Equine Herpesvirus Myeloencephalopathy Incident Response Guidelines for State Animal Health Officials

Revised November 2025

USAHA
UNITED STATES ANIMAL HEALTH ASSOCIATION

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INTRODUCTION

Purpose: During Equine Herpesvirus Myeloencephalopathy (EHM) incidents, the State Animal Health Officials' (SAHO) goal is to prevent the spread of the disease agent. Science-based disease control protocols, adapted to the specific incident, control disease spread while ensuring compliance and minimizing the impact on equine movement. There is no single protocol that can be applied to all EHV incidents as there are multiple factors that must be considered when determining the optimal disease containment response. Regulatory authority and response to Equine Herpesvirus incidents will vary from state to state. Veterinary professionals should always consult with their SAHO when responding to EHV incidents. This guidance document provides SAHOs with science and field experience based control guidance to be considered during an EHM incident. This guidance document is an evolving document. Elements of this guidance document may be utilized for response to non-neurologic EHV-1 and neurologic EHV-4 cases.

On October 19, 2013, the American Association of Equine Practitioners Foundation (AAEP) and the United States Animal Health Association (USAHA) Committee on Infectious Diseases of Horses (IDOHC) sponsored an Equine Herpesvirus-1 (EHV-1) Workshop. This document was updated in January 2018 and again in November 2025 based on scientific evidence and field experience. Specifically, confirmed EHM cases are based on clinical signs in conjunction with diagnostic testing as opposed to the genotype.

The EHV-1 Subcommittee members participating in updating this document included:

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DEFINITIONS

1. **Afebrile:** Body temperature of less than 101.5° F, or less than 100.5° F if on an NSAID or antipyretic medication.

2. **Confirmed EHM Case**: A horse displaying signs of central nervous system (CNS) dysfunction, including but not limited to hindlimb incoordination, weakness, recumbency and/or urinary bladder atony, with evidence of infection with any strain of EHV based on virus isolation and/or PCR testing of nasal swab or blood (buffy coat) specimens. If the horse dies or is euthanized, the case can be confirmed based on histological evidence and detection and/or demonstration of EHV in CNS tissues collected at necropsy.

3. **Confirmed EHV Clinical Case**: A horse that is showing no neurologic signs but tests positive for EHV by virus isolation and/or PCR testing of nasal swab or blood (buffy coat) or fetal tissue specimens along with clinical signs consistent with EHV infection, such as fever, limb edema, abortion or nasal discharge. If the horse dies or is euthanized, the case may be confirmed based on histological evidence and detection and/or demonstration of EHV-1 in tissues collected at necropsy.

4. **Contact**
    a. **Direct**: A contact directly between two horses.
    b. **Indirect**: A person, animal, or other object has had contact with one horse and then subsequently has contact with a second horse.

5. **EHM**: Equine herpesvirus myeloencephalopathy caused by EHV.

6. **EHM Incident**: Detection of one or more confirmed cases of EHM, and where there is confirmation of disease agent spread or evidence of potential for disease transmission from an EHM confirmed case to additional horses in a population.

7. **EHM Premises**: A premises where a confirmed or suspect case of EHM currently resides or a premises where an EHM case resided prior to release of quarantine.

8. **EHV**: Equine herpesvirus-1.

9. **EHV Incident**: Detection of one or more confirmed cases of EHV, and where there is

confirmation of disease agent spread or evidence of potential for disease transmission from an EHV confirmed case to additional horses in a population.

10. **EHV Premises**: A premises where a confirmed or suspect case of EHV currently resides or a premises where an EHV case resided prior to release of quarantine.

11. ***EHV-1 "A" strain**: Any strain of EHV-1 having the SNP genetic marker ORF30 A2254 (N752) genotype. (Also referred to as non-neuropathogenic strain).

12. ***EHV-1 "C" strain:** Any strain of EHV-1 having the SNP genetic marker ORF30 C2254 (H752) genotype. (New genotype identified in 2021).

13. ***EHV-1 "G" strain:** Any strain of EHV-1 having the SNP genetic marker ORF30 G2254 (D752) genotype. (Also referred to as neuropathogenic strain).

    ***All genotypes are associated with the different forms of disease caused by EHV-1. In an outbreak setting, knowledge of strain type present does not change the measures required to control/mitigate the situation. Confirmed EHM cases are based on clinical signs in conjunction with diagnostic testing as opposed to genotype.**

14. **EHV-1 Incubation period:** The period of time from exposure to development of first clinical signs. Typically for EHV-1, the period is 4-7 days, though it can vary with clinical signs appearing as early as 24 hours or as late as 14 days.

15. **Exposed horse**: A horse with direct contact or an epidemiologic link within the 14 days preceding the onset of clinical signs in an EHM/EHV confirmed case.

16. **Exposed premises:** For tracing purposes, the physical location where an index case or an EHV-1 exposed horse has been in the previous 14 days, to include but not limited to pastures, event venues, training facilities, and breeding facilities. Note: The extent of the area of premises exposed needs to be based on a thorough epidemiologic evaluation.

17. **Fever**: Body temperature of 101.5° F or greater if not currently on an NSAID or antipyretic medication, or body temperature over 100.5° F if on an NSAID or antipyretic medication.

18. **Index EHM Case**: This term applies to the initial confirmed case based on compatible clinical symptoms and positive confirmatory test for EHV-1.

19. **Index Premises**: This term applies to the physical location of the initial confirmed EHM case.

20. **Isolation**: The separation of a horse displaying clinical signs of disease or tests positive for an infectious disease. Appropriate isolation includes restricted access to other horses (a minimum of 30 feet, recognizing it may be greater depending upon ventilation, air movement, barn/stall design and other biosecurity factors), avoiding the sharing of equipment, spaces or personnel, utilization of protective barrier precautions and implementation of mandatory biosecurity protocols.

21. **Monitoring:** Evaluating exposed horses for any evidence of clinical signs consistent with EHV-1 infection. Horses should have body temperatures determined at least twice a day (e.g. morning and evening), prior to exercise & antipyretic medication, in order to detect a fever and they should be examined for any compatible clinical signs.

    Note: For an index or high-risk premises, a 21-day monitoring period is observed for assurance of cessation of viral spread. For other exposed horse premises a 14-day monitoring period is observed.

22. **Non-clinical test positive case**: A horse that is not exhibiting clinical signs (afebrile, non-neurologic) but tests positive for EHV by virus isolation and/or PCR testing of nasal swab or blood (buffy coat) specimens.

    Note: During any given incident some horses may start in this category before developing compatible clinical signs and subsequently being confirmed as an EHM case after they develop neurologic signs.

23. **ORF**: Open reading frame.

24. **PPE** (Personal Protective Equipment): Single use disposable protective clothing, clean re-usable garment, boot covers or equipment designed to protect the wearer from direct exposure to infectious agents. Proper use and disposal of these garments will reduce the spread of infectious agents.

25. **SNP:** Single nucleotide polymorphism.

26. **Suspect EHM Case:** An exposed horse that develops neurologic signs suggestive of EHM, including but not limited to hindlimb incoordination, weakness, recumbency and/or urinary bladder atony during the 14 days prior to the index EHM case developing clinical signs and/or 14 days after the last potential exposure to the confirmed EHM case.

27. **Suspect EHV-1 Case**: Highly suggestive EHV-1 case, defined as an exposed horse displaying compatible clinical signs such as fever (see Definition above), limb edema, abortion or nasal discharge during the 14 days after initial exposure to a confirmed EHV-1 case.

28. **Viremia**: The presence of virus in the bloodstream.

DIAGNOSTIC TESTING

KEY POINTS

- Have a plan of action prepared for results and an isolation protocol for positive test results prior to sample collection.
- Strain should not dictate management.
- Testing outside of an outbreak is not recommended. Since EHV-1 is considered to be endemic in most horse populations and detection of the virus in nasal secretions is likely a transient occurrence that results in an undefinable risk for spread of disease.
- Consult the testing laboratory to determine which test was or will be run. Determine PCR target gene and confirm validated PCR test status.
- During an incident, it is recommended that a febrile or clinical horse testing negative on PCR be re-tested 24 to 72 hours later to confirm status.
- A complete submission for PCR testing is considered nasal swab and EDTA whole blood.
- A quantitative real-time PCR can assist in assessing shedding risk. However, the level of virus detected does not predict clinical outcome.

Serologic Testing

Due to the likelihood of widespread exposure to EHV-1 and the common practice of vaccination of the general equine population against this virus infection, serologic testing at a single point in time is uninformative and of very limited diagnostic value. The serologic test readily available in the United States is the virus neutralization test (VNT); some other countries however, have the availability to use the complement fixation test (CFT) which can be used to detect recent exposure to EHV-1. Serologic testing, namely using the VNT, which demonstrates seroconversion or a four- fold or greater increase in serum antibody titers between samples collected 10- 21 days apart, provides presumptive evidence of recent EHV-1 infection assuming EHV-1 vaccination has not taken place just prior to or during that time period. EHV neutralizing tests (VNT) do not distinguish between EHV-1 and EHV-4 antibodies.

However, type specific ELISA tests based on a portion of the glycoprotein G of each virus have been developed. The CFT and ELISA type specific antibody detection tests are not currently available at diagnostic laboratories in North America.

Virus Detection

Virus detection or isolation in clinically appropriate tissue is considered the gold standard for confirmatory laboratory diagnosis of EHV-1 infection, although the time required to obtain a positive result via immunohistochemistry (IHC) or virus isolation limits its value for outbreak management. In the absence of tissue, virus identification of EHV-1 by isolation from nasal

swabs or buffy coat samples is confirmatory evidence of a diagnosis of EHM in a horse with compatible clinical signs.

The polymerase chain reaction (PCR) has become the diagnostic test of choice due to its high analytical sensitivity and specificity and rapid turn-around time. Positive PCR results can be obtained when virus isolation is negative due to sub-detectable levels of infectious virus, inactivated virus or presence of viral nucleic acid. PCR tests carried out simultaneously on both nasal secretions and buffy coat samples are useful in establishing the stage of infection in an animal. Submission is considered incomplete if only blood is provided. Quantitation of genomic DNA level is used as a guide in assessing the potential of a horse with nasal shedding EHV-1 to transmit infection. Viremia is the presence of virus in the bloodstream. Although viremia is an essential component in the pathogenesis of EHM, some studies have failed to show that the level of viremia is directly correlated with the level of risk for development of EHM. Other studies have shown correlation of a high level of viremia with more severe CNS diseases. While the level of virus detected by PCR indicates the presence or absence of viral DNA in the specimen tested, at this time that level of virus has not been correlated with the severity of clinical presentation and cannot be used to predict clinical outcome. The lack of standardization of test methods between laboratories and the lack of standardized use of quality assurance controls amongst laboratories remain an ongoing challenge in test interpretation.

