

## Rabies (*Rhabdovirus*)



### Definition

Rabies is a fatal viral disease of mammals. Its occurrence is relatively infrequent in horses (as compared to other infectious neurologic diseases). The [Centers for Disease Control and Prevention](#) report that equids account for less than 1% of all rabies cases in the USA; the total number of equine cases has historically ranged from 42-82 annually.

### Clinical Signs

- Highly variable
- Disease is rapidly progressive with the interval from onset of clinical signs to death of approximately 5-7 days. The interval is usually shorter in unvaccinated horses.
- Insidious onset is the hallmark of equine rabies with frequently reported initial clinical signs of lameness, colic, dysuria, priapism in addition to overt signs of neurologic disease.
- Physical signs may include:
  - Fever
  - Anorexia
  - Blindness
  - Dysphagia
  - Hyperesthesia – manifest as self-mutilation
  - Muscle twitching
  - Lameness
  - Paresis and/or ataxia
  - Incontinence
  - Paralysis – ascending
  - Sudden death
- Behavioral signs:
  - Dumb form: depression/stupor
  - Furious form: mania – these horses are extremely dangerous

**NOTE: Rabies should be included as a differential in all neurologic patients.**

### Incubation Period

Typically 2-6 weeks, although longer incubation periods have been reported.

### Risk Factors

- Unvaccinated horses
- 24-hour access to pasture
- Resident in endemic area

## Transmission

Exposure occurs primarily through a bite wound from an infected animal.  
Aerosolization of nerve or central nervous system (CNS) tissues during necropsy.

## Diagnostic Sampling, Testing and Handling

Correct sampling and testing is imperative for a definitive diagnosis in rabies.

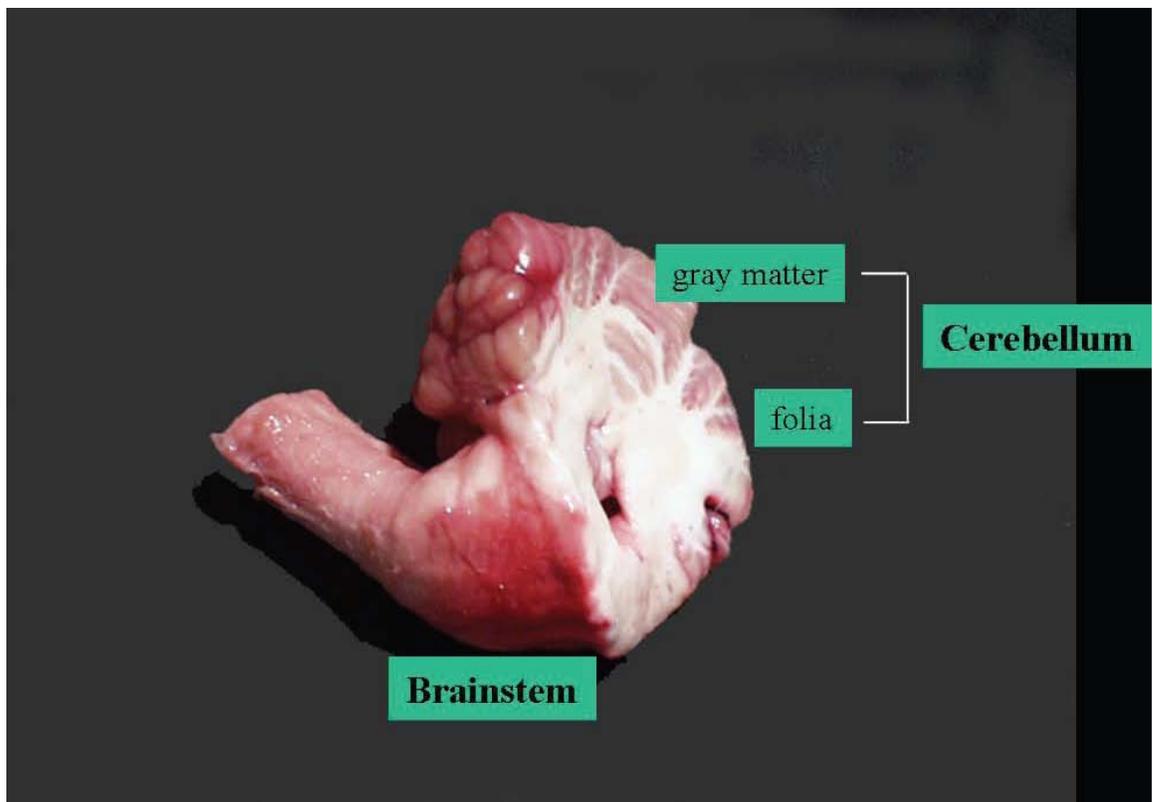
See figures 1 and 2 below for areas to test from the brain.

