive on IgM-capture ELISA at a titration of 1:400. This is the method used at the Arizona Veterinary Diagnostic Laboratory (AzVDL). However, vaccination does interfere with serology measuring virus neutralizing antibodies, which is a method available at the National Veterinary Services Laboratory (NVSL). Please keep the latter in mind if ordering WNV serology through a commercial veterinary diagnostic laboratory, which usually forwards specimens onto the NVSL. NVSL offers WNV serology via both methods of IgM-capture ELISA and measurement of virus neutralizing antibodies.

From 2004 – 2007, 184 horses in Arizona (of 713 tested) fulfilled the case definition for WNV infection. Of these 184 WNV positive horses, the vaccination status was unknown at Arizona Department of Health Services (ADHS) for 155 horses, but known for 28 horses. For the 28 WNV positive horses for which vaccination status was known, 6 were vaccinated for WNV in the previous year, while 22 horses had never been vaccinated for WNV or were vaccinated more than one year prior to onset of symptoms. Of the 6 WNV positive horses that were vaccinated at least one year prior to onset of clinical symptoms, history of vaccination was as follows:

- One was WNV vaccinated 7 days prior to onset
- One was WNV vaccinated 11 days prior to onset
- One was WNV vaccinated 3 weeks prior to onset
- 2 horses were WNV vaccinated approximately 3 months prior to onset
- One was WNV vaccinated in November with onset the following July.

The symptoms of WNV in horses may include both central and peripheral nervous system signs. The most common signs of WNV infection in horses have been ataxia, weakness of limbs, recumbency, muscle fasciculation, and death. Fever has been detected in less than one-fourth of all confirmed cases.

If you have any questions, please call the Office of the State Veterinarian at (602) 542-4293 or the State Public Health Veterinarian at (602) 364-4562. For further information about WNV, check out the following websites:

- <<http://www.azdhs.gov/phs/oids/westnile/index.htm>>
- < <http://www.aphis.usda.gov/vs/naahss/equine/wnv>>
- <<http://www.cdc.gov/ncidod/dvbid/westnile/index.htm>>
- <[http://www.avma.org/communications/brochures/wnv/wnv\\_brochure.asp](http://www.avma.org/communications/brochures/wnv/wnv_brochure.asp)>

**Table I: Monthly Arizona WNV Equine Cases in Arizona, 2003-2008:**

Month	Number of WNV+ Horses					
	2008	2007	2006	2005	2004	2003
January	0	0	0	0	0	0
February	0	0	0	0	0	0
March	0	0	0	0	0	0
April	0	1	0	1	1	0
May	0	0	0	0	7	0
June	0	0	0	2	28	0
July	0	2	0	7	16	0
August	0	3	2	8	26	10
September	1	8	2	14	18	38
October	1	2	8	8	8	52
November	0	0	1	3	0	13
December	0	0	0	0	0	0
Unknown	0	3	0	0	3	24
<b>Total for Year</b>	<b>2</b>	<b>19</b>	<b>13</b>	<b>43</b>	<b>109</b>	<b>137</b>

## Equine Central Nervous System Case Tracking Form

**Veterinarians: Report suspected cases within 4 hours & fax to State Vet's office (602) 542-4290**  
 (No fax machine? Send with samples to Arizona Veterinary Diagnostic Laboratory)  
**Please complete at least the bolded & underlined boxes; it is crucial information for WNV surveillance**