Note: Virus isolation is optimized when samples are collected and shipped the same day and are received by the laboratory within 24 hours of collection.

Recently, antiviral drugs have been used by some for the treatment of EHM cases. Currently, there is ongoing research regarding the use of antiviral drugs for treatment of neurologic cases and even prevention of EHV-1 infection in exposed horses. Theoretically, use of antivirals could alter the level of viremia and viral shedding and thereby have an impact on test results. However, at this time there is not enough science-based literature available to determine the impact of the use of antiviral drugs on the level and duration of viremia and nasal shedding of virus. Still, it should be considered during the evaluation of test results, therefore it is important that the submitter record treatment with antiviral drugs on the submission form.

EHV-1 Real-Time PCR Tests

The primary goal of initial real-time PCR testing is to establish presence/absence of the virus. For this reason it is recommended to request a real-time PCR test targeting the glycoprotein B (gB) gene of EHV-1 due to the well conserved nature of this gene. A positive gB test indicates

detection of EHV-1 virus. Further testing can differentiate between the current genotypes which include the EHV-1 G strain, the EHV-1 A strain, and the EHV-1 C strain. This subsequent subtyping is based on the DNA polymerase gene assay, which targets the single nucleotide polymorphism at position 2254 of the virus open reading frame 30 (ORF30). When communicating with testing laboratories, it should be determined whether initial gB screening assay was performed, and if not, whether genotyping testing would cover all current recognized strains. Some laboratories may only use the DNA polymerase (ORF30) gene assay for screening for EHV-1 infection which is considered equivalent to gB testing if all current genotypes (A/C/G) are included.

Characteristics of an Ideal PCR Protocol

Consider these characteristics of PCR assays when choosing the most appropriate type of test to meet your needs and that are consistent with the reason for testing in your situation:

1. Sensitivity: Does the assay have a high sensitivity for the detection of EHV- 1? Is strain typing necessary? Certain highly sensitive PCR assays can differentiate EHV-1 genotypes.

2. Quantitative Load: Any positive results, no matter quantitative load, should be considered virus detection and repeat testing should be considered. A quantitative PCR assay can provide quantitation of viral DNA in a specimen and can be helpful if taken sequentially from the same horse. At present, there is no standardization on how quantitative results are reported or the established cutoff to determine contagiousness. Consultation with the testing laboratory or subject matter expert should be considered to determine management response based on the level of detection.

Additional considerations when choosing an appropriate laboratory for sample testing:

1. Laboratory Assistance: Does the laboratory have readily available personnel to assist with interpretation of test results? A more detailed understanding of a positive or negative test results can assist in the implementation of appropriate biosecurity and infection control measures.

2. State Animal Health Official Acceptance: Will the State Animal Health Official accept the results from the laboratory being considered for sample submission? Some animal health officials require that official test results be provided by specified laboratories and may require additional sample types to be collected and tested, such as collection and testing a different source of sample from a previously tested horse, e.g. blood versus nasal swab or sampling of additional horses in an incident.

Considerations when using PCR testing for EHV-1

1. **Testing horses with clinical signs:**

   Horses with high fevers and/or other clinical signs including coughing or mild nasal discharge, or abortion, with or without neurologic signs, should be tested for EHV-1 by PCR, preferably by real-time PCR, if other possible causes for these signs are not apparent.

2. **Screening of clinically normal horses with a link to an EHM outbreak:**

   The use of testing for EHV-1 in horses that are clinically normal but that have some link to an EHM outbreak will be at the approval of the SAHO in consultation with the attending veterinarian. In general, it is not recommended to test clinically normal horses for EHV-1 due to the possibility of unrelated latent reactivation of the virus.

3. **Testing of exposed horses may not be required by regulatory officials if all of the following apply:**

   a. There is an ability to mitigate further exposure risk by immediate removal of the EHM horse or adequate isolation and biosecurity practices of the EHM horse from all other horses on the premises.

   b. There are no additional clinical cases detected during the 21-day period after initial exposure to the index EHM case. Thus, no evidence of disease transmission.

   Epidemiologic investigation provides confidence in owner/ management monitoring of the situation through demonstration of twice daily body temperature logs, daily clinical assessments, adherence to enhanced biosecurity measures, and observance of strict isolation protocols for sick horses for the duration of the quarantine.

4. **Testing of exposed horses may be required by regulatory officials if any of the following apply:**

   a. Premises management fails to adequately isolate the index EHM case within 12 hours of detection. This will result in continued exposure risk to horses on the premises.

   b. There are exposed horses on premises without adequate isolation from clinical horses. Testing may be necessary to determine disease risk.

   c. Epidemiologic investigation reveals evidence of poor compliance including but not limited to lack of twice daily body temperature monitoring of potentially exposed horses, failure to isolate sick horses, and/or continued sharing of equipment between sick and other horses.

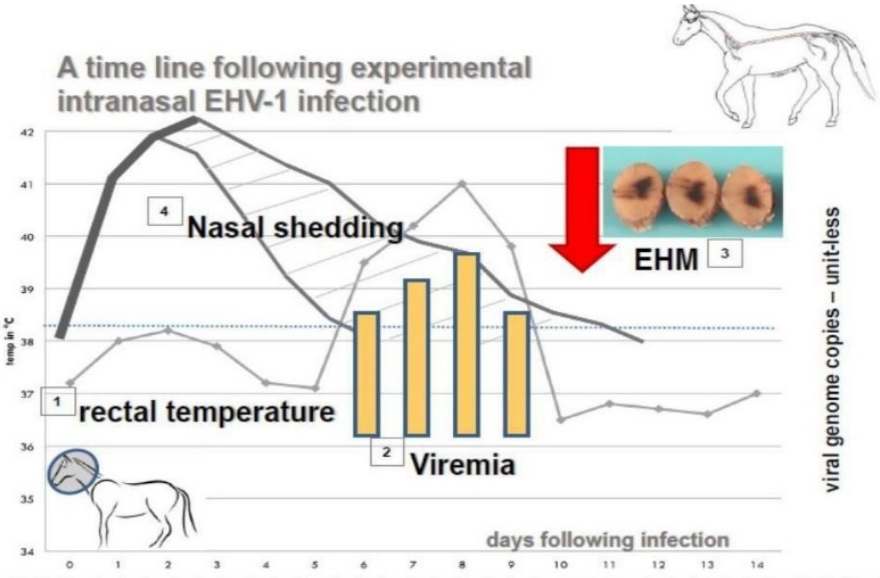
   d. SAHO determines that testing of the non-clinical animal is necessary for disease investigation and/or mitigation.

e. Management elects to reduce the quarantine period to 14 days.

5. **Screening of asymptomatic horses in the general population:**
   Routine testing for EHV-1 in asymptomatic horses in the general population is not recommended. Since EHV-1 is considered to be endemic in most horse populations, detection of the virus in nasal secretions is of limited clinical significance.

Appropriate Timing of Sample Collection

Correct selection of horses for sampling within an affected group is vital to gain the best-quality information for the epidemiologic investigation and disease control efforts. Samples collected represent a single point in time, as viral shedding changes over the course of the infection. Viral shedding from the respiratory tract of adult horses is detectable typically for less than 10 days and may be intermittent. The optimal window for nasal swab sampling is at the onset of clinical signs. In some situations, where initial testing was negative for EHV-1 but EHV infection is suspected as the cause of disease, repeat sampling within 24 to 72 hours of onset of clinical signs should be performed. The amount of EHV-1 DNA detected in nasal swabs varies from horse to horse and over the course of disease in a given animal and does not necessarily correlate with the severity of disease.



This figure illustrates findings of nasal shedding; rectal temperature; viremia, and the (potential) occurrence of EHM following an **experimental** intranasal infection with EHV-1. X-axis: time in days; infection on day=0; Y-axis: rectal temp.in °C; alternative Y-axis: unit-less scale for viral genome quantities; dotted line: fever cut-off (38.3°C-101.3°F). 1- rectal temperature curve is often bi-phasic. Secondary fever is associated with 'cell-associated viremia'; 2- cell-associated viremia, duration 3 – 5 days as determined by PCR; 3- clinical EHM usually follows viremia; 4- nasal shedding is high during the first 3 days and may be associated with a primary fever. Duration of nasal shedding varies significantly between horses, which is represented by the area between the 2 lines of nasal shedding.

Figure 1: This graphic depicts naive horse infection and may not mimic what occurs in horses during an outbreak. Figure courtesy of Dr. Lutz Goerhrig, extracted from 2nd Edition of Equine Neurology.

Recommended Horses to Test During an EHM Incident

1. **Suspect Index EHM Horses:** Highly suggestive EHM case, defined as a horse displaying signs of central nervous system (CNS) dysfunction, including but not limited to hindlimb incoordination, weakness, recumbency and/or urinary bladder atony which may or may not have been preceded by fever, respiratory signs and/or abortion in other horses on the premises.

2. **Suspect EHM Horses:** An exposed horse displaying signs suggestive of EHM including, but not limited to hindlimb incoordination, weakness, recumbency and/or urinary bladder atony during the 14 days prior to the index EHM case developing clinical signs and/or 14 days after last potential exposure to a confirmed EHM case.

3. **Suspect EHV-1 Horses:** An exposed horse that shows no neurologic signs, but displays some of the clinical signs consistent with EHV-1 infection; these may include fever (see Definition), limb edema, abortion, or nasal discharge during the 14 days after initial exposure to a confirmed EHM case. Testing of these horses is recommended but not necessary as long as the index EHM case has been confirmed. Horses not tested will remain suspects and should NOT be included in the confirmed case count.

4. **Testing of Non-clinical Horses in an EHM incident: A decision to test these horses for disease investigation or quarantine release purposes must be carefully considered and approved by the SAHO.** Non-clinical horses can be shedders of EHV. Specific recommendations regarding the risk these horses pose is lacking in the scientific literature. If performed, a planned response to test- positive non-clinical horses should be established prior to testing such horses.

