

**Recommendations for EEHV (Herpes Virus) Testing and Transport of Elephants**  
**American Zoo and Aquarium Association**  
**Elephant Species Survival Plan**

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**Background:** A serologic test for Elephant Endothelial Herpes Virus (EEHV) has been recently developed for Asian elephants to determine antibody titers. Reagents for testing African elephants will be available in the future. Previously, the only diagnostic test available was PCR to detect the presence of virus in whole blood (positive for a short period of time during active infection). The ability to detect antibodies will permit assessment of exposure status in asymptomatic elephants. Based on extrapolation from other related herpesviruses, it is assumed that animals that have been infected and shown clinical signs will become carriers and mount a life-long antibody response. Elephants that do not have antibodies to EEHV are presumed to be “naïve” or not previously exposed. It is unclear at this time how to interpret low levels of antibody.

**Recommendations:** It is critical that a program for current and ongoing assessment of exposure to EEHV be developed for the North American captive elephant population. Serologic testing on a routine basis will create a database that can be used to develop more informed epidemiological guidelines for movement and other management purposes.

**Current assumptions:**

1. Elephants with high EEHV titers have been previously exposed/infected and may have protective immunity or resistance to developing potentially fatal clinical disease.
2. Elephants with high EEHV titers and a clinical history of disease are presumed to be carriers of EEHV and may periodically shed virus (with or without clinical signs).
3. Elephants with no EEHV titers are probably immunologically naïve. Other risk factors including age (fatal cases have occurred mostly in younger animals under 10 years of age), health status, and previous exposure to other elephants, may alter the susceptibility of these individuals to EEHV infection and the development of clinical disease. However, these elephants should be considered “susceptible” to infection.
4. Elephants with intermediate EEHV titers may have previous exposure and/or be potential carriers. These animals may require serial sampling to determine their EEHV status.
5. Currently, results of individually tested animals may provide preliminary guidelines for risk assessment on a case by case basis; however, sufficient data is not available to make broad-based management recommendations on risk of EEHV infection at this time; immediate action should be taken to screen the current population and develop a long-term monitoring program to provide information for future management guidelines.
6. There are several different strains of EEHV circulating around the world and it is not yet known if exposure to one strain will confer protection against other strains of EEHV.

**General Recommendations for Elephant Transports and Introductions Based on EEHV Titers.**

1. The institutions receiving and sending elephants should submit samples to determine EEHV titers in their herds.
2. If EEHV titers are available, the risk factors should be assessed using the following general assessment. Other risk factors such as age, exposure to other elephants, health status, and herd histories should be taken into consideration.

EEHV titer in:

Receiving herd

Animal/herd to be transported:

	+ titer	- titer
+ titer	Low risk	Risk to incoming animal (naïve animal going into herd that may have carriers)
- titer	Risk to receiving herd of exposure to potential carrier (incoming animal)	Low risk

3. If EEHV titers are not available, the other risk factors mentioned above (statement 2), should be considered.

**Goals:**

1. Development of an EEHV serologic database using historical, current and ongoing serum samples from captive North American elephant population to assess the usefulness of this diagnostic test and the interpretation of individual results.
2. Improved management recommendations based on potential risk of exposure to EEHV using the database.
3. Increased epidemiological information of EEHV in the captive elephant population.

**APPENDIX**

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