Arizona West Nile virus Surveillance

Introduction
The West Nile virus & St. Louis encephalitis surveillance season begins in April in Arizona. The Arizona State Health Lab, University of Arizona Veterinary Diagnostic Lab, and the Arizona Department of Health Services-Vector-borne & Zoonotic Disease Program are prepared for seasonal testing of any environmental samples collected, such as mosquito pools. Human specimens (blood/CSF) are tested year-round.

Modes of Surveillance
- Mosquito trapping & testing
- Equine
- Other animal testing (e.g. squirrels, llamas, etc. with unexplained neurologic illness or death)
- Human case surveillance

Mosquito Surveillance
This program conducts surveillance for at least two mosquito-borne encephalitis viruses: St. Louis encephalitis & West Nile virus. The goal of this surveillance program is to detect and monitor arbovirus activity throughout the state so as to identify areas of increased risk and to help guide risk reduction efforts.

Protocol:
- Supplies for Mosquito Trapping: CO2 trap(s), screw cap vials, shipping boxes. We will provide this equipment (as long as supplies last). If possible, please collect mosquitoes in your area at least once per month from April through October. We will identify mosquito species in all samples received. We will prioritize lab testing for the Culex species. However, species within other genera will be selectively tested as well.
  - Bait the trap with at least 2 pounds of dry ice to last all night, and hang the trap close to sun down. Hang CO2 trap(s) with the bait can and/or motorized fan at shoulder height. Hang it from a tree limb or other structure in a place that is likely to have some shade from the east side so that the samples are not blasted by the morning sun. Also, hang it in a safe place to avoid theft or vandalism. You have the option of turning off the mini-light to be more discreet. The capture net hangs below the fan. If the night is likely to be breezy, it may be necessary to secure the net with a rubber band.
  - Harvest your catch in the morning by pinching off the capture net while the fan is still running. Keep the mosquitoes cool and shaded until you are ready to process them into vials. When you are ready to process the mosquitoes, chill them briefly on dry ice (approximately 30 - 60 seconds) to immobilize them. Then aspirate them into the plastic capsule. If the mosquitoes are beginning to move within the capsule, chill them again briefly to immobilize them. Then hold the capsule with the tube over the vial and tap the mosquitoes down the tube into the vial. Please DO NOT over-pack the vials, as this will damage the mosquitoes and makes identification difficult. Screw the cap on securely.
- Label the vial with the following information:
  - Date
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- Location (GPS coordinates if possible)
- Collector’s Name
- Seal the vial(s) inside a plastic bag so as to facilitate easier handling when removing the samples from the shipping box.

✓ Pack the vial(s) in a shipping box containing enough dry ice to keep the sample cold all the way to the Arizona Department of Health Services Vector Lab. It is important to remember that preserving mosquitoes in a cold state makes species identification easier and more accurate. If samples become warm or soggy while in transit to the Arizona Department of Health Services Vector Lab, the mosquitoes will deteriorate often to the point where species identification is not possible.

✓ Complete & include a Mosquito submission form inside the package.
✓ Pack the samples in enough dry ice to last 2 days.
✓ Do not ship mosquitoes on Thursday or Friday
✓ Ship via Overnight Delivery
✓ Notify Arizona Department of Health Services of the shipment’s tracking number at vbzd@azdhs.gov or (602) 364-4562
✓ Ship samples to:
  Arizona Department of Health Services
  Infectious Disease
  Vector-Borne Diseases Program
  150 N 18th Ave. Ste. 140
  Phoenix, AZ  85007-3237

✓ Other Animal University of Arizona Veterinary Diagnostics Lab-Submission Form: http://microvet.arizona.edu/AzVDL/Submission%20Form.pdf

✓ Dead Bird Reporting - Listing of County Phone Numbers
  • Environmental Health Agencies- Dead birds, green pools, and mosquito complaints
  
  • The Arizona Department of Health Services currently cannot test birds for influenza (bird flu). The USDA Wildlife Services and Arizona Game & Fish Department are doing some avian influenza surveillance in wetland birds (ducks, geese, shorebirds) and raptors (hawks, owls, eagles). The public can report ill or dead wetland birds or raptors found near any lake in Arizona by calling the toll-free bird monitoring hotline number at 1-877-97-AVIAN (1-877-972-8426) or by logging onto www.azgfd.gov/ai and filling out the online form. The public can report ill or dead poultry to the Arizona Department of Agriculture Livestock and Poultry Hotline at 1-888-742-5334.

