

United States Animal Health Association
Infectious Diseases of Horses Committee

2015 Equine Herpesvirus-1 Subcommittee Report

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Executive Summary of the EHM Incident Guidance Document

In 2014, the United States Animal Health Association, Infectious Disease of Horses Committee established an EHV-1 subcommittee to develop a guidance document based on the relevant current scientific information and field experience of the committee members related to the EHV-1 regulatory mitigation.

During Equine Herpesvirus Myeloencephalopathy (EHM) incidents, the State Animal Health Official's goal is to prevent the spread of the disease agent, specifically Equine Herpesvirus- 1 (EHV-1) by utilizing science-based disease control protocols adapted to the specific incident, ensure compliance and minimize the impact on equine movement while controlling disease spread.

In 2014, the EHV-1 Subcommittee began development of the EHM Incident Guidance Document for State Animal Health Officials (SAHO). The subcommittee concludes that there is no single protocol that can be applied to every EHM incident as there are multiple factors to be taken into consideration when determining the optimal disease containment response. The intent of this guidance document is to provide SAHOs, with the science based control options to be considered during an EHM incident.

The EHV-1 Subcommittee utilized latest field experience and scientific data to develop the most appropriate guidance to reduce disease agent spread while allowing for optimizing business continuity. In 2015, the Subcommittee completed the first version of the guidance document. However, the intent is for this to be a living document. It can be updated when there are relevant advances in science and technology and/or field based experiences.

Summary of topics addressed in this Guidance Document:

1. **Diagnostic Testing:** Due to advances in diagnostic technologies PCR has become the diagnostic test of choice due to its high analytical sensitivity and specificity as well as rapid availability of test results. To optimally assess the status of infection in a horse, it is recommended that a realtime PCR or a nested PCR test be performed on both a nasal swab and an unclotted blood sample. Differentiation of the neuropathogenic (G2254) from non-neuropathogenic (A2254) strains of EHV-1 based on DNA polymerase gene testing may be beneficial for outbreak response planning and the application of the most appropriate biosecurity measures. The optimal time for collection of nasal swab and blood samples is at onset of clinical signs e.g. onset of fever and/or neurologic signs. Since EHV-1 is considered endemic within the horse population, testing of clinically normal horses in the general population for EHV-1 by PCR assay can and likely will detect horses positive for EHV-1 and may represent transient presence of

virus; or viral levels that are not considered sufficient to pose a significant risk of transmission of infection. There is a lack of consensus among regulatory veterinarians on the appropriateness of testing non-clinical exposed horses as part of an outbreak response. However, if testing of non-clinical exposed horses is being considered, then the response to the test results should be decided before initiating the testing. Non-clinical EHV-1 infected horses based on nasal swab and/or buffy coat testing, currently represent a non-quantifiable but potential risk of transmitting virus to horses to which they are exposed. This is arguably more important if the viral DNA detected is of the neuropathogenic (G2254) genotype. Ultimately, the decision to collect samples from exposed horses for EHV-1 testing as part of the outbreak response should be based on evaluation of level of exposure, type and severity of clinical disease present, number of horses with disease consistent with EHV-1 infection and assessment of biosecurity measures in place.

2. **Quarantine Placement:** Science based criteria for quarantine protocols, adapted to a specific EHM incident, encourage compliance and minimize the impact on equine movement while controlling disease spread. No single protocol can be applied to the need for and scope of quarantine for every EHM incident as there are multiple factors that must be considered for an optimal disease containment response. A prompt on-site risk assessment by the person responsible for the oversight of the incident is critical in identifying the disease transmission risk factors for a given incident. Assessment of risks associated with the index case includes the index EHM case's level of viral shedding and its potential to transient infection to other horses. An exposed horse is one which had direct or indirect contact with an EHM case within the previous 14 days. Highest risk among exposed horses are those with or recent history of direct nose-to-nose contact and moderate risk are those horses stabled within 30 feet of a clinical case of EHV-1 or those that shared transportation with the clinical case of EHV-1 but with no nose-to-nose contact, or that shared equipment or personnel with index EHM case. Disease transmission, as evidenced by newly identified clinical cases would warrant modification of the quarantined operation's biosecurity protocols. Additionally, if spread occurs beyond the index premises, then the quarantine should be extended to additional sites as indicated from the epidemiologic investigation.
3. **Quarantine Release:** Before placing a quarantine on an equine operation, the criteria for quarantine release should be established using science- based criteria. There is no single quarantine release protocol that is applicable to every EHM incident since there are multiple factors that must be considered when striving for optimal disease containment. Clinically affected horses should be assumed to be contagious and thus to pose a transmission risk, particularly via the respiratory route, for at least 14 days after resolution of fever or after the onset date of neurologic signs. At a minimum there should be monitoring or quarantine of exposed horses for at least 14 days after removal and isolation of the EHM case. If the EHM case cannot be isolated then further criteria need to be considered to allow for quarantine release. The scope of the quarantine can be amended to release a subpopulation of horses earlier if the epidemiologic investigation, biosecurity assessment and/or diagnostic testing indicate the risk is minimal from the release of a horse or group of horses. Release of a quarantine should be based on limited potential for spread of the disease agent. Quarantine release is recommended, if

adequate biosecurity and monitoring has been maintained and if no new clinical cases (EHM or EHV-1 cases without neurologic signs) are identified in the 21 days from the date of removal of EHM case or the 21 days from the resolution of the last febrile horse or the 21 days from the onset of the last horse with neurologic signs on the premises. Monitoring of the exposed horse population for any clinical signs compatible with EHV-1 infection includes twice daily temperaturing and observation for compatible clinical signs. Note, a 14 day quarantine release for exposed horses may be considered when there is immediate removal of the index EHM case and there is evidence of limited potential for disease agent spread due to adequate biosecurity and an acceptable level of monitoring of exposed horses. Testing of clinical horses for release from quarantine may shorten the quarantine period. A confirmed EHM case or EHV-1 case with two subsequent PCR negative nasal swab and buffy coat samples obtained 7 days apart is considered to pose a minimal disease transmission risk, thus quarantine release is recommended.

