

Status of Vaccination Against EHV-1 Myeloencephalopathy (Neurological Form)

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In the wake of recent outbreaks of the neurological form of EHV-1 (known as myeloencephalopathy) in populations of horses in several regions of North America, many racing jurisdictions and managers of equine facilities and events have imposed EHV-1 vaccination requirements for incoming and resident horses in the hope that EHV-1 infection—particularly the neurological form—can be prevented. The efficacy of this approach remains to be proven. In fact, frequent revaccination of mature horses to prevent the neurological form of EHV-1 is not clearly justified in most circumstances for the following reasons:

- Most mature horses have been infected previously with EHV-1 and are latent carriers.
- Neurological EHV-1 is a relatively rare disease from a population standpoint.
- Neurological form of EHV-1 has been observed in horses vaccinated against EHV-1 regularly at 3- to 4-month intervals.
- Currently available vaccines do not reliably block infection or claim to prevent neurological EHV-1.
- Vaccination has been cited by some as a potential risk factor for development of neurological EHV-1.

On the other hand, regular revaccination of pregnant mares and other horses on breeding farms to reduce the risk of EHV-1 induced abortion is strongly recommended.

Commercially available vaccines for EHV-1 include two single-component inactivated vaccines (Pneumabort K and Prodigy) marketed for the prevention of abortion in pregnant mares; several multi-component inactivated vaccines (Prestige, Calvenza, Innovator); and one MLV vaccine (Rhinomune) for the prevention of respiratory disease induced by EHV-1 and EHV-4. Each of these vaccines induce some, but not all, of the desired components of the

immune response in the horse. Therefore, it is not surprising that NONE induces sterile immunity or complete protection from clinical disease. ***The best that can be hoped for is a reduction in the severity of clinical signs and in the amount of EHV-1 shed by vaccinated horses that do become infected.***

There is evidence that viral shedding is reduced in horses with high circulating titers of virus-neutralizing (VN) antibody, as well as in those that have been vaccinated recently with the Rhinomune MLV vaccine. Of the available inactivated vaccines, Calvenza and both vaccines marketed for prevention of abortion (Pneumabort K and Prodigy) contain the highest amounts of antigen and stimulate the highest levels of VN antibody in experimental horses.

On premises with confirmed clinical EHV-1 infection (any form), booster vaccination of horses that are likely to have been exposed already is not recommended. However, it seems rational to booster vaccinate nonexposed horses as well as horses that must enter the premises with one of the four vaccines listed above if they have not been vaccinated against EHV-1 within the past 90 days. This approach relies on the assumption that the immune system of most mature horses has already been “primed” by prior exposure to EHV-1 antigens through field infection or vaccination and can therefore be “boosted” within 7 to 10 days of administration of a single dose of vaccine.

While this approach does not guarantee protection of individual horses against the potentially fatal neurological form of EHV-1, the hope is that reduced nasal shedding of infectious EHV-1 by recently vaccinated horses will indirectly help protect other horses by reducing the dose of virus to which they are exposed.

Ultimately, enforcement of strict biosecurity measures and hygiene practices are likely to be more effective than widespread vaccination in reducing the risk of acquiring EHV-1 infection.