



# DEPARTMENT OF HEALTH AND HUMAN SERVICES

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## Marin County Department of Health and Human Services Equine Rabies and Arbovirus Testing Policies and Procedures

### I. Policy

#### A. Equine Rabies and Arbovirus Testing

1. All equine samples (including serum and tissue samples) for rabies and arboviral testing will be sent to the California Animal Health and Food Safety (CAHFS) Laboratory at the University of California, Davis (UC DAVIS) [please see section II. Procedures for specific information on specimen submission].
2. Samples will not be routed through the Marin Public Health Laboratory; veterinarians will be requested to submit specimens directly to the CAHFS laboratory at UC Davis.

#### B. Management of Phone Inquiries to the Marin PHL or CD Unit from Veterinarians or Horse Owners Regarding Equine Rabies and Arbovirus Testing (please see the Equine Rabies and Arbovirus Testing Flow Chart)

1. If the horse owner should call, the owner will be advised to consult a veterinarian.
2. Once the horse has been evaluated by a veterinarian, the veterinarian will determine whether or not the horse has neurological symptoms.
  - a. If the horse has **no neurological symptoms**, the veterinarian may or may not recommend testing a serum sample for an arbovirus. If the veterinarian decides to proceed with serological arbovirus testing, he/she should submit the serum samples directly to the CAHFS laboratory at UC Davis (please see Section II. A. 1.).
  - b. If the horse **does have neurological symptoms** then there are 2 options depending on the clinical status of the horse:
    - i. If the horse is dead or is euthanized, then the horse head should be submitted directly by the veterinarian to the CAHFS laboratory at UC Davis for rabies and arbovirus testing (please see Section II. A. 2.).
    - ii. If the horse is alive and the veterinarian does not believe there is an indication for the horse to be euthanized, the veterinarian should submit serum samples directly to the CAHFS laboratory at UC Davis (please see Section II. A. 1.) for arbovirus testing. HOWEVER, should the horse subsequently die or be euthanized, the veterinarian must submit the horse head directly to the CAHFS laboratory at UC Davis for rabies and arbovirus testing (please see Section II. A. 2.). The horse head

should be submitted for rabies testing even if previous serum samples tested positive for an arbovirus because it is possible that the horse had a dual infection with rabies and an arbovirus. Since rabies is transmittable to humans and has an extremely high mortality rate, rabies must be ruled out.

**C. Collection of Data and Notifications Regarding Equine Rabies and Arbovirus (WNV) Testing for Marin County**

1. RABIES: The contact for equine rabies infections will be the Marin Public Health laboratory. Yolo Public Health Laboratory (which does the equine rabies testing for specimens submitted from Marin County to UC Davis) will report a positive rabies equine test to the Marin County Public Health Laboratory by phone and by fax. Yolo Public Health Laboratory will also notify California Animal Health and Food Safety (CAHFS) at UC Davis. CAHFS will directly notify the veterinarian about the positive equine rabies test. Once the Marin County Public Health Laboratory (MCPHL) receives the report about a positive equine test for rabies, the MCPHL should immediately notify the Public Health Officer/Deputy Public Health Officer and the Communicable Disease Public Health Nurses (CD PHN). The CD PHN should notify the veterinarian of the positive equine rabies test result, and begin an investigation to identify candidates for rabies post-exposure prophylaxis and medical follow-up.

2. WNV: The CAHFS at UC Davis will submit specimens to National Veterinary Services Laboratories (NVSL) for arboviral testing. In case of a positive WNV equine test result, the CAHFS will notify the veterinarian that submitted the equine specimens and the California Department of Food and Agriculture (CDFA). The CDFA will conduct an investigation to determine whether the positive WNV test represents an acute equine infection. The CDFA will contact the reporting veterinarian and if necessary the horse owner to make this determination. Once the CDFA decides that the positive test result represents an acute equine WNV case, the CDFA will notify the California Department of Health Services Veterinary Public Health Section (CDHS VPHS). The CDHS VPHS will notify the Marin County Public Health Officer and the Communicable Disease Public Health Nurse directly. The CDHS VPHS will directly notify the Marin/Sonoma Mosquito and Vector Control District as well.