See next page for agency listing
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## ENVIRONMENTAL HEALTH STATEWIDE CONTACT LIST

<table>
<thead>
<tr>
<th>County</th>
<th>Contact Information</th>
<th>Website Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apache</td>
<td>Phone: (928) 337-7640</td>
<td><a href="http://www.co.apache.az.us">http://www.co.apache.az.us</a></td>
</tr>
<tr>
<td>Cochise</td>
<td>Bisbee: (520) 432-9440, Benson: (520) 586-8208, Douglas: (520) 805-5601, Sierra Vista: (520) 803-3915, Willcox: (520) 384-7111</td>
<td><a href="http://www.co.cochise.az.us">http://www.co.cochise.az.us</a></td>
</tr>
<tr>
<td>Coconino</td>
<td>Phone: (928) 679-8750</td>
<td><a href="http://www.coconino.az.gov">http://www.coconino.az.gov</a></td>
</tr>
<tr>
<td>Gila</td>
<td>Globe: (928) 425-5882, Payson: (928) 474-1210</td>
<td><a href="http://www.co.gila.az.us">http://www.co.gila.az.us</a></td>
</tr>
<tr>
<td>Greenlee</td>
<td>Phone: (928) 865-2601</td>
<td><a href="http://www.co.greenlee.az.us">http://www.co.greenlee.az.us</a></td>
</tr>
<tr>
<td>La Paz</td>
<td>Phone: (928) 669-1100</td>
<td><a href="http://www.co.la-paz.az.us">http://www.co.la-paz.az.us</a></td>
</tr>
<tr>
<td>Maricopa</td>
<td>Phone: (602) 506-0700</td>
<td><a href="http://www.maricopa.gov">http://www.maricopa.gov</a></td>
</tr>
<tr>
<td>Mohave</td>
<td>Phone: (928) 757-0901</td>
<td><a href="http://www.co.mohave.az.us">http://www.co.mohave.az.us</a></td>
</tr>
<tr>
<td>Navajo County</td>
<td>Phone: (928) 524-4750</td>
<td><a href="http://www.navajocountyaz.gov">http://www.navajocountyaz.gov</a></td>
</tr>
<tr>
<td>Pima</td>
<td>Phone: (520) 243-7999, (866) 939-7462</td>
<td><a href="http://www.pimahealth.org">http://www.pimahealth.org</a></td>
</tr>
<tr>
<td>Pinal</td>
<td>Phone: (520) 866-6200, (866) 287-0209 x6200</td>
<td><a href="http://www.pinalcountyaz.gov">http://www.pinalcountyaz.gov</a></td>
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<tr>
<td>Santa Cruz</td>
<td>Phone: (520) 374-7900</td>
<td><a href="http://www.co.santa-cruz.az.us">http://www.co.santa-cruz.az.us</a></td>
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<tr>
<td></td>
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<td>Bonnie Greenwald: <a href="mailto:bgreenwald@co.santa-cruz.az.us">bgreenwald@co.santa-cruz.az.us</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ricardo Maldonado: <a href="mailto:rmaldonado@co.santa-cruz.az.us">rmaldonado@co.santa-cruz.az.us</a></td>
</tr>
<tr>
<td>Yavapai</td>
<td>Prescott: (928) 771-3149, Cottonwood: (928) 649-5078</td>
<td><a href="http://www.co.yavapai.az.us">http://www.co.yavapai.az.us</a></td>
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<tr>
<td>Yuma</td>
<td>Phone: (928) 317-4584 x1632 x1633</td>
<td><a href="http://www.co.yuma.az.us">http://www.co.yuma.az.us</a></td>
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Equine Surveillance

Suspected and diagnosed cases of equine viral encephalitis are (immediately) reportable to the State Veterinarian’s Office (602) 542-4293 or fax (602) 542-4290. Complete the “Equine Central Nervous System Case Tracking Form” and fax to the Office of the State Veterinarian. If you do NOT have a fax machine, you may include the Equine CNS Case Tracking Form with the specimen submission form that accompanies the samples to the Arizona Veterinary Diagnostic Lab.