4. Investigation and Biosecurity measures: An EHM incident investigation involves identification of the five "Ws"; 1) which suspect horse, 2) what agent, 3) where is the index horse, 4) when did clinical signs first appear and 5) why did the horse succumb to the disease. Once the basic information on the index horse is obtained, the investigation objective is to identify the disease transmission risk factors applicable to a particular operation.

Once the EHM incident investigation identifies the risk factors for exposure, control measures must be implemented to 1.) Limit the extent of spread and severity of clinical disease on the premises and 2.) Limit the spread of disease to adjacent or exposed premises. General biosecurity concepts for managing EHM exposed horses and those that are quarantined include; immediate isolation of clinical cases, application of quarantine restrictions, required temperature and health monitoring of all horses on the premises, restriction of human, pet and vehicle traffic access to the exposed horse areas, limit direct horse to horse contact, limit stress to exposed horses, eliminate the practice of sharing equipment and movement of personnel between clinical horses and other horses on the operation and implementation of strict cleaning and disinfection protocols with particular attention to areas where the index EHM horse and any other clinical horse may have been in the past 14 days such as tie rails, wash racks, starting gates etc.

5. Incident Communications: Communication during an EHM incident is critical to prompt response and disease control efforts. It is recommended that State Animal Health Officials establish a communication plan for an EHM incident well in advance of the occurrence of an incident. Drafting content for webpages, alerts and printed outreach materials prior to an incident will facilitate timely dissemination of accurate and useful information during the incident. State Animal Health Officials should explore all modes of communication and utilize effective resources for communicating information. State Animal Health Officials, the American Association of Equine Practitioners and the American Horse Council have developed a plan for a National Equine Disease Communication Center to assist dissemination of factual timely information at www.equinediseasecc.org.

6. Vaccination: Currently available vaccines against EHV-1 provide some protection against the respiratory form and in the case of two vaccines, against abortion due to the virus; however, none of the licensed vaccines have been shown to protect against EHM in a field setting. It has been suggested that some EHV vaccines may assist in limiting the spread of EHV-1 in outbreak situations by limiting nasal shedding of EHV-1 and thus dissemination of virus. For this reason some experts hold the opinion that there may be an advantage to vaccinating in the face of an outbreak. If this approach is pursued, only afebrile and asymptomatic horses should be vaccinated and protection against EHM should not be an expectation. The vaccines with the greatest ability to limit nasal shedding and viremia of the EHV-1 include the vaccines licensed as an aid in the control of abortion (Pneumabort-K®; & Prodigy®). It is important to note that there is some controversy associated with the practice of vaccination during an outbreak, as a recent case control study has shown that EHM may be associated with a history of frequent or recent vaccination. For additional vaccination guidance see the American Association of Equine Practitioners EHV-1 Vaccination Guidance for Private Practitioners at <http://www.aaep.org/info/vaccination-guidelines-265>
7. Appendix: The appendix section contains risk assessment tools for SAHOs to utilize during an EHM incident to assess horses that might be exposed, premises biosecurity, and quarantine placement and release parameters. Additional resources include epidemiologic investigation report forms for index and exposed horses. The appendix section contains five flow charts including: 1) handling an EHM Suspect Index Case, 2) recommended biosecurity measures for an EHM affected premises, 3) communications during an EHM Incident, 4) exposed horse investigation, and 5) biosecurity recommendations for an EHV-1 exposed premises.

A special thanks to the hardworking EHV-1 Subcommittee members namely, Sara Ahola-formerly of Colorado Dept of Ag now with USDA APHIS VS CEAH, Rory Carolan – USDA:APHIS:VS:SPRS, Ann Dwyer-American Association of Equine Practitioners, Katie Flynn- California Dept of Ag, Rusty Ford- Kentucky Dept of Ag, Kent Fowler- California Dept of Ag, Carl Heckendorf- Colorado Dept of Ag, Mike Herrin- Oklahoma Dept of Ag, RJ Layher/Cliff Williamson- American Horse Council, Eileen Ostlund- USDA:APHIS:VS: NVSL, Angela Pelzel-McCluskey- USDA:APHIS:VS:SPRS, Keith Roehr- Colorado Dept of Ag, Mike Short- Florida Dept of Ag, Andy Schwartz- Texas Animal Health Commission, Peter Timoney-Gluck Equine Research Center, and Josie Traub- Dargatz USDA APHIS VS CEAH and Colorado State University.

Questions or concerns regarding this document can be directed to the chair or vice chair of the Infectious Diseases of Horses Committee. For committee chair or vice chair contact information visit: <http://www.usaha.org/Committees.aspx>