See links for rabies testing recommendations:

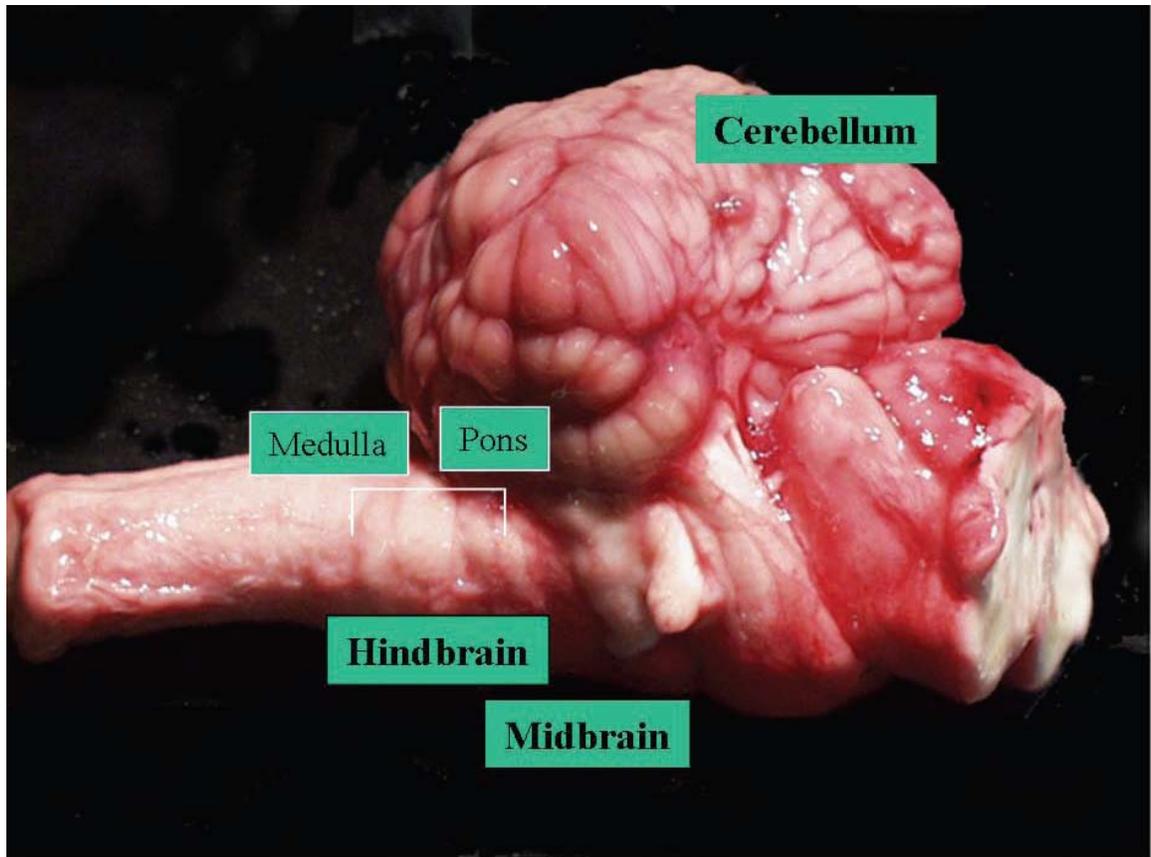
- [Rabies Laboratory Specimen Policy and Practice for New York State](#)
- [Centers for Disease Control and Prevention – Rabies Testing](#)
- Contact information for state and rabies consultation available [here](#).