ALL TESTING NEEDS TO BE PRE-APPROVED BEFORE SUBMISSION

✓ Protocol

• Blood for arbovirus testing: Red top tubes of whole blood, or separated serum (no preservatives or anticoagulants) should be refrigerated; do not freeze. Serum is used for IgM-capture ELISA testing. Acute Sample: within 7 days of onset of symptoms. If the result is negative on first specimen, you can submit a convalescent sample 14-28 days after onset of symptoms.
• Brain for rabies and West Nile virus testing: Submission of the head intact with the first two cervical vertebrae (C1 and C2) is preferable because: 1) the brain and cervical spinal cord are better preserved (anatomically) when left in the skull during transport; 2) If West Nile virus is present, is more likely to be detected in the anterior spinal cord; and 3) brain removal in field conditions may increase the risk of exposure to rabies. If you are sending only an extracted brain, include the lower brainstem, medulla and upper spinal cord. The intact head should be chilled immediately after removal. Prepare a leak proof insulated transporting container with ice or cold packs to keep the specimen chilled while in transit. The head should be double bagged. NOTE: Rabies is on the differential diagnosis list for horses with suspected viral encephalitis. Saliva, cerebral spinal fluid and neural tissue may be infectious, so barrier precautions are advised.
• Submission instructions and lab locations: Submit head and/or serum to Arizona Veterinary Diagnostic Lab as quickly as possible with a submission form and make sure to include:
  o Name of submitting veterinarian & veterinary clinic
  o Phone number, fax number, and address of veterinarian for results
  o Name, Address, phone number of owner
  o Physical address where horse resides (Physical address of where horse lives & date of onset is needed by the county health department for West Nile virus surveillance and response purposes)
  o Name, age and breed of horse
  o Date of onset of clinical signs
  o Date of sample collection
  o Date of euthanasia or death, if applicable
  o Brief summary of neurologic illness
  o Number of other animals on farm/ranch
  o Number of affected animals on farm/ranch
• The submittal information for each specimen should be placed in a leak proof plastic bag and attached to the corresponding container. Samples should be shipped so as NOT to arrive on the weekend at the
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Arizona Veterinary Diagnostic Lab. In the event that rabies is a more likely differential diagnosis (e.g. due to origin of horse, history of previous contact with potentially rabid animal, or other), rabies may need to be quickly ruled in or out. Consult with Arizona Department of Health Services Vector-Borne & Zoonotic Disease Section staff at (602) 364-4562 to determine if the sample should be shipped to the Arizona State Health Lab or the Arizona Veterinary Diagnostic Lab.

- Laboratories
  - AZ Veterinary Diagnostic Lab: 2831 N. Freeway, Tucson 85705, Phone: (520) 621-2356
  - AZ State Health Lab: 1520 West Adams St, Phoenix, AZ 85007, Phone: (602) 542-1190

- At this time, there is no charge for rabies testing, WNV IgM capture ELISA, or immunohistochemistry (IHC) on tissue, due to funding from the Centers for Disease Control and Prevention and the Arizona Department of Health Services, which is being provided to the Arizona Veterinary Diagnostic Lab.

- A fee is charged for more extensive diagnostic testing (e.g. culture, toxicology, etc.). Call the Arizona Veterinary Diagnostic Lab for specifics.

- Equine Investigation form and submit it to pdurham@azda.gov

Other Animal Surveillance

In addition to humans and horses, West Nile virus (WNV) infection can cause illness and death in certain other mammals. WNV infection has been shown to cause illness and death in squirrels, chipmunks and some camelids (e.g. llamas and alpacas) in Arizona in recent years. The carcasses of small animals like rodents and rabbits can be sent whole to the UA Veterinary Diagnostic Laboratory in Tucson for WNV and other disease testing. Follow the same instructions and use the same form as you would to send dead birds (see Dead Bird protocols). For large animals like camleids, blood samples can be sent. Follow the same procedures and use the same form as for horses. If you have any questions about the animal submissions, please contact an Epidemiologist at the Arizona Department of Health at (602) 364-4562 or via email at vbzd@azdhs.gov.

Human Surveillance

Surveillance for West Nile virus in humans is performed year-round. Please contact a Vector-Borne & Zoonotic Disease Epidemiologist at Arizona Department of Health Services if you have any questions (602) 364-4562 or vbzd@azdhs.gov.

- Arizona Department of Health Services Investigation form
- Blood Donor Investigation form
- Pregnancy Registry form