

## Rabies in Elephants Fact Sheet

[www.elephantcare.org](http://www.elephantcare.org)

### Etiology

- a Lyssavirus in the family Rhabdoviridae
- Lyssaviruses may have evolved in Africa

### Epizootiology

- worldwide distribution (except Australia, the UK, Scandinavia...)
- all warm blooded mammals susceptible

### Transmission and Pathogenesis

- incubation variable - 3 weeks to many months
- transmitted by bites from reservoir hosts
- reservoir hosts vary geographically
- natural host in U.S. spotted skunk *Spirogale putorius*
  - other aberrant / reservoir hosts
  - striped skunk, bats, , raccoon, gray and red fox, coyote,
- domestic dog in Asia, South America, Africa
- civets, mongoose in Africa

### Clinical Signs in Elephants

- anorexia
- behavior changes
- incoordination, paralysis of trunk or limbs
- restlessness, aggression, blindness

### Diagnosis

- antemortem: no definitive test available
- postmortem\*:
  - hisopathology: Negri bodies (intracytoplasmic inclusion bodies).
  - immunofluorescent antibody test (IFA) of brain tissue – definitive; global standard
  - mouse inoculation

### Differential diagnosis

- rabies should be in the DDX of any disease that presents with CNS signs
- EMCV
- tetanus
- toxicity (e.g. heavy metal; pesticide)
- trauma

### Management

- vaccination prudent in endemic areas
- killed vaccine only

- Measurable titers (up to 1:1100 in RFFIT)\*\* against rabies have been achieved in African elephants vaccinated with a single 2 cc dose of killed rabies vaccine IM (IMRAB 3, Merial, Duluth, Georgia, USA, [www.us.merial.com](http://www.us.merial.com)).
- Titers persisted at >1:50 for at least 2 years. Based on this preliminary data a dosage regimen of 2 cc killed rabies vaccine IM every 2 years is recommended (Michele Miller DVM PhD, Elephant SSP)
- no treatment available
- isolate suspect cases; no contact

#### Zoonotic potential

- rabies is a zoonotic disease and is fatal for humans
- no reports of transmission from elephants to humans but possible

\* use caution when examining tissues from rabies suspects

\*\* The Rapid Fluorescent Focus Inhibition Test (RFFIT) is a laboratory test that detects rabies virus neutralizing antibodies. The threshold for a protective titer in animals has not been established, however, a titer greater than 1:5 is considered protective in humans. This is the test used at Kansas State University; it is not a species-specific assay.