Equine Alphaherpesvirus (Rhinopneumonitis) Vaccination Guidelines

Equine alphaherpesvirus type 1 **(**EHV-1) and equine alphaherpesvirus type 4 (EHV-4) infect the respiratory tract, the clinical outcome of which can vary in severity from subclinical to severe respiratory disease (rhinopneumonitis). Clinical infection is characterized by fever, lethargy, anorexia, nasal discharge, cough, and mandibular lymphadenopathy. Infection of the respiratory tract with EHV-1 and EHV-4 typically occurs in foals during the first weeks/months of life, and recurrent infections may occur in weanlings, yearlings, and young horses entering training, especially when horses from different sources are commingled. In addition to rhinopneumonitis, EHV-1 can also cause abortion, fatal neonatal disease, and neurologic disease (equine herpesvirus myeloencephalopathy; EHM).

Both EHV-1 and EHV-4 spread primarily by the respiratory route, by direct and indirect (fomite) contact with nasal secretions; and contact with aborted fetuses, placental and fetal fluids, and placentae. Like herpesviruses of other species, these viruses establish latent infection in the majority of horses, which become asymptomatic carriers of one or both viruses. Such horses may experience reactivation of either virus, resulting in replication and short-term shedding of the virus when stressed. Some pregnant mares in which reactivation of virus occurs may abort. Existence of a carrier state seriously compromises efforts to control these diseases and explains why outbreaks of EHV-1 or EHV-4 can occur in closed populations of horses.

Indications for the use of EHV-1 and EHV-4 vaccines include prevention of EHV-1 abortion, as well as the reduction of severity and duration of signs of respiratory tract disease (rhinopneumonitis). Immunity against EHV is complex, and post-vaccinal antibodies against EHV do not necessarily ensure protective immunity against clinical disease. EHV vaccines can, however, reduce nasal shedding of virus and reduce the development of EHV viremia. The goal of EHV vaccination is to reduce the spread of virus within populations and reduce the severity of disease in individuals.

Vaccines

Inactivated vaccines

A variety of inactivated vaccines are available, including those licensed only for protection against respiratory disease, as well as dual-label vaccines licensed for protection against both respiratory disease and abortion. Duel-labelled EHV vaccines contain higher antigenic loads and induce more robust antibody responses than those labeled for respiratory disease only.

Modified live vaccine

One licensed modified live EHV-1 vaccine is available. It is indicated for the vaccination of healthy horses 3 months of age or older as an aid in preventing respiratory disease caused by equine herpesvirus type 1 (EHV-1).

Vaccination for equine herpesvirus myeloencephalopathy (EHM)
There are currently no licensed vaccines labelled for the prevention of neurologic EHV-1 infection, and controlled, peer-reviewed research to determine whether vaccinating horses during an outbreak of EHM reduces transmission does not currently exist. Vaccination of at-risk populations may limit viral spread by reducing nasal shedding. The vaccines with the greatest ability to reduce nasal shedding and viremia include the vaccines licensed for control of abortion (Pneumabort-K® & Prodigy®), Calvenza® and the MLV vaccine (Rhinomune®).

Vaccination Schedules
I. Adult, non-breeding horses previously vaccinated against EHV: Frequent vaccination of non-pregnant mature horses with EHV vaccines is generally not indicated as clinical respiratory disease is infrequent in horses over 4 years of age. The benefit of intensive vaccination programs directed against EHV-1 and EHV-4 in foals and young horses is not clearly defined because, despite frequent vaccination, infection and clinical disease continue to occur. Nonetheless, immunity following vaccination appears to be short-lived in juvenile animals, and it is therefore recommended that the following horses be revaccinated at 6-month intervals:

- Horses less than 5 years of age.
- Horses on breeding farms or in contact with pregnant mares.
- Horses housed at facilities with frequent equine movement on and off the premises, thus resulting in an increased risk of exposure.
- Performance or show horses in high-risk situations, such as racetracks or show grounds. More frequent vaccination than a 6-month interval may be required in certain cases as a prerequisite for entry to the facility.

Adult, non-breeding horses unvaccinated or having unknown vaccinal history: Administer a primary series (2 or 3 doses, depending on product) of inactivated EHV-1/EHV-4 vaccine or modified-live EHV-1 vaccine. A 4-week interval between doses is recommended.

Pregnant mares: Vaccinate during the fifth, seventh, and ninth months of gestation using an inactivated EHV-1 vaccine licensed for prevention of abortion. Many veterinarians also recommend a dose during the third month of gestation, and some recommend a dose at the time of breeding.

Vaccination of mares with an inactivated EHV-1/EHV-4 vaccine 4–6 weeks before foaling is commonly practiced to enhance concentrations of colostral immunoglobulins for transfer and reduce the incidence of respiratory disease in foals.

Barren mares at breeding facilities: Vaccinate before the start of the breeding season and thereafter based on risk of exposure.

Stallions and teasers: Vaccinate before the start of the breeding season and thereafter based on risk of exposure.

Foals: Administer a primary series of 3 doses of inactivated EHV-1/EHV-4 vaccine or modified-live EHV-1 vaccine, beginning at 4–6 months of age and with a 4-week interval between the first and second doses. Administer the third dose at 10–12 months of age.

Outbreak Mitigation

Controlled, peer-reviewed research examining vaccination as a control method during EHV outbreaks does not currently exist. Strict biosecurity practices that include isolation of infected horses, quarantine of affected premises, and monitoring of at-risk populations are currently more effective at controlling outbreaks than any existing vaccination protocol.

An association between EHV vaccination and the development of EHM has been reported in multiple outbreak investigations. The underlying mechanism for this association remains unknown, and lack of controlled challenge studies prevents fact-based revision of existing vaccination recommendations.

Horses having been naturally infected and recovered: Horses with a history of EHV infection and disease, including neurological disease, are likely to have immunity to infection that can be expected to last for 3–6 months (longer in older horses). Booster vaccination can be resumed 6 months after the disease occurs.

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