Saliva and other body tissues become virus positive by the time of clinical signs, but there remains no fully reliable ante-mortem diagnostic test for rabies.

Personnel involved in the necropsy of a rabies suspect case should have had rabies prophylaxis and use appropriate barrier clothes for protection.



**Figure 1.** Surface of cut section through midbrain area showing convoluted gray matter and white foliar regions of the cerebellum, and the cerebellar connection to pons and medulla. Photo from link from CDC. [Protocol for Postmortem Diagnosis of Rabies in Animals by Direct Fluorescent Antibody Testing](#)



**Figure 2.** Lateral view of brain with cerebrum removed to show the extension of brain stem beneath the cerebellum. A rabies diagnosis should include an observation of the cut surface of a cross section of the brain stem (through the medulla, pons, or midbrain area) and the cerebellum (through each hemisphere and the vermis). For example, a cross section of the midbrain area (dashed line) would include all tissues necessary for rabies diagnosis. Photo from link from the CDC. [Protocol for Postmortem Diagnosis of Rabies in Animals by Direct Fluorescent Antibody Testing](#)

Send cross section of brain stem (through the medulla, pons, or midbrain area) and cerebellum (through EACH hemisphere and the vermis).

Many laboratories will not start ancillary testing until negative rabies results have been received. Contact the laboratory for specific policies and procedures.

### **Post-mortem**

Rabies does not present with any gross lesions. Self inflicted wounds may be found on the body.

[Procedure to remove brain tissue \(Example from New York State\)](#)

NOTE: Practitioners performing necropsies in the field are encouraged to contact a veterinary diagnostic laboratory to which they plan to submit samples for further testing such as histopathology and pathogen identification in order to be certain they collect the appropriate samples and handle the samples in a manner that will optimize making a definitive diagnosis. For some situations such as neurologic cases submission of the entire carcass to the diagnostic laboratory for post-mortem examination is recommended due to the time and labor required to perform a complete exam and collection of samples from the equine CNS.

- Do NOT freeze rabies brain tissue samples; ship refrigerated in leak proof container so appropriate sections of brain can be identified by laboratory.
- It is appropriate to fix the remaining portion of the brain for eventual histological examination.
- Note: Some veterinary diagnostic laboratories will test for rabies on necropsy only when specifically requested to do so. Be sure to request rabies testing when submitting the carcass of any neurologic case for necropsy.

### **Shedding Time of Organism Following Resolution of Clinical Signs**

N/A

### **Environmental Persistence**

Rabies virus is sensitive to drying, ultraviolet radiation, and detergent. Rabies is inactivated and removed by standard decontamination practices which include washing instruments and environment with common disinfectants including quarternary ammonium compounds. Instruments should be sterilized by autoclaving.

### **Specific Control Measures**

#### Rabies-suspect cases

- Minimize number of personnel in contact with suspect case.
- When possible, limit personnel to those having undergone pre-exposure immunoprophylaxis (vaccination).
- Gloves and protective eyewear must be worn by all in-contact personnel.
- Establish record of all individuals having handled horse beginning 48 hours prior to onset of clinical signs.
- Suspect horses should remain quarantined for 30 days.

## Prevention

Vaccination should be administered to horses annually after an initial series.

Previously vaccinated horses: Post-exposure prophylaxis should be performed promptly once exposure is suspected and the animal observed for 3 to 6 months.

Post-exposure vaccination of previously unvaccinated horses is of dubious value.

Feeding and/or housing of wild animals (as pets) are discouraged.

## **Release of Animals from Isolation**

Any horse exhibiting neurologic signs that has not been vaccinated against rabies should be considered a rabies suspect. Such horses should be handled using contact precautions, with records kept as described above. These precautions should remain in place for 30 days or until such time as an alternative diagnosis for the neurological signs are confirmed.

## **Biosecurity Issues for Receiving Animals**

N/A

## **Zoonotic Potential**

Yes. Identification of potential rabies-suspect cases is essential and should be promptly reported to public health authorities.

See [A Review of Equine Zoonotic Diseases: Risks in Veterinary Medicine](#)

*Note: This paper may only be viewed by AAEP members as it is only available within the members section of the AAEP website.*