<b>Horse Name</b>		<b>Date Form Completed:</b>		<b>Completed by:</b>																									
<b>Owner Name (Last) (First)</b>		<b>Horse's Age</b>	<b>Gender</b> <input type="checkbox"/> Mare <input type="checkbox"/> Gelding <input type="checkbox"/> Stallion	<b>Breed</b> <input type="checkbox"/> (1) Quarter Horse <input type="checkbox"/> (2) Thoroughbred <input type="checkbox"/> (3) Arabian <input type="checkbox"/> (4) Draft <input type="checkbox"/> (5) Pony <input type="checkbox"/> (6) Miniature <input type="checkbox"/> (7) Donkey <input type="checkbox"/> (8) Mule <input type="checkbox"/> (9) Other _____	<b>Outcome</b> <input type="checkbox"/> Euthanized <input type="checkbox"/> Died <input type="checkbox"/> Survived <input type="checkbox"/> Alive @ time of collection but Unknown outcome																								
<b>Street Address (where horse resides)</b>		<b>Owner Telephone #</b> ( )																											
<b>Closest cross streets</b>		<b>County or Tribal Residence</b>		<b>Pregnant</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown																									
<b>City</b>	<b>State</b> <b>AZ</b>	<b>Zip code</b>		<b>GPS Coordinates</b>																									
<b>Diagnosis or suspected reportable condition</b>																													
<b>Date of onset</b>		<input type="checkbox"/> Arizona VDLab <input type="checkbox"/> New Mexico VDLab <input type="checkbox"/> Other lab _____																											
<b>Accession no.</b> (if known):																													
<b>Attending Veterinarian</b>	<b>Veterinary Clinic Name</b>	<b>Telephone #</b>	<b>Veterinarian's Fax #</b>																										
<b>City</b>		<b>State (please list of other than AZ) / Zipcode</b> <b>AZ</b>																											
<b>Risk Factor Assessment:</b>		<b>Clinical Signs:</b>		<b>For Use by State Veterinarian Office, Arizona Dept. of Health Services, or county health department</b>																									
In-state travel? <input type="checkbox"/> Yes <input type="checkbox"/> No Date _____ / _____ / _____ Location _____		<input type="checkbox"/> Weakness <input type="checkbox"/> Ataxia <input type="checkbox"/> Abnormal mentation <input type="checkbox"/> Fever Max temp _____ <input type="checkbox"/> Fasciculation <input type="checkbox"/> Anorexia <input type="checkbox"/> Cranial Nerve Deficits <input type="checkbox"/> Flaccid paralysis <input type="checkbox"/> Teeth Grinding <input type="checkbox"/> Unable to rise <input type="checkbox"/> Flaccid paralysis <input type="checkbox"/> Other – <i>specify</i> _____		<b>Laboratory Results:</b> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 50%; text-align: center;"> <b>Rabies</b>                      Positive / Negative                      (circle one)                 </td> <td style="border: 1px solid black; width: 50%; text-align: center;"> <b>WNV</b>                      IgM ELISA                      (mark below)                 </td> </tr> <tr> <td style="border: 1px solid black; text-align: center;"> <b>IHC for WNV</b> </td> <td style="border: 1px solid black; text-align: center;"> <b>PCR for WNV</b> </td> </tr> </table>		<b>Rabies</b> Positive / Negative (circle one)	<b>WNV</b> IgM ELISA (mark below)	<b>IHC for WNV</b>	<b>PCR for WNV</b>																				
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<b>Vaccination status:</b>				<input type="checkbox"/> Confirmed case <input type="checkbox"/> Probable case <input type="checkbox"/> Suspect case <input type="checkbox"/> Ruled out/Non-case																									
WNV <input type="checkbox"/> Yes <input type="checkbox"/> No   Date _____ / _____ / _____ WEE <input type="checkbox"/> Yes <input type="checkbox"/> No   Date _____ / _____ / _____ EEE <input type="checkbox"/> Yes <input type="checkbox"/> No   Date _____ / _____ / _____ VEE <input type="checkbox"/> Yes <input type="checkbox"/> No   Date _____ / _____ / _____ Rabies <input type="checkbox"/> Yes <input type="checkbox"/> No   Date _____ / _____ / _____				<b>Entered into:</b> <input type="checkbox"/> ADHS Database <input type="checkbox"/> SVO Database																									
Other horses on farm showing signs of WNV? <input type="checkbox"/> Yes <input type="checkbox"/> No   # of horses ill _____				<input type="checkbox"/> reported to county health department <input type="checkbox"/> reported to state health department <input type="checkbox"/> reported to Office of State Veterinarian																									
<b>Specimen Type Submitted to Lab and Date (s) Collected:</b>			<b>Serology Results</b>																										
<input type="checkbox"/> Serum (Acute) _____ / _____ / _____ <input type="checkbox"/> Serum (Convalescent) _____ / _____ / _____ <input type="checkbox"/> CSF _____ / _____ / _____ <input type="checkbox"/> Brain / CNS Tissue _____ / _____ / _____ <input type="checkbox"/> Other _____ / _____ / _____			<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 20%; text-align: center;">Acute</th> <th style="width: 20%; text-align: center;">Convalescent</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> East Equine Encephalitis</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> </tr> <tr> <td><input type="checkbox"/> West Equine Encephalitis</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> </tr> <tr> <td><input type="checkbox"/> St. Louis Encephalitis</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> </tr> <tr> <td><input type="checkbox"/> Venezuelan Encephalitis</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> </tr> <tr> <td><input type="checkbox"/> West Nile Virus</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> </tr> <tr> <td><input type="checkbox"/> Equine Herpes Virus</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> </tr> <tr> <td><input type="checkbox"/> Other _____</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> </tr> </tbody> </table>				Acute	Convalescent	<input type="checkbox"/> East Equine Encephalitis	_____	_____	<input type="checkbox"/> West Equine Encephalitis	_____	_____	<input type="checkbox"/> St. Louis Encephalitis	_____	_____	<input type="checkbox"/> Venezuelan Encephalitis	_____	_____	<input type="checkbox"/> West Nile Virus	_____	_____	<input type="checkbox"/> Equine Herpes Virus	_____	_____	<input type="checkbox"/> Other _____	_____	_____
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