Case Definition

Rabies

(Notifiable: new or reintroduced variants)
(Monitored: endemic variants)

October 2023

1. **Disease Information**
   - **1.1 General Disease and Pathogen Information:** Rabies is an acute, progressive encephalitis and fatal viral zoonosis caused by neurotropic virus in the genus *Lyssavirus*, family *Rhabdoviridae*. All mammals are believed to be susceptible. With some limited exceptions, rabies viruses can be found worldwide. In the United States (U.S.), multiple rabies virus variants are maintained in wild mammalian reservoir populations such as raccoons, skunks, foxes, and bats. Although the U.S. has been declared free of the canine rabies virus variant, there is always a risk of reintroduction. The virus is usually transmitted from animal to animal through bites. The incubation is generally 3 to 12 weeks, but can range from several days to months, rarely exceeding six months. Rabies is communicable when the virus is shed in saliva. There are currently no known effective rabies antiviral drugs.
   - **1.2 Clinical Signs:** Clinical signs of rabies are variable among animal species but generally include: inappetence, dysphagia, hypersalivation, cranial nerve deficits, abnormal behavior, ataxia, paralysis, altered vocalization, and seizures. Progression to death is rapid.
2. **Laboratory Criteria**
   - **2.1 Agent Isolation and Identification:** Agent identification can be performed using primary diagnostic tests such as the direct fluorescent antibody (DFA) test, the direct rapid immunohistochemistry test (dRIT), or pan-lyssavirus real time reverse-transcription polymerase chain reaction (PCR) assays on brain tissue. Sellers staining techniques are no longer recommended for diagnosis. Brain tissue, including the brain stem, is the ideal sample for testing.
   - **2.2 Agent Characterization:** Differentiation of vaccine and field strains can occur by use of monoclonal antibodies or genome sequencing with phylogenetic analysis. Such techniques can identify the geographical origin of the field strains.
   - **2.3 Serology:** Serological tests should not be used for primary diagnosis in animals. Virus neutralization (VN) is suitable for monitoring the antibody response of vaccinated animals and are commonly used for international trade.
3. **Case Classification**
   - **3.1 Confirmed Positive Case:** Any animal that meets the CTSE Rabies confirmatory laboratory evidence:
     - **3.1.1** A positive rabies virus DFA test; OR
     - **3.1.2** A positive rabies virus dRIT; OR
     - **3.1.3** A positive rabies virus test by IHC on formalin-fixed tissue; OR

3.1.4 A positive pan-lyssavirus probe-based PCR test; OR

3.1.5 Detection of lyssavirus nucleic acid by genomic sequencing; OR

3.1.6 Isolation of rabies virus (in cell culture or in a laboratory animal).

4. **Reporting Criteria:** Rabies is a U.S. reportable disease. New and re-emerging variants are notifiable and reportable immediately while endemic variants are monitored and reported monthly under the APHIS National List of Reportable Animal Diseases (NLRAD).

4.1 NLRAD reporting in accordance with the NLRAD Standards for notifiable diseases; and by APHIS to the World Organisation for Animal Health (WOAH).