Note: There is no indication to test horses not epidemiologically linked to the disease investigation or generally as a part of the quarantine procedure.

Necropsy of Suspect EHM Horses

A necropsy provides an important means of confirming the presence of EHV associated neurologic disease. EHM is not a zoonotic disease but consideration should be given to other neurologic diseases with the potential for zoonotic implications such as rabies and arboviruses. Thus, it is important to use appropriate biosafety measures during necropsy examination. It is important to necropsy a suspect EHM cases as there are documented cases of suspect EHM

horses with negative ante-mortem EHV-1 test results on nasal swab and buffy coat samples that were confirmed positive for EHV-1 related neurologic disease on necropsy examination. Therefore, necropsy examination of a horse with neurologic disease that dies or has to be euthanized is recommended. To ensure appropriate samples are taken at necropsy, including arboviral testing, individuals are reminded to alert the pathologist of the suspect EHM status of the case and provide the neurologic history on the laboratory submission forms.

EHV-1 PCR Test Interpretation of a Clinical Horse*

NOTE: A positive PCR test on a nasal swab sample does NOT necessarily equate to presence of infective virus.

- **A positive EHV-1 result from a buffy coat sample** indicates viremia and an active infection.
- **A negative EHV-1 test result on a buffy coat sample** indicates the absence of detectable EHV-1 viremia at the time of sampling.
- **A positive EHV-1 test result from a nasal swab sample** should be interpreted as detection of EHV-1 DNA in the nasal secretions. EHV-1 DNA can be detected during and subsequent to the period of shedding infective virus. Quantitative PCR (i.e. real-time PCR) may provide more information about the risk of virus transmission by the sampled horse.
- **A negative EHV-1 test result on a nasal swab** indicates the absence of detectable virus shedding at the time of sampling; provided appropriate sample collection, sample handling prior to shipment and sample shipping protocols were followed.

***Interpretation of the PCR test in the non-clinical animal is similar to the clinical animal, however the implications of the transmission risk is unknown at this time.**

Recommended Protocols for Sample Collection

These are current recommendations:

1. Make contact with the laboratory where samples are to be submitted to confirm sample submission requirements and shipping protocols.
2. Be sure to avoid cross contamination by wearing a new pair of examination gloves to collect samples from each horse and perform hand hygiene between horses sampled. Barrier precautions such as wearing disposable gown or coveralls and boot/shoe covers should be observed. These should be changed when sampling horses of different disease status e.g. clinical cases versus potentially exposed horses.
3. If a chain over the nose or a twitch is used to restrain a horse, it must be washed and

disinfected between horses.

4. A dedicated halter and lead should be used for each horse or these items washed and disinfected between individual animals.
5. Nasal swabs should be collected using Dacron tipped swab (Synthetic) with plastic shaft (don't use wooden shaft or cotton tipped swabs).
6. Insert the swab at least 5 inches into the nasal passage and leave swab against the nasal mucosa for a minimum of 15 seconds before withdrawal.
7. Remove and place swab in a sterile tube (no anticoagulant or gel) or preferably in a tube with viral transport medium. To prevent over-dilution of the sample less than 2 ml of transport fluid should be utilized. Label sample according to laboratory instructions.
8. Collect 10ml of whole blood in EDTA (purple top tube) and label sample with animal name and date and time of collection. Do not send serum for PCR testing.
9. Keep samples cool (refrigerator/ice pack) but not frozen and ship nasal swabs and whole blood samples overnight to the laboratory.
10. Consider direct communication with the laboratory to expedite obtaining results in the most timely manner.

QUARANTINE PLACEMENT

KEY POINTS

- Quarantines are not a one size fits all. Each quarantine must be based on the premises, horses, the biosecurity and management protocols and the epidemiologic investigation.
- Quarantine Release Parameters must be determined prior to issuance of quarantine.
- Objective of Quarantine is to limit spread of EHV by restricting movement and requiring biosecurity measures.
- Not all horses on the property may be exposed, thus epidemiologic investigation dictates which high risk horses should be maintained under quarantine.
- Length of quarantine is case based and depends on State legal authority, evidence of viral spread, speed of response to index case, and compliance with biosecurity measures.

Overview

There is no universal quarantine protocol that can be applied to all EHM incidents as there are multiple factors that must be considered when determining the optimal disease containment response. A disease transmission risk assessment is the critical first step in determining the extent of a quarantine. Once EHM is confirmed, in those states with quarantine authority, a quarantine should be applied in all situations. Additionally, risk assessment identifies specific factors that will need to be addressed in establishing the quarantine(s) parameters and required biosecurity measures on operations with exposed horses.

In preparation for a disease incident, any equine event or large equine facility should identify an appropriate isolation area(s) for clinical and /or exposed animals. Isolation areas on site and off site should be identified in advance, including medical facilities with appropriate isolation areas where clinical cases could be referred for medical treatment. **It cannot be overstated the importance of this preplanning preparation.**

In dealing with EHM incidents, state animal health officials issue quarantines to prevent the spread of the disease agent, specifically EHV. Science- based criteria for quarantine protocols adapted to the specific incident, control disease spread while increasing compliance and minimizing the impact on equine movement. Historically, quarantine issuance is by the state veterinary authority or horse racing boards. However, in some EHM incidents voluntary quarantine actions are taken by private farms, public or private facilities, veterinary teaching hospitals and private practitioners for the purpose of controlling the disease. Some states have the authority to place “hold” or “stop movement” orders which may be imposed while gathering epidemiological data to determine the necessity and proper placement of a quarantine.

Before implementing a quarantine, the criteria for quarantine release need to be established. To ensure compliance and to determine the effectiveness of disease control measures, the quarantine- issuing authority should arrange for a regulatory official or their designee to monitor the situation through periodic on-site visits to the premises. Disease transmission, as evidenced by newly identified clinical cases, outside the initial incubation period, would warrant modification of the quarantine and site biosecurity protocols.

Additionally, if spread occurs beyond the initial quarantine sites, then additional regulatory authorities may need to be contacted and the quarantine may need to be extended or applied to additional sites.

Impact of Quarantine on the Equine Industry

Compliance and cooperation from individuals and the equine industry is essential if EHM is to be successfully controlled. The potential impact of any quarantine on the equine industry or individuals needs to be balanced with the goal of disease containment. Business continuity must be taken into consideration to ensure the equine industry can be supported through an EHM incident. Issuance of an extended quarantine period on multiple premises with a low risk of disease development may be considered an excessive burden and may be unnecessary for effective disease containment. Situational awareness and science-based disease prevention guidance from animal health officials will garner increased confidence among industry stakeholders and will serve to increase compliance and implementation of voluntary disease control measures.

Preparedness is key. Industry, equine practitioners, and the State Animal Health Officials must work together for disease prevention and response planning. For example; isolation planning in advance to identify on and off-site Isolation areas which can include; vacant farms, vacant fairgrounds, temporary stalls in an empty show ring. Facilities to consider equine health entry requirements such as, certificates of veterinary inspection, owner health declaration, or temperature logs. Further consideration to include onsite health monitoring of all equids.

Issuance of a Quarantine

The scope of any premises-based quarantine that is to be implemented should be based on the results of the risk assessment following the identification of a suspect or confirmed index EHM case(s). It may include any of the following scenarios:

1. Only the suspect index or confirmed index EHM horse is quarantined;
2. The suspect index or confirmed index EHM horse and horses with high risk of exposure on index EHM premises are quarantined;
3. All horses on the EHM index premises are quarantined;
4. Entire index premises and horses with high risk of exposure that are located on other than the index premises are quarantined; and
5. An epidemiologically linked non-clinical test positive case is quarantined.

EHV-1 Risk Assessment for Purposes of Determining Scope of Quarantine

At the time of an EHM detection all routes of exposure and clinical manifestations must be evaluated. EHV is spread by direct horse to horse contact as well as indirectly by virus-contaminated fomites and personnel. The most common route of exposure is through the respiratory tract via droplets from the respiratory tract secretions of a virus shedding horse.

Infection can also occur by oral or nasal exposure to virus contaminated surfaces. Examples include hands, clothing, and equipment such as wipe rags, buckets, water sources, feeders, stall surfaces and tack. Clinically affected horses should be assumed to be contagious, particularly with respect to respiratory secretions, for at least 14 days. Aborted fetuses, fetal membranes, and placental fluids also contain large quantities of infective virus and thus pose a particularly high disease transmission risk.

An assessment is critical in order to identify current disease agent transmission risk factors on an affected premises. Identifying the risks for disease agent transmission can assist in determining the required quarantine protocols.

1. **STEP 1: Assessment of Risk Associated with the Index EHM Case:** At the time of the initial testing, the contagious nature of the index EHM horse should be evaluated in terms of potential for shedding EHV-1 and potential spread of virus from this horse to other horses (exposure risk to other horses).
    a. **Potential to Shed EHV-1**: If the laboratory reports detection of EHV-1 DNA in nasal swab, that horse poses a high risk for transmission of EHV-1 to other horses. A clinical EHM horse with this finding would pose a significant risk of virus shedding into the environment.
    b. **Risk Assessment of EHM Case to Potentially Expose Other Horses:** A clinical EHV or EHM case which remains on the premises, without isolation, poses

significant risk of exposure to other equids on the property as it continues to shed virus. Any clinically EHV affected horse that is immediately managed by euthanasia or removal and isolation at onset of neurologic signs represents a limited to no disease exposure risk to the herd from that point forward as the source of virus has been removed. However, the clinical EHM case may have begun shedding virus up to 10 days prior, whereas a respiratory case may have begun shedding up to 2-3 days prior. The isolation and movement of the EHM or EHV case during this period needs to be evaluated to determine exposure risk. Appropriate isolation includes restricted access to other horses (a minimum of 30 feet, recognizing the distance may need to be greater depending upon ventilation, air movement, barn/stall design and other biosecurity factors), avoiding the sharing of equipment and/or personnel and utilization of protective barrier precautions (i.e. personal protective equipment such as disposable coveralls and boot covers). A clinical EHM case that is down and thrashing in a stall has the potential for hyperventilation and poses a significant virus transmission risk as it requires additional personnel for its management compared to a non-neurologic horse; all of which may result in a potentially higher risk of virus contamination of the environment. Direct or indirect contact between horses, treatment personnel or fomites increases the potential exposure of other horses to EHV.