## **II. Procedures**

### **A. Specimen collection and submission:**

1. Blood
  - Acute sample (5-10 ml) / no later than 7 days after onset
  - Convalescent sample (5-10 ml) / 14-21 days after onset

Red top tubes of whole blood or serum (no preservatives or anticoagulants) should be submitted at ambient temperature to the California Animal Health and Food Safety (CAHFS) Laboratory at the University of California, Davis (the address is at the bottom of the submission form). Do not freeze whole blood.

**NOTE:** For WNV, an acute sample only is required since the assay used detects IgM (and vaccine does not interfere). For the other encephalitis viruses, the acute sample should be submitted immediately, and a convalescent sample may be requested later to assist with the interpretation and differentiation of vaccine titers from active infection.

2. Brain

- The Marin County Public Health Laboratory (415-499-6849) and CDFA Animal Health District Office (Redding District, telephone 530-225-2140) should be contacted if rabies is suspected. Please submit the name and contact information of the reporting veterinarian, the name of the horse, the name and contact information for the horse owner, and a description of the clinical signs that make the reporting veterinarian suspect rabies.
- All equine specimens submitted to the CAHFS Laboratory at the University of California, Davis, for rabies and arboviral testing should consist of the intact equine head. Submission of the intact head is preferable because: 1) the brain is better preserved (anatomically and virus titer) when left in the skull during transport, 2) specimens will be ruined if removal is not done correctly, and 3) brain removal in field conditions may increase the risk of exposure to rabies.
- All equine specimens submitted first to the CAHFS Laboratory at the University of California, Davis, will be forwarded to: 1) the Yolo Public Health Laboratory to confirm or rule out rabies, and 2) The National Veterinary Services Laboratories (NVSL) for arboviral testing.
- **The intact head should be chilled (refrigerated, *not* frozen) immediately after removal. Submit it to CAHFS Laboratory at the University of California, Davis, as quickly as possible.** Prepare a leak-proof insulated transporting container with "cold packs" to keep the specimen at 4° C while in transit. *When it is impossible for the CAHFS Laboratory to receive the chilled intact head within 48 hours, the submission protocol should be coordinated with the CAHFS Laboratory at the University of California, Davis.*
- Before you send the horse head, please call the CAHFS laboratory at the University of California, Davis (530-752-8700), to alert them that you are submitting a specimen.

3. Other specimens for differential neurological diagnoses

- Protocol for submission of these specimens may be coordinated through the CAHFS Laboratory at the University of California, Davis.

**B. Submission forms:** Complete and include the transmittal form supplied by the CAHFS Laboratory at the University of California, Davis. See attached sample or download the form from their website: <http://cahfs.ucdavis.edu/>. The submittal form for each specimen should be placed in a leak-proof plastic bag and attached to the corresponding container.

**C. Imperative information to include on the submission forms if West Nile Virus is suspected: Submission forms:** Precision case reporting by the veterinary

practitioner is critical to mosquito control efforts that prevent WNV infection in both horses and humans. It is very important that each laboratory submission form is completed in its entirety. More specifically, it is imperative to include and communicate on the specimen submission form:

- **The location(s) of the horse during the two weeks prior to the onset of clinical disease.** (Please ensure that this information is included in addition to the “owner’s address”)
- **Detailed clinical signs.**
- **The present condition of the horse (including dead and euthanized)**
- **An accurate vaccination history.**
- **If the horse is alive at the time of the lab-submission and dies later or is euthanized, please report this immediately to the WNV hot-line phone at 800-268-7378 and to the Marin County Public Health Laboratory (415-499-6849). Please report the name and contact information for the veterinarian, the name of the horse, and the name and contact information for the horse owner. The purpose for reporting the death of the horse is that the horse head should subsequently be submitted to UC Davis for rabies and arbovirus testing if the horse previously tested negative for West Nile Virus and for rabies if the horse previously tested positive for an arbovirus. It is important to rule out rabies even if the horse tested positive for an arbovirus because it is possible that the horse had both rabies and an arbovirus. Rabies must be ruled out because it is transmissible to humans and has an extremely high mortality rate.**

**D. Shipment:** For information on sample shipping including regulations governing the transportation of infectious materials contact CAHFS at 530-752-7578.