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INDIANA STATE BOARD OF ANIMAL HEALTH

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## **ANIMAL HEALTH ADVISORY**

### **Epizootic Hemorrhagic Disease in White-Tailed Deer**

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Epizootic Hemorrhagic Disease (EHD) is an infectious, often fatal, viral disease in white-tailed deer. The causative virus is widespread in North America where wild white-tailed deer are endemic and periodically causes serious outbreaks in both wild and farm-raised populations. EHD is closely related to bluetongue virus, and the clinical signs caused by these two viruses are indistinguishable. Cases of EHD occur less commonly in other cervid species, cattle, sheep, and goats, and are generally mild and rarely fatal. Lesions in cattle may mimic foreign animal diseases including foot and mouth disease and vesicular stomatitis; oral ulcers or blisters in cattle should be reported to the Indiana State Board of Animal Health (BOAH).

#### **Disease Transmission**

EHD is not spread via direct contact from one deer to another. Rather, it is transmitted by tiny, gnat-like flies called biting midges. Cases in Indiana are generally seen in late summer or early autumn as new cases usually end with the onset of freezing weather and death of the biting midge vector.

#### **Clinical Signs in White-Tailed Deer**

Cases can range from acute illness, with death often occurring within 36 hours, to a more chronic course with animals remaining ill for several weeks. Some deer are found dead with few or no clinical signs. In other cases, there may be fever, depression, weakness, stiffness/lameness, respiratory distress, redness of the conjunctiva, and severe swelling of the tongue, eyes, head, and neck. Ulcers and erosions in the mouth can result in excessive salivation and nasal discharge, both of which may be blood tinged. In severe cases, animals may slough the hoof wall or toe.

#### **Post-Mortem Lesions**

Lesions in white-tailed deer are characterized by hemorrhages and swelling from fluid build-up in various internal organs and tissues as well as the oral cavity and skin. Lungs are often reddened, wet, and heavy. The gastrointestinal tract may contain blood.

#### **Diagnosis**

Evidence of EHD can be found in the blood or in tissue samples including lung, spleen, liver, and lymph nodes. The Indiana Animal Disease Diagnostic Laboratory (ADDL) at Purdue University can conduct testing for EHD. Owners may submit a whole carcass or just samples of lung, liver, or spleen. Contact the ADDL at 765-494-7440 for submission inquiries.

## **Treatment**

No curative treatment is available once an animal becomes ill. An infected animal may be treated with supportive therapy including anti-inflammatory medications. Antibiotics may be necessary to treat secondary bacterial infections that often develop post-viral infection if the animal survives. Drugs used may be prescribed off-label, so appropriate measures should be taken to follow veterinarian guidelines.

## **Prevention & Control**

EHD is difficult to control. Measures to reduce exposure to the biting midge vector might be helpful during outbreaks, although they are unlikely to be effective as the sole control measures. Such measures can include avoidance of environments where midges are more prevalent like low-lying, damp pastures.

Herd veterinarians may seek approval from BOAH to utilize autogenous vaccines or an experimental vaccine for EHD. While official safety and efficacy studies have not been published, clinical impression from field use shows that vaccines may significantly decrease mortality rates associated with EHD infection if used properly. Timing of vaccination can be critical to preventing infection, and boosters are needed.

## **Risk to Humans**

No evidence exists that humans can be infected with EHD, even after handling infected deer, eating venison from an affected deer, or being bitten by infected midges. However, deer that develop bacterial infections or abscesses secondary to EHD may not be suitable for human consumption.

## **Chronic Wasting Disease (CWD) Sampling Criteria During an EHD Outbreak**

When the state veterinarian determines that farm-raised deer or elk on an individual premises have died from a mass-mortality event such as a natural disaster or an infectious disease outbreak like EHD, an exception can be granted such that not all mortalities are required to be sampled for CWD. Animals at a higher risk for CWD including older animals, males preferentially over females, or those in poor body condition should be sampled. Additionally, purchased animals should also be sampled to prevent a possible quarantine should the herd-of-origin have an animal test positive for CWD.

In an EHD outbreak, the following criteria must be met for an exception to be made to CWD sampling all animals that die on the farm:

- 1.) An official diagnosis of EHD must be made by an approved laboratory such as the ADDL at Purdue.
- 2.) Approval must be granted by the BOAH CWD Program Director, Dr. Shelly Chavis.
- 3.) At least 15% of deer over 1-year of age as of the last inspection inventory must be sampled. This should include all purchased additions and higher risk animals.
- 4.) All purchased deer that die should be sampled for CWD, even if doing so results in greater than 15% of the herd being sampled.
- 5.) A final inventory of all cervids over 1-year of age that die and are not sampled due to the granted exception must be submitted to the BOAH field veterinarian at the next herd inspection.