A Quarantined Premises Exposure Risk Assessment chart assists in determining level of risk posed by the index case (See Appendix: Quarantine Premises Risk Assessment Chart). If the index horse poses a low risk of viral shedding and/or is appropriately and promptly isolated from other horses on the premises and no epidemiological links to other horses on the premises exist, a quarantine restricted to the index horse *may* be sufficient. A more extensive premises level quarantine may be warranted if the index horse has extensive direct and/or indirect contact with other horses on the Index premises and/or assessment indicates inadequate routine biosecurity practices are followed on the premises.

2. **STEP 2: Assessment of Exposure Risk within the Herd:** At the time of initial confirmation of the index case, the rest of the herd should be classified according to the degree of exposure and their ability to transmit virus within the herd. Higher risk exposed animals may warrant quarantine and monitoring for fever or other clinical signs consistent with EHV-1 infection. The clinical presentation of the index horse and the

amount of virus will determine where the horse is in progression of disease and risk to the population (See: Figure 1).

a. **Degree of Exposure to EHV Case:** An exposed horse is one which is likely to have had direct or indirect contact with an EHV case (this includes shared transport exposure) within the previous 14 days. Highest risk animals are those with direct nose to nose contact with the EHV case during the peak shedding period which is defined as the 7-day period before or after the onset of clinical signs (this peak shedding period was determined using naive horses). Moderate risk horses are those sharing a common air space with the clinical case, equipment, or personnel with direct contact with the EHV case. Animals on the premises without known exposure to the index horse would be considered a low/negligible risk for exposure and may not warrant any quarantine action. Determining the level of exposure assists in deciding the scope of the quarantine to be applied. (See Appendix: Horse Exposure Risk Assessment)

b. **Degree of Biosecurity in Place Prior to and at Time of Detection of Index Case:** Disease risk cannot be completely eliminated at most equine premises, as equine premises are seldom managed as a closed facility. An evaluation of current business and/or management practices will help identify potential biosecurity risks to be addressed in the quarantine. Areas to be evaluated include management practices, horse stalls, isolation area, wash stalls, commingling areas, equipment handling, transport vehicles, and hay and other feed storage facilities. Premises with minimal biosecurity protocols in place are more likely to have disease transmission and thus warrant a more restrictive quarantine than a premises with a high level of biosecurity practices. The degree and level of commonly practiced/everyday biosecurity measures will significantly impact disease exposure risk on any given premises. Movement of personnel such as veterinarians, farriers, visitors, feed and bedding deliverers, and stall cleaners between areas where horses are housed constitute a potential risk of disease agent transmission. Event grounds should take into consideration competition management practices, such as braiders, grooms, riders, trainers, bit inspectors, or other professionals in contact with the horses, as well as shared tack, equipment, treatment modalities and spaces on the competition grounds. Therefore, the potential spread of EHV-1 due to these movements should be evaluated. A Biosecurity Risk Assessment determines the level of risk posed by

current biosecurity practices on the premises. (See Appendix: Premises Biosecurity Assessment).
Link to AAEP Biosecurity Guidelines: https://aaep.org/wp-content/uploads/2024/02/AAEP-General-Biosecurity-Guidelines.pdf

c. **Degree of Disease Agent Transmission:** As the disease incident progresses, the situation should be evaluated to determine the level of disease agent transmission. Exposed horses on the premises may succumb to disease and present an additional disease transmission risk. Evaluate subsequent cases to determine potential time of exposure. Modify existing quarantine protocols if disease spread is evidenced by new cases with clinical disease after quarantine placement.

d. **Assessment of Transmission via Testing at Onset of Investigation**: There is a lack of consensus among regulatory veterinarians on the appropriateness of testing non-clinical exposed horses in an EHM incident. If testing of exposed non-clinical horses is being considered, then the response to a positive test result 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. As a precaution to minimize the risk of virus spread in any given EHV incident, non-clinical exposed EHV-1 test positive horses should be isolated from non-clinical test negative and untested exposed horses.

3. **STEP 3: Assessment of Exposure Risk of Non-Index Premises:**

a. Trace Forward

Determine the date of clinical onset for the index animal. Subtract 14 days from that date. Interview the individual responsible for managing the index animal (i.e. trainer, owner, show manger, etc.) to determine what horses have left the primary barn or been on the premises and may have had direct or indirect contact during those 14 days. For each horse that left, obtain owners/managers contact information (phone and email), forecasted horse destination, date left, forecast date of arrival and provide to the state of destination SAHO for follow up as determined by receiving SAHO.

b. Trace Backwards

Determine the date of clinical onset for the index animal. Subtract 14 days from that date. Interview individuals responsible for managing the index animal (i.e. trainer, owner, show manger, etc.) to determine what horses have arrived at the primary barn or have been on the premises and may have had direct or indirect contact during those 14 days. For each horse that arrived, obtain owners/managers contact information (phone and email), origin address, date left origin, date of arrival and provide to the state of origin SAHO for follow up as determined by receiving SAHO.

c. Trace Out

Epidemiologic efforts to locate horses which have entered or left the index premises in the previous 14 days to identify source of infection or potential exposed horses

d. Trace Human Contacts with the Index Animal

Additional trace exposure risks would be any individual with contact with the index horse during the 14 days prior to onset of disease including but not limited to the trainer, riders, grooms, owners, farriers, braiders, chiropractors, and other service providers to index or other clinical horses. Any individual who has had contact with the index horse or premises should be contacted to discuss their contact with other horses.

e. Managing Exposed Trace Horses

Follow up conversation to identify location of the horse, health status of the horse, and current biosecurity practices. As a potential exposed horse, risk assessment to determine exposure risk level should direct the plan for managing the exposed horse. At a minimum, advise the responsible person for the exposed trace horse to monitor the horse for clinical signs and twice daily temperature taking and recording. Any signs of illness or fever (see Definition) should be reported to a veterinarian for further evaluation. Additionally, good biosecurity practices, such as limited horse to horse contact and avoiding sharing of

equipment should be followed. See: Biosecurity Recommendations.

f. Assessing Risk and Movement of an EHM/EHV case from Equine Hospital

- Return with Testing: The quarantined EHM/EHV positive horse can test out of quarantine if sufficient time has passed while the horse was in isolation – at least 14 days must have passed since the onset of symptoms. The horse should have a minimum of 1 negative nasal swab, but other states, facilities, and organizations may have additional requirements. Exposed horses on the property maintained separately would continue their existing quarantine clock countdown.

- Return without Testing or Return of an EHV Positive Horse: Not recommended for horses who remain symptomatic. If movement is back to the home barn, the horse needs to be isolated to the best of the facility's ability as advised in the Biosecurity section of this document. Biosecurity must be maintained as best as possible. The horse must be considered a "new case" to the horses that have remained on the farm. Any current or existing quarantine countdown clock of remaining horses (and now includes the hospitalized horse) on the farm must be reset to zero upon arrival of the hospitalized horse. If movement is to an approved isolated facility with no other horses, the quarantine can be completed on the original timeline for this horse as well as the other horses on the home premises.

QUARANTINE RELEASE

KEY POINTS

- Determine quarantine release parameters prior to issuance of quarantine.
- Release based on several criteria which may include testing results, evidence of spread on the premises, or compliance with monitoring and biosecurity requirements.
- Without testing release as early as 21 days may be considered, provided confirmation of adherence to biosecurity protocols and no evidence of viral spread.
- Testing of identified exposed non-clinical horses twice, seven days apart with negative results and verification of compliance with biosecurity may warrant release of quarantine upon receipt of second negative test.
- For facilities with known and documented excellent daily routine health monitoring and biosecurity protocols that require within hours removal of the index EHM case with no subsequent evidence of viral spread, a shorter quarantine period of no less than 14 days may be warranted.
- In the case of a reportable EHM outbreak, all decisions are at the discretion of the State Animal Health Official.

Overview

During Equine Herpesvirus Myeloencephalopathy (EHM) incidents, the quarantine issuing authority (typically the state animal health officials or horse racing authority) issues quarantines and subsequent releases to help prevent the spread of EHV-1. Alternatively, in some incidents, voluntary quarantine actions are taken by private farms, public or private entities, veterinary teaching hospitals, horse racing authorities or private practitioners. Criteria for implementing a quarantine and for quarantine release should be established and each incident assessed based on predetermined guidelines. It must be emphasized that there is no single quarantine release protocol that is applicable to all EHM incidents. When striving for optimal disease containment, multiple factors must be considered based on the risk assessment performed when placing the quarantine.

Clinically affected horses should be assumed to be contagious, particularly via the respiratory route, for at least 14 days. Minimal monitoring or quarantine of exposed horses should be for a minimum of 14 days after removal and isolation of the EHM horse. Quarantines can be amended to release subpopulations of animals earlier if epidemiologic investigation, biosecurity assessment and/or, the results of diagnostic testing deem the risk is minimal from the release of a horse or group of horses.

Assessment of the level of clinical disease (temperature recording and/or compatible clinical

signs) the potential for disease spread, and the level of biosecurity implemented on the premises are critical in determining whether quarantine release is warranted. Release of the quarantine can be based on the clinical disease status of the horses on the premises and/or on the outcome of diagnostic testing.

Quarantine Release without Testing

Release of quarantine shall be based on limiting the potential for spread of the disease agent. Immediate removal or appropriate isolation of EHM case(s) decreases the risk of virus transmission and spread within the population at potential risk of exposure. Appropriate isolation includes restricted access to other horses (a minimum of 30 feet, recognizing it may be greater depending upon ventilation, air movement, barn/stall design and other biosecurity factors), avoiding the sharing of equipment, spaces or personnel and utilization of protective barrier precautions. Diagnostic testing of nasal swabs can help provide evidence of the risk of disease spread within an exposed population. However, financial constraints and the challenges of scientifically based interpretation of risk when dealing with test positive non-clinical horses limit the benefits of diagnostic testing. Accordingly, quarantine release without testing can be an option and is based on the clinical disease status on the premises. Any additional horses developing clinical signs compatible with EHV-1 infection that are tested and diagnosed within the 14 days post strict isolation or removal of an EHM case may be indicative of disease spread on the premises. Strict isolation of EHV-1 clinical cases must include absolutely no horse-to-horse contact, no sharing of any equipment, strict adherence to footwear disinfection at entry/exit to stabling area and use of disposable coveralls and gloves.

Quarantine release is recommended, if adequate biosecurity and monitoring has been maintained and if no new clinical cases (EHM or EHV-1 cases) are identified in a minimum of 21 days from the date of removal of the EHM case(s) or 21 days from the resolution of the last febrile case placed in isolation or the 21 days from the onset of clinical signs in the last neurologic horse placed in isolation on the premises. Monitoring of the exposed population for any clinical signs compatible with EHV-1 infection includes twice daily temperature monitoring and direct observation for compatible clinical signs. Any horses subsequently displaying compatible clinical signs of EHV-1 infection including but not limited to fever should be immediately isolated and it should be assumed this is a new EHV-1 case. The countdown clock for quarantine release should begin again at 21 days unless diagnostic testing rules out EHV-1 infection and another non-contagious cause of fever is found. Refer to the Diagnostic Testing section for diagnostic testing for a febrile case.

Note, a shorter quarantine no less than 14 days for exposed horses may be considered when there is immediate removal (within 12 hours) of the index EHM case and there is evidence of limited potential for disease agent spread due to adequate biosecurity and monitoring of horses as determined by the State Animal Health Official.

Quarantine Release with Testing

Testing of clinical horses for release of quarantine may shorten the quarantine period. Testing only reflects the status of an individual horse on the day of sampling. Positive results could reflect reactivation of latent infection or recent exposure. A positive EHV-1 test result warrants further investigation to determine if further virus spread is occurring on a premise. If virus spread is evident, the quarantine should remain in place. Negative test results from nasal swab and buffy coat samples may warrant release of the quarantine. Exposed and clinical horses may be retested 14-21 days from the resolution of the last febrile case or from the onset of signs in the last neurologic horse in assessing the infection status of a premises.

There is a lack of consensus among regulatory veterinarians on the appropriateness of testing exposed non-clinical horses. The interpretation of such results based on existing scientific risk assessments is problematic. This is because the non-clinical horse that tests positive for EHV-1 on nasal swab and/or buffy coat, currently represents a non-quantifiable but potential risk of transmitting virus to other horses to which it is exposed. As a precaution and to minimize the risk of disease spread, any EHV-1 test positive horse should be isolated from test negative and non-clinical exposed horses.

Utilization of Testing Results for Quarantine Modification or Release

1. Testing of Confirmed EHV-1 Clinical Horses: A confirmed EHM case or EHV-1 case with two subsequent PCR negative nasal swab samples obtained 7 days apart is considered to pose a minimal disease transmission risk, thus quarantine release is recommended for this animal. Note, a minimum of 14 days under quarantine is recommended.

2. Testing of Exposed Non-Clinical Horses: There is a lack of consensus among regulatory veterinarians on the appropriateness of testing these non-clinical exposed horses. Testing of exposed horses 14 to 21 days from the resolution of the last febrile case or from the onset of the last neurologic signs in a horse may be utilized to assess infection status among horses on the

premises. Any virus positive horse(s) should be promptly removed from the group and isolated until confirmed negative on nasal swab PCR testing, or in the absence of testing, an adequate period in quarantine before release. As for the remaining animals in the exposed group, the clock has to be reset in terms of the period they are held in quarantine since one or more of them may have been exposed to the virus and may be shedding the virus.

EHM INVESTIGATION and RESPONSE GUIDELINES

KEY POINTS

- An epidemiologic investigation is critical for determining how to best manage an EHM incident as there is no one size fits all protocol.
- A 21-day monitoring period is observed for an index or high-risk premises for assurance of cessation of viral spread. Whereas a 14-day monitoring period is implemented for the other exposed non-index premises.
- Investigation should involve all persons (temporary or permanent) associated with the EHM premises, including but not limited to the owner, manager, riders, trainers, grooms, health care professionals (veterinarian, farrier, chiropractor, massage therapists etc) and barn workers,
- Investigation should include all premises or transport vehicles used by horses on the index premises.
- Review of written biosecurity protocols AND direct observation of actual biosecurity protocols used on the premises.
- Risk assessment of premises to identify potential biosecurity risks to be addressed in quarantine biosecurity protocols.
- Develop the quarantine biosecurity requirements to address all identified high risk factors.

Introduction

In preparation for an EHM investigation, review the biosecurity and diagnostic testing recommendations in previous sections of this document. When conducting an EHM incident investigation it is helpful to first identify the four "W's": who, what, where, and when?

- **Who** is the suspect/confirmed EHM horse? The age, breed, gender, use, EHV-1 vaccination status and clinical signs are important details to record.
- **What** is the clinical presentation, the status of the diagnostic testing and physical examination? The diagnostic test results are essential in confirming an EHV-1 diagnosis and determining the case designation category.
- **Where** is the EHM horse currently located and where has it recently been? The location of the index horse at time of diagnosis and all locations of the index horse for the two weeks prior to onset of clinical signs are critical components to the investigation. (Trace-back)
- **When** did the initial clinical sign(s) appear? Determination of disease onset or exposure

date is critical to evaluating risks to exposed horses. (Trace out)

Once the basic information on the index horse or the affected animals is obtained, the objective of the investigation is to identify the disease transmission risk factors on the premises, so that they can be targeted in any control and prevention plan. For tracing purposes, a 14-day look-back period is utilized. However, a 21-day observation and monitoring period is critical to prevent disease spread.

The most common transmission route is via the respiratory tract by aerosolized droplets of respiratory secretions. Infection is spread by direct horse-to-horse contact, as well as indirectly by contaminated surfaces or objects including personnel.

Environmental transmission of the disease agent of primary concern during an outbreak can occur especially when horses are kept in close confinement. Environmental persistence of the EHV-1 virus is estimated to be less than 7 days under most conditions with a maximum environmental survival of 30 days. Recent research has shown virus survival in water for up to 21 days. Once the EHV-1 incident investigation identifies the risk factors for exposure, control measures must be implemented to 1.) Limit the extent of spread and possibly, severity of clinical disease on the premises and 2.) Limit the spread of disease to adjacent or exposed premises. (See Appendix: EHM Case Investigation Form.)

Outline of Investigator Responsibilities

Use laboratory testing to confirm diagnosis and when reporting on the investigation use case definitions to clearly communicate the status of the horses being investigated.

1. Conduct a case investigation to identify potentially exposed horses.
2. Utilize EHM Case Investigation Form to document details about the index case and assess potential for exposure of additional horses.
3. Utilize Quarantined Premises Exposure Risk Assessment chart to identify premises risk factors.
4. Utilize Horse Exposure Risk Assessment to classify individual horse exposure risk.
5. Utilize Premises Biosecurity Assessment to identify biosecurity risks to be addressed in quarantine.
6. All referenced, completed forms from appendices may need to be forwarded to the appropriate authorities for incident management relevant to local, state or other

authority jurisdictions and any reporting obligations.

7. Initiate control and prevention measures based on assessment to prevent spread of disease agent.
8. Provide general biosecurity recommendations to the exposed and quarantined premises.
9. Identify and investigate all movement of exposed horses to determine appropriate regulatory action.
10. As appropriate, serve as a source for factual information regarding the quarantine: distribute disease fact sheets to educate individuals or groups, refer to other appropriate resources or authorities.

GENERAL BIOSECURITY RECOMMENDATIONS FOR EHV-1 EXPOSED AND QUARANTINED PREMISES

1. **Isolate any clinical cases as soon as they are identified**
    a. Isolation is critical to controlling disease. Ideally, at the onset of suspicion of a compatible clinical sign of EHV-1 infection, isolate the affected horse a minimum of 30 feet from all other horses and potentially further depending on multiple factors previously described in these guidelines. Appropriate diagnostics should be utilized to determine the cause of compatible clinical signs. (For sample collection and diagnostics selection, See: Diagnostic Testing section of this document)
    b. Restrict contact with horses to those designated personnel. If possible, assign specific personnel to work on positive or suspect cases. Ideally, these designated individuals should not handle any other horses on the property.
    c. Place footwear disinfectant and hand sanitizer stations, ideally outside each isolation stall for confirmed cases and outside all entrances and exits for all barns. Provide disposable one-time-use PPE for designated personnel to wear when handling EHV-1 test positive or suspect horses.
    d. Restrict access to the isolation area to essential personnel and the isolated animals.
    e. Handle isolated horses last; personnel handling isolated horses should not be handling other horses without changing clothes.
    f. Clean and disinfect the stabling area where the EHV-1 test positive or suspect horse has been.
2. **Isolation of Mules & Donkeys**
    a. Separation of all mules & donkeys away from horses may be an important strategy in EHV-1 disease control to reduce the risk of an EHM incident. Scientific studies have investigated the role of mules & donkeys as silent shedders of EHV-1 during an EHM incident. During a 2011, EHV-1 disease investigation involving mules and horses in California, high viral nasal shedding and viremia was detected in some of the asymptomatic mules. It is important to note that the detection of EHV-1 in asymptomatic mule samples indicates their susceptibility to infection and their potential role in virus spread.

3. **Quarantine**
    a. Quarantine of the premises or barn means that there should be no horse movement into or out of the quarantined area, excluding permitted movement to medical facilities for medical care.
    b. Post signage regarding quarantine and biosecurity measures in common areas, such as on the notice board outside the office, near restrooms and at entry areas to each barn.
    c. Communicate the current quarantine situation to all personnel who may be entering the facility.
    d. Limit premises access to essential personnel and vehicles and monitor perimeter of the premises for non-authorized entries (ideally the quarantined area should be obviously demarcated using signage and physical barriers, such as fencing, sawhorses, caution tape, etc.).
4. **Monitor all horses on premises**
    a. Obtain and record the body temperatures of all horses on the premises twice daily. Temperatures should not be taken within 2 hours of travel or exercise. Ideally obtain body temperatures first thing in the morning and last thing in the evening and before administering medications which may decrease the body temperature. Firocoxib drugs (Equioxx and Previcox) have been known to have a prolonged temperature suppression ability, thus horses on these drugs may be considered febrile at 100.5°F.
    b. Report a fever (see Definition) to a veterinarian for follow up collection of nasal swabs and blood to test for EHV-1, taking into consideration whether Firocoxib drugs have been administered as described above.
    c. Monitor all horses for clinical signs compatible with EHV-1 infection, which include ocular or nasal discharge, limb edema, abortion and neurologic signs such as unsteady gait, weakness, urine dribbling, lack of tail tone or recumbency. Report the observation of any of these signs to the veterinarian designated for follow up collection of nasal swabs and blood sampling to test for EHV-1.
5. **Restrict human, pet and vehicle traffic from exposed-horse areas**
    a. Restrict personnel access to only those necessary for the care of the exposed horses.
    b. Do not permit dogs in horse areas. Dogs have the potential to carry the virus from one area to another on their body.

c. Restrict vehicle traffic including feed/supply delivery vehicles, from entering horse stabling areas. Designate an area where vehicles should be parked away from the stable area.

d. For extended quarantine situations, farriers and other service provider personnel should take appropriate biosecurity measures as outlined in this section to reduce risk of spreading the virus.

6. Limit direct horse-to-horse contact

a. Limit potential horse-to-horse contact in common areas, such as wash stalls, aisle ways and arenas.

b. Limit potential horse-to-horse contact when possible by closing upper stall doors or installing a physical barrier to restrict horses from extending their heads into the aisle ways.

c. When horse-to-horse contact is possible stall-to-stall, consider temporary barriers such as securely fastened wood, tarp, or other suitable material.

7. Limit stress to horses

a. An EHV-1 exposed horse may potentially be incubating the virus. With stress, an exposed horse has a higher likelihood of developing clinical disease and shedding a significant amount of virus from the respiratory tract.

b. Any decision regarding management of exposed horses should balance the need to contain the disease agent spread with the stress that would occur based on management imposed on exposed horses. For example, at race tracks exercise of exposed but non-clinical horses is allowed after all other horses have trained and been removed from the track since regular exercise of race horses is very important to their wellbeing.

8. Eliminate sharing of equipment and personnel

a. Clean and disinfect all brushes, halters, cross ties, lead ropes and tack which have previously been shared.

b. Avoid use of common halters, cross ties, lead ropes, wipe rags, sponges and tack. Use individual equipment for each horse; avoid sharing equipment.

c. If equipment must be shared, clean and disinfect all equipment before and after each use. This includes feed buckets and other feeding and stall cleaning utensils.

d. Avoid tying horses to fences or tie rails.

e. Avoid possible viral contamination of water buckets by not allowing the hose

to enter or contact the bucket when filling the bucket with water.

f. Designate traffic pattern for wheeled vehicles (i.e. tractors, gators, wheelbarrow, etc.) used for handling hay, feed, shavings or supplies to limit disease spread.

9. Clean and Disinfect

a. Select a disinfectant that specially has an EHV-1 label claim for efficacy. (See Appendix: AAEP Disinfection Chart)

b. Read the disinfectant label for appropriate dilution and preparation instructions. Many will also have specific instructions for required contact time, as well as other application & safety instructions.

   i. It is critical that the surface remains wet with disinfection for the recommended contact time. In hot/humid situations, that may require reapplication of the disinfectant.

c. Clean all barn, other stabling, trailer, or other equine contact surfaces thoroughly, removing all organic matter (dirt, nasal secretions, uneaten feed, manure, etc.) before applying a disinfectant. It is important to remember that organic material decreases the effectiveness of the disinfectant, especially if 10% bleach is used as the disinfectant.

d. Clean all shared equipment and shared areas to remove dirt and manure before application of a disinfectant.

e. Completely clean and disinfect the stall surfaces of the known-infected horse and any equipment and objects that may be contaminated. Properly dispose of potentially contaminated materials generated by the cleaning and disinfection process.

f. For tack and other items that are unable to be disinfected, use an appropriate cleaner (e.g. leather cleaner) and place items in the sun for UV exposure for as long as possible. Rotate items to assure all surfaces are exposed to the sun.

10. Use footwear disinfectant & hand sanitizer

a. Place footwear disinfectant and hand sanitizer stations, ideally outside each isolation stall for confirmed cases and outside all entrances and exits for all barns.

b. Ensure use of footwear & hand sanitizer stations.

c. Routinely clean footwear disinfection stations to avoid buildup of organic

material, such as dirt and manure, which may inactivate the disinfectant.

d. Assign a person to monitor the footwear disinfection station and promptly clean and replenish the disinfectant as needed.

11. Use of Personal Protective Equipment (PPE) for Isolated Horses (an excellent training module on PPE for veterinarians can be accessed at the following link—module #10): https://www.aphis.usda.gov/nvap/training-modules

a. Assign a person knowledgeable on infectious disease protocols to oversee isolated sick horse stabling. This person shall ensure proper donning and doffing of PPE.

b. Coveralls should be dedicated to one individual person and not shared amongst personnel.

c. Disposable coveralls are the preferred form of PPE. They should only be used for handling one infected horse and can be re-used provided they do not have visible manure or bodily fluids and are secured in a sealed container outside of the individual horse's stall.

d. Use of cloth coveralls is discouraged as they are known to be a fomite in infectious disease situations. If used, they should be clean upon entry into isolated stabling and should be used for a single designated animal. Re-use of cloth coveralls could be permitted provided they do not have visible manure or bodily fluids and are secured in a sealed container outside of the individual horse's stall.

e. PPE should be donned in a manner which prevents contamination of inner or outer surfaces. Ideally, outwear should be donned in a clean dry ground surface (i.e. pavement).

f. Disposable gloves should be worn at all times when handling an infected horse and should be disposed of upon exiting the individual stall. Gloves should not be re-used.

g. Ideally, disposable boot covers are changed upon exiting the individual stall. If disposable boot covers are not available, boots should be cleaned and a disinfectant foot bath should be used upon exiting the individual stall.

h. Soiled or ripped PPE should be securely bagged and tied prior to removal from the contaminated area to limit virus spread.

i. For specifics regarding PPE supplies, please see attached chart on the following page.

12. Bedding from isolated horses. Soiled bedding can contain infectious virus.

a. Dedicated cleaning equipment should be maintained for each stall/horse.
b. Disposal of soiled bedding should be handled in such a manner as to limit access/exposure to other horses, barns and structures on the premises.

Personal Protective Equipment (PPE) Supplies

Product Name/Type	**Potential Source**	**Contact Information**
Plastic aprons	Grainger	(800) 472-4643 www.grainger.com
Tyvek coverall with attached hood, elastic wrists and ankles	Enviro Safety Products, Valencia, CA 91355	(800) 637-6606 Fax: (559) 746-0317 www.envirosafetyproducts.com
White disposable gowns	eSafety Supplies City of Industry, CA 91746	(877) 693-3754 (626) 369-1280 www.esafetysupplies.com
Disposable plastic boots ("Knot-a- Boot")	QC Supply Schuyler, NE 68661	(800) 433-6340 (402) 352-3167 www.qcsupply.com
Virkon-S - use spray bottle for disinfection of soles of boots/shoes	Valley Vet Marysville, KS 66508	(800) 419-9524 Fax: (800) 446-5597 www.valleyvet.com
Alcohol hand sanitizer- use product with at least 61% alcohol	Multiple sources Examples include Purell and 3M Avagard	www.purell.com www.3m.com
Single-use thermometer probe covers	Valley Vet Marysville, KS 66508	(800) 419-9524 Fax: (800) 446-5597 www.valleyvet.com
Water and feed buckets	Valley Vet Marysville, KS 66508	(800) 419-9524 Fax: (800) 446-5597 www.valleyvet.com
Disinfectable Halter and Lead	Valley Vet Marysville, KS 66508	(800) 419-9524 Fax: (800) 446-5597 www.valleyvet.com
Disinfectable Grooming Brush Set	Valley Vet Marysville, KS 66508	(800) 419-9524 Fax: (800) 446-5597 www.valleyvet.com

EHM INCIDENT COMMUNICATION

KEY POINTS

- Early and frequent accurate factual concise communications are critical to successful EHM incident response.
- A communication plan for EHM Incident response should be developed in advance to identify target audience, modes of communication and key messages.
- Ready to go, quarantine and biosecurity signage for premises ensures consistent reminders of the important measures to protecting equine health.
- Simple infographics and basic information assist in explaining the disease to all parties.

Overview

Equine Herpesvirus-1 neurologic disease or equine herpesvirus myeloencephalopathy (EHM) are topics about which a great deal of information/misinformation continues to be posted on websites, social media, or blogs. With the popularity of social media, the need for timely and accurate communication during any EHV-1 incident is critical. Stakeholders have recognized the need for accurate, clear, consistent information in order to make well informed decisions about equine health management. When factual information is lacking, misinformation can spread quickly creating unnecessary anxiety among equine owners and others in the industry. For successful communications during an EHV-1 incident, media training for individuals involved in EHV-1 messaging is strongly recommended. Risk communications training provides insight into the key points that need to be addressed in disease incident communications. For more information, see https://www.healthyagriculture.org/detect/risk-communication/

It is recommended that state animal health officials should establish a communication plan for an EHV-1 incident well in advance of the incident. Appropriate contacts with industry, other state equine officials and federal resources should be made prior to the event 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.

To Whom to Communicate?

Initial communication during an EHV-1 incident starts with the index premises. To encourage cooperation of all parties at the onset of the incident, face-to-face meetings between involved parties are highly recommended. Involved parties may include but are not limited to facility owners, trainers, event managers, horse owners, practicing veterinarians and the state animal health official. Other stakeholders may include farriers, braiders, hay/feed delivery personnel, etc. Inclusion of the regulatory officials in the communication process helps to give the perspective of “we are in it together” for the welfare of the horse and the industry. All

communication should target those impacted by the EHV-1 incident, such as the individual horse owners, whose concern may be centered on how the disease occurrence affects their horse(s) and the economic impact from possible animal losses and restrictions on movement.

Once communications have taken place with the responsible person(s) on the index premises, information should be more widely disseminated to the equine industry at large to include but not limited to contacting the Equine Disease Communication Center (EDCC) (www.equinediseasecc.org). It is important to include information regarding when a quarantine was instituted as well as follow up information as to when the quarantine was lifted.

Delay in communications will allow time for rumors to develop and spread. It is recommended that state animal health officials develop a communication network for dissemination of equine disease alert information within their states. Some states have successfully used email lists to distribute and alert key equine industry representatives and equine practitioners in the state. Those alerted should in turn disseminate the information to their respective constituents. An email notification system ensures a reliable source is providing a consistent message for the state. In addition to email alerts, state animal health webpages and social media sites can host the most current factual information. States with large event facilities should consider a notification system for event facilities including race tracks.

When to Communicate?

Timeliness of communication is critical. However, it is essential to first consider the need to communicate the information. For example, a single horse out on pasture that has never left the premises and has no potential to expose another horse may not warrant communication to the entire equine industry as there is minimal risk outside of the horse's index premises. However, a horse displaying neurologic signs five days after participating at a large national horse show along with a history of a fever preceding the development of neurologic signs, that has been confirmed positive test for EHV-1, presents a significant risk and warrants widespread dissemination of information on the status of the situation.

It is recommended that communications with the industry occur within 24 hours of the initial investigation and confirmation of the EHV-1 case. States with experience in communicating EHV-1 incidents have cautioned others that communicating about a suspect but not yet confirmed case of EHV-1 may be premature as there are many differential diagnoses for a previously febrile horse that is now exhibiting neurologic signs. Therefore, it is recommended that only confirmed case information be disseminated to the industry. Where a rampant rumor mill situation exists, state animal health official action to clearly communicate the status of the situation is necessary. The state animal health official may want to acknowledge that an investigation is ongoing but that no cases of EHV-1 have as of yet been confirmed and indicate when further information will be made available.

What to Communicate?

The key to communication is providing factual information that addresses the concerns of the industry. Do not speculate. The outreach to affected premises should include specific biosecurity recommendations and quarantine parameters. Owners of all identified exposed horses should be provided a temperature monitoring log for tracking twice daily temperatures and any other clinical signs.

There are multiple different stakeholders in equine disease communication. Generally equine stakeholders want to know if a particular EHV-1 incident can impact them. For example, the individual horse owner is concerned about risk to his/her horse, the show manager is concerned about risk to their event, and the equine practitioner is concerned about risk to the health of the horses in their practice area. Each individual utilizes the information available to assess risk as it pertains to them and their role in an incident. The critical information state animal health officials can provide to the stakeholders includes: how many horses are affected, the population of horses affected, potential exposures, and the measures implemented to limit the disease spread. This information can be in the form of social media alerts, webpage updates and printed outreach materials. State animal health officials are urged to place information on their department's website.

State animal health officials, the AAEP and the American Horse Council (AHC) have developed a plan for a National Equine Disease Communication Center to assist dissemination of factual current information at www.equinediseasecc.org. The EDCC has been designed to become the central "go-to" source for information about equine infectious diseases that pose a threat to the horse industry and the website is intended to be a central communication resource for the equine industry to provide current, factual information regarding ongoing outbreaks in all fifty states.

Outlined below are some recommendations for regulators for messaging content for webpages, alerts, and social media.

1. Recommended Website Content
    a. See: Definitions section of guidance document for case definitions to be posted to the website.
    b. Compatible Clinical Signs: See: Definitions section of Guidance Document.
    c. Resources:

        i. USDA Webpage: https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/equine/ehv#:~:text=EHV%2D1%20and%20EHV%2D4,Equine%20Herpes%20Myeloencephalopathy%20(EHM)

ii. USDA Brochure: https://www.aphis.usda.gov/vs/nahss/equine/ehv/equine_herpesvirus_brochure_2009.pdf

iii. AAEP Website
    1. Resources for Horse Owners:
        a. https://aaep.org/wp-content/uploads/2024/03/EHV_FAQ_for_Owners_Final.pdf
        b. https://www.facebook.com/AAEPHorseDocs/
    2. Resources for Veterinarians
        a. https://aaep.org/wp-content/uploads/2024/02/EHV1-4-guidelines-2021.pdf
        b. https://aaep.org/resource/ehm-and-ehv-faq/

iv. Equine Disease Communication Center (EDCC): www.equinediseasecc.org

d. Alert about New Cases: Posted Daily

i. Sample Verbiage to Include When Posting on Website: Day one

1. On [X Date], a [X] year old, breed, sex, displaying mild/moderate/severe neurologic signs has been confirmed test positive for Equine Herpesvirus-1. The test positive horse has been quarantined and isolated in [X] County. Exposed horses have been quarantined and are being monitored twice daily for fever (temperature over 101.5°F, or 100.5°F if on an NSAID or antipyretic medication) and other clinical signs. An epidemiological investigation has been initiated. State animal health officials will continue to monitor the situation.

ii. Sample Verbiage To Include when Posting on Website: Subsequent Days

1. No new cases have been detected. Epidemiologic investigation reveals no additional exposed horses beyond index premises.

2. An exposed [X] year old, breed, sex, displaying a fever of 101.5°F (or 100.5°F if on an NSAID or antipyretic medication) has been confirmed positive for Equine Herpesvirus-1. This horse had direct exposure to the index horse and has been isolated. Exposed horses continue to be monitored. Epidemiologic investigation reveals horses participated in a show at [X] premises on [X date]. (After discussion and notification of event management.) State animal

health officials are contacting owners of potential exposed horses. All exposed horses should have temperatures taken twice daily and be observed for any clinical sign consistent with EHV-1. Any fever or compatible clinical signs should be reported to a veterinarian for investigation and diagnostic testing.

3. The test positive horse has been released from quarantine based on negative test results. No additional horses have been detected. The investigation has been closed.

2. Recommended Incident Specific Outreach Materials

    a. Answers to Commonly Asked Questions to include in outreach materials.
        i. When did the outbreak begin?
        ii. Where can I get the most current information on the outbreak?
        iii. Where do I report a suspect case?
        iv. What type of horses (use of horses e.g. rodeo, show, race, pleasure, etc.) are primarily affected?
        v. Is my horse at risk?
        vi. Has there been spread of the disease?
        vii. Are there movement restrictions?
        viii. When will updates be available?

    b. Outreach for Premises

        i. Provide recommended Biosecurity Practices for EHV-1 Premises

EHV-1 VACCINATION

KEY POINTS

- EHV-1 vaccination is a critical tool for reducing respiratory disease, abortion, and limiting the spread of equine herpesvirus-1.
- No vaccine completely prevents the neurological form (EHM), so comprehensive biosecurity remains essential.
- The private practitioner following American Association of Equine Practitioners vaccination guidelines, determines the most appropriate vaccination protocol for the individual horse and herd.
- Vaccination during an EHM incident is not recommended, as a potential post vaccination fever may impact the quarantine.

Overview

Currently available vaccines against EHV-1 provide some protection against the respiratory and abortion forms of the disease but fail to protect against EHM. The following summary information is offered for your consideration**, but vaccination decisions should be made by the attending veterinarian(s) based on the current American Association of Equine Practitioners (AAEP) & United State Equine Federation (USEF) EHV vaccination guidelines.**

https://aaep.org/resource/equine-herpesvirus-rhinopneumonitis-vaccination-guidelines/

https://www.usef.org/forms-pubs/qGZEI_tvdgE/rule-gr844-equine-vaccination

A systematic review and meta-analysis of randomized controlled experimental challenge trials showed a slight but non-significant vaccine efficacy in the reduction of clinical signs of the disease. When considering all the studies, vaccination helps to reduce the viral load in the environment, minimizes virus replication in the respiratory tract, reduces nasal shedding and the magnitude and duration of viremia. The quantitative reduction on viremia could not be evaluated due to the heterogeneity of the studies.

A second systematic review and meta-analysis to determine the efficacy of vaccination in the prevention of EHV-1 disease showed collectively, modified live vaccines were shown to decrease the incidence of pyrexia, viremia, and nasal shedding. Inactivated vaccines reduced the incidence of pyrexia but had limited effect on viremia and nasal shedding. The differences in the studies may be a result of type and number of studies included, methods of analysis and

assessment criteria.

It is recognized that in an outbreak situation, some veterinarians, owners and/or trainers may elect to vaccinate non-exposed horses on the premises. Consultation with regulatory officials and thoughtful consideration should be given before this activity is initiated. If this approach is pursued, it is important to understand the following:

1. There are no EHV-1 vaccines currently licensed to prevent EHM. Protection against clinical EHM should not be an expectation.
2. Only afebrile and asymptomatic horses should be considered for vaccination. It is not recommended to vaccinate horses with direct exposure to EHV-1 positive horses.
3. The current/previous vaccination status of each animal should be obtained and evaluated as part of this decision process. To determine current vaccine status of the horse, see the AAEP Vaccination Schedule Chart: https://aaep.org/wp-content/uploads/2024/02/Adult_Horse_Vaccine_Chart_2023_SUB.pdf
4. A certain percent of vaccinated animals will respond with a low-grade fever, lethargy and/or injection site discomfort for anywhere from 24 -72 hours (or longer) post vaccination. These fevers can exceed 101.5°F.
5. Horses with post-vaccination fevers can increase the number of animals meeting isolation, monitoring and testing requirements and increase the cost of outbreak management.
6. Vaccination should not be considered a substitute for or equivalent to implementation of good biosecurity measures.

APPENDIX

1. **Quarantined Premises Exposure Risk Assessment**
2. **Premises Biosecurity Assessment**
3. **Quarantine Release Assessment**
4. **EHM Case Investigation Form**
5. **Temperature Monitoring Log**
6. **AAEP Disinfection Chart**
7. **Outbreak Infographics**
8. **Flow Charts**

QUARANTINED PREMISES EXPOSURE RISK ASSESSMENT

To be used once an EHM case has been confirmed on the premises.

Assessment of management practices 7-14 days prior to and subsequent to identification of the index EHM case. For additional details see "Definitions" and "Assessment of Risk Associated with Index EHM Case"

Level of Isolation of Infected Horses:

(Any yes answer is considered an increased risk)	Yes	No
Is it possible for the infected horse to have nose-to-nose contact with other horse(s)?		
Can the infected horse place its head into a common alleyway and make physical contact with humans, equipment or other horses?		
Are there openings in the stall sides between the infected horse stall and the stall next to him?		
Is the nearest horse stalled closer than 30 feet to infected horse(s)?		
Is there a horse in the stall(s) adjacent to the infected horse?		
Is there a horse in the stall(s) across the alley from the infected horse?		
Is the infected horse turned out into a pasture or paddock which other horses use?		
Do the same personnel handle healthy and infected horses?		
Is disposal of manure from isolated horse unrestricted?		
Are dogs permitted in the stabling areas?		

Sharing Equipment or Personnel

(Any yes answer indicates a potential means of EHV-1 spread)	Yes	No
Does any other horse have access to the infected horse's water bucket?		
Does any other horse have access to the infected horse's feed bucket?		
Does any other horse have access to the infected horse's halter or other tack?		
Does any other horse have access to the infected horse's grooming equipment?		
Does any other horse share crossties with the infected horses?		
Does any other horse have access to personnel who have worked directly with the infected horse (to include but not limited to veterinarian, farrier, feed or delivery personnel and stall cleaners)?		
When watering horses, is the end of the hose submerged into the infected horse's water bucket?		
When feeding horses, does the common grain scoop make contact with the individual stall feed tubs?		
Are the wheeled vehicles (tractors, gators, wheelbarrows) shared for movement of hay, feed, shavings and manure?		

Protective Equipment

(Any no answer may lead to increases in disease spread)	Yes	No
Is a footwear disinfection required every time a person enters and exits an infected horse's area during the quarantine period?		
Is there minimal organic material in the footbath?		
Are footbaths changed at least daily or more frequently in high traffic areas?		
Are boot covers or boot disinfection required when handling infected horse?		
Are separate coveralls or clothes required when handling the infected horse?		
Are disposable waterproof gloves required when handling infected horse?		
Is everyone, including visitors, provided requirements or information regarding the biosecurity measures in place?		
Are coveralls disposed of or laundered after each entry into the infected horse stabling area?		

Horse Exposure Risk Assessment

Exposure Risk: Answers of *"Yes" signify increased risk of disease agent spread (Time period for assessment:* 7-14 days prior to and subsequent to identification of the index EHM case. For additional details see "Definitions" and "Assessment of Risk Associated with Index EHM Case" sections.*)*

Is the exposed horse showing clinical sign(s) of disease? _____

Did the exposed horse(s) have direct contact with an infected/ sick horse in the stabling area? _____

Did the exposed horse(s) have direct contact with infected/ sick horse in any common area? _____

Did the exposed horse(s) have direct contact with infected/ sick horse in any exercise area? _____

Did the exposed horse(s) have contact with infected/ sick horse in any pastures or paddocks? _____

Did the exposed horse(s) have contact with equipment used on the infected/sick horse? _____

Did the exposed horse(s) have contact with people handling/feeding the infected/sick? _____

Did the exposed horse(s) have contact with infected/ sick horse during shipment to the premises? _____

General Exposure Risk Quarantine Guidelines

Low-Exposure Risk Horse	No known exposure on index EHM case premises	Minimal risk; recommend monitoring for clinical signs.
Medium-Exposure Risk Horse	Potential exposure on index EHM case premises	Recommend monitoring body temperature of horse for 14 days
High-Exposure Risk Horse	Known direct contact with index EHM case	Recommend Quarantine and Isolation Monitoring and testing of any horse which develops fever or neurologic signs. (*Note: If testing non-clinical horses, must have a plan in advance on how to handle a positive result)

Premises Biosecurity Assessment

Disease risk cannot be completely eliminated from an equine premises as these premises are seldom closed to both new arriving horses or equine service providers. An evaluation of current management practices will help identify potential biosecurity risks which should be addressed in the quarantine.

Personnel

	LOW RISK		MEDIUM RISK		HIGH RISK	
Horse Caretaker	Individual Horse Contact		Multiple Horses with cleaning and disinfection in between		Multiple horses, no proper biosecurity protocols	
Rider/Driver/ Trainer	Individual Horse Contact		Multiple Horses with cleaning and disinfection in between		Multiple horses, no proper biosecurity protocols	
Health Service Providers	Individual Horse Contact		Multiple Horses with cleaning and disinfection in between		Multiple horses, no proper biosecurity protocols	
Farrier	Individual Horse Contact		Multiple Horses with cleaning and disinfection in between		Multiple horses, no proper biosecurity protocols	
Braider/Groom	Individual Horse Contact		Multiple Horses with cleaning and disinfection in between		Multiple horses, no proper biosecurity protocols	
Other	Individual Horse Contact		Multiple Horses with cleaning and disinfection in between		Multiple horses, no proper biosecurity protocols	

Stalls

Walls	Solid		Half walls		Bars	
Material	Metal		Treated wood (non-porous)		Untreated wood (porous)	

Isolation Area

	LOW RISK		MEDIUM RISK		HIGH RISK	
Isolation Location	Available designated empty barn or paddock/pen/pasture isolated away from all other stalls		One empty barn at the end of the barns		A few stalls available at one end of barn housing horses	
Personnel Access	Isolation personnel access only		Limited access		No ability to restrict access	
Vehicle Access	Restricted vehicle access with monitoring at entrance to premises and isolation stabling		Restricted vehicle access with no monitoring of entrance		No restrictions or monitoring of vehicle access	

Feed and Water

Feed storage	Covered hay and sealed containers for feed kept in a separate secure stall		Secure storage stall with open feed bags and uncovered hay		Hay and open feed bags in uncovered barn aisle way	
Water sources	Only individual water buckets in use		Stream or large water Source		Communal water area	
Separation of Feed and Manure Handling Equipment	Complete separation of feed and manure handling equipment		Limited separation of feed and manure handling equipment		Feed, hay and manure handling equipment stored together	

Wash Stall Area

Horse-to-Horse Contact	No nose-to-nose contact possible		Limited duration or frequency of nose-to-nose contact possible		Nose-to- nose contact likely	
Equipment	No Sharing of Equipment		Restricted sharing of equipment (i.e., horses in same barn)		No restrictions - equipment is freely shared	
Hose Contact with Horse	Horse never makes direct contact with hose		Horse makes limited direct contact with hose		Horse has direct contact with hose	

Wash Stall Area (continued)

	LOW RISK		MEDIUM RISK		HIGH RISK	
Hose Placement	Hose is hung on wall after each use		Hose is sometimes hung after each use		Hose is left lying on the ground	
Fecal Material	Removed Immediately		Routinely removed throughout the day		Removed at the end of the month.	

Horse Commingling Areas

Exercise Area	No shared exercise areas: All horses exercise independently		Shared exercise area with minimal possible direct horse-to-horse contact		Shared exercise area with direct horse-to-horse contact	
Pastures/ Paddocks Area	No shared pasture/ paddocks all horses in designated individual pasture/ paddock		Shared pasture/ paddocks with minimal direct horse-to-horse contact		Shared pasture/ paddocks with direct horse-to-horse contact	

Parking

Trailer Feed/Hay/ Shavings Trucks	Restricted trailer parking, monitored and separate from barn area and not accessible by visitors		Shared parking, but separate from visitor access		Unrestricted parking next to horse barns and accessible to visitors	
Visitor	Restricted visitor parking, monitored and separate from barn and trailer parking		Shared parking, but separate from trailer parking		Unrestricted Parking	

QUARANTINE RELEASE ASSESSMENT

Index EHM Case Information:

Clinical Onset Date:

Date of Isolation or Removal from Premises (euthanized, died, or transferred):

General Quarantine Release Criteria:

Was the EHM case euthanized or deceased? □ yes □ no

Was the EHM case adequately isolated within 12 hours of detection of neurologic signs, from other horses on premises? □ yes □ no

If no to either question, recommend extended quarantine release time.

Notes:

Exposed Horse Information:

Has it been 21 days since onset date of last EHM case? □ yes □ no

Are there negative test results on exposed horses? □ yes □ no

Have temperatures been monitored since first case of disease was detected? □ yes □ no

Has a temperature log been maintained? (Review Log) □ yes □ no

One or more yes responses may warrant quarantine release

Notes:

Premises Information:

Have any exposed horses had a fever (rectal temperature greater than 101.5°F, or 100.5°F if on an NSAID or antipyretic medication)? □ yes □ no

Have any exposed horses displayed any clinical signs compatible with EHV-1 infection? □ yes □ no

Has the EHM case had direct contact with any horses since confirmation of EHM? □ yes □ no

If answer no to all questions, quarantine release is recommended at 21 days after last onset date of clinical signs of the last case.

Notes:

Quarantine Release with Testing Out option:

Were diagnostic samples obtained for all exposed horses? □ yes □ no

Were samples obtained 14 to 21 days from the resolution of the last febrile case or from the onset of the last neurologic signs? □ yes □ no

Were negative PCR results obtained for all samples tested? □ yes □ no

If answer yes to all questions, quarantine release is recommended.

Notes:

Equine Herpesvirus Myeloencephalopathy Case Investigation Form

Investigator: Investigation Date:

Quarantine Number(s): Quarantine Issue Date(s):

Veterinary Contact Information:

Veterinarian_____phone_____

Clinic_____phone_____

Email Address_____

Owner Information:

Last name_____First name_____

Mailing Address_____

City_____State_____Zip_____County_____

Phone Number_____Email Address_____

Point of Contact if Different than Owner_____

Relationship to Owner_____

Current Horse Location:

Physical Address_____

Nearest Major Intersection (if applicable)_____

Federal PIN_____

City_____State_____Zip_____County_____

Type of Facility	□ Private Residence	□ Show/Fair Grounds	□ Racetrack
	□ Boarding Facility	□ Training Facility	□ Breeding Facility
	□ Quarantine Facility	□ Veterinary Facility	□ Commercial Facility

Premises Information

Barn Manager/ Trainer/ Event Manager Name_____

Contact Phone Number_____ Contact Email Address_____

Total Number of Horses on the premises _____

Total Number of Barns on the premises _____

Is there an isolation barn or area on the premises? □ yes □ no

Are all horses on premises owned by the same individual? □ yes □ no

Describe Stall/Barn Facility: (Panel fencing access to other horses, half boarded walls and bars, access to other horses, stall is at the end with no other horses etc.) (Attach photos or google earth map)

Positive EHM Case Record

Name:_____**Microchip/Brand:**_____
Breed:_____ **Gender: Mare | Stallion | Gelding** **Age**:_____
Primary Use:_____
Level of Exercise at time of confirmation:_____
Stabling: □ **Stall** □ **Paddock/Corral** □ **Pasture/Field**
Turnout: Does more than 1 horse use a paddock? Y
es/No
Additional Turnout Description: _____

Dates of EHV-1 Vaccination(s):_____**Name of Product Administered):**_____

Date of onset of initial clinical sign(s):_____
Clinical Signs Observed in Affected Horse: Check all that apply and write date of onset
□ Ataxia _____ □ Colic _____ □ Fever _____ °F_____
□ Flaccid Tail _____ □ Hind-end Weakness _____ □ Incoordination _____
□ Lethargy_____ □ Limb Edema _____ □ Nasal Discharge _____
□