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EVA: A European Perspective

An infectious equine disease is bad news no matter what language you speak or which country you call home. But between countries, regulatory bodies, and animal health professionals, there often remains a difference in perspective when it comes to handling these diseases.

During a recent presentation in Lexington, Kentucky, Richard Newton, BVSc, MSc, PhD, FRCVS, Head of Epidemiology and Disease Surveillance at The Animal Health Trust, in Newmarket, England, provided a look at the European perspective on one potentially dangerous venereal disease: equine viral arteritis (EVA).

What is EVA?

At the equine arteritis virus (EAV) symposium hosted by the University of Kentucky (UK) Gluck Equine Research Center, Newton explained that EVA is a viral disease first identified in the 1950s in the United States during the "pioneering heyday of virology." The first case wasn't identified in the United Kingdom until March 1993, after mares were bred to a stallion shedding the virus recently imported from Poland. The stallion had been falsely certified as negative for the virus prior to being imported, he said.

Today the infection is found nearly worldwide—although New Zealand officials recently announced that the country has become EVA-free, Newton said—and is prevalent in most European countries. Although previous outbreaks have occurred in Thoroughbreds, the infection is currently much more prevalent in Warmbloods and Standardbreds, said Newton.

Horses can spread the disease efficiently via semen or somewhat less efficiently via respiratory secretions. Adult horses usually make full clinical recoveries with or without supportive treatment such as non-steroidal anti-inflammatories (NSAIDs) and antibiotics. Clinical signs are variable and often absent and include:

- Fever;
- Depression;
- Conjunctivitis (inflammation of the conjunctiva that lines the inner eyelids);
- Edema (fluid swelling);
- Skin rashes; and
- Abortion in pregnant mares.

Affected horses that don't show clinical signs still shed the virus, Newton said. If the virus isn't cleared from a stallion's body within a few weeks, he runs the risk of becoming a carrier. Persistently infected carrier stallions function as natural reservoirs of EAV, and they disseminate the virus to susceptible mares at breeding.

Newton stressed that virus shedding is testosterone-dependent, so immature colts won't become carriers, and castration can stop carriers from shedding the virus.

Control Measures in the U.K.

In the United States EVA is not a reportable disease, and there are no codes of practice to limit its spread. The American Association of Equine Practitioners has, however, issued guidelines for EVA prevention, and import regulations are aimed at preventing a foreign horse from bringing EVA into the country.

Newton said that organizations in the U.K. and Europe have taken steps to limit EVA spread, including the following regulations:

The EVA Order In 1995 the U.K. government passed The EVA Order, making the condition a notifiable disease in stallions if:

- A stallion is unexpectedly found to be seropositive (having antibodies against EAV in his blood serum);
- The virus is detected in a semen sample; or
- Disease is identified in mares within 14 days of live cover or artificial insemination.

Under the Order, the U.K.'s Department for Environment, Food, and Rural Affairs can report publically when stallions test positive, he added.

The Order states that stallions can be declared EVA-free following:

- Castration;
- A negative virus isolation test on semen; or
- Test mating two mares at the owner's expense; however, Newton said the British government does not favor this method.

HBLB Codes of Practice Each year Britain's Horserace Betting Levy Board (HBLB) issues Codes of Practice for dealing with a number of equine infectious diseases, including EVA. The document encourages veterinarians and owners to:

- Blood test stallions annually after January 1;
- Vaccinate stallions against the disease at six-month intervals;
- Blood test mares annually after January 1 and within 28 days before breeding;
- Blood test imported animals within 28 days of import and while the horses are in their 21-day quarantine following import.

Newton also noted that, although Thoroughbreds cannot be produced via artificial insemination and embryo transfer under internationally agreed rules governing breed registration, the HBLB Codes of Practice does include information on preventing EVA in such scenarios.

BEVA Guide to the Use of Artificial Insemination in Horse Breeding The British Equine Veterinary Association (BEVA) has also issued guidelines on preventing EVA spread when using artificial insemination. These guidelines recommend blood tests prior to purchase or import to ensure the horse is EVA negative.

They also recommend using semen that's been declared EVA-free and that importers retest semen once it's arrived in the U.K. if there are any doubts regarding its status.

Additionally, Newton said, the guidelines include recommendations for managing seropositive competition stallions, which often travel to different countries on a regular basis. The guidelines recommend isolating the affected stallion for 21 days, blood testing the horse after at least 14 days in quarantine, and repeating the isolation and tests each time the horse leaves the U.K.

EC Directives Newton also reviewed the directives set forth by the European Commission (EC), which cover the international transport of semen and stallions from non-European Union (EU) countries.

The directives state that semen must come from stallions that are certified clinically disease-free and that were held for 30 days on an EVA-free premises prior to collection, and the stallion's semen must have tested negative for EVA.

Additionally, stallions being imported into the EU from non-EU countries (so-called "third countries") must be seronegative for EVA or test negative prior to vaccination, if vaccinated.

Risks Remain

Newton cautioned that the EC directives deal well with semen trade between EU member states, but noted that no regulations exist regarding stallion movement between EU member states. This, he said, means that individuals and each nation's horse industry must protect itself against EVA and, therefore, rely on other individuals' good practices.

This poses another challenge, said Newton, such as the varying attitudes regarding EVA between the U.K. and some other European countries, and between the Thoroughbred sector and other breeds. While some breeders exercise extreme caution when shipping semen or stallions, he said others don't consider it a problem and continue to ship EVA-positive or carrier stallions or semen, sometimes with directions to vaccinate mares prior to breeding.

As a result, it's often up to individual horse owners to employ good practices and protect their own horses. Newton offered a recommendation he first presented in a [study that was first published in the UK's *Veterinary Record*](#) in 1999 following the 1993 U.K. EVA outbreak, noting it "stands true today as much as it did last century":

"As there have been no statutory requirements since 1993 to demonstrate that stallions moving between EU countries are free of EAV, these results highlight the potential risks posed to the largely susceptible U.K. horse population by the importation from within the EU of stallions which are shedding the virus. In the absence of such statutory import requirements, the authors recommend that all potential purchasers of stallions from other EU states should establish the EVA serological status of these animals before they are purchased and imported into the U.K."

Vaccination

Newton also touched briefly on the available EVA vaccines and their issues.

He said one concern is that in the U.K. the only product available is an inactivated, whole-virus vaccine; conversely, in the United States, the only available vaccine is a modified-live vaccine.

Inactivated, whole-virus vaccines might not always induce an immune response, and the response might not be long-lived, meaning horses might require more frequent boosters to maintain adequate protection. So, it's not surprising that study results have shown that first-season sires are often poorly protected against EVA without more frequent boosters, Newton said.

Additionally, he said, there are occasional supply issues. For instance, a 2003 outbreak in Ireland coincided with a diminished vaccine supply.

A better understanding of ideal vaccination protocols and improved supplies could help better protect horses against EVA, he said.

Take-Home Message

Newton left attendees with three important points to remember about EVA in Europe: Unrestricted stallion movement within the EU continues to pose a risk to the European horse industry; there's a great need to improve owners' and veterinarians' compliance with voluntary disease control measures such as those outlined in the HBLB's Codes of Practice; and the veterinary industry is in need of better ways to monitor and improve laboratory testing, vaccination protocols, and vaccines. Improvements on these fronts can help reduce the spread of this costly and dangerous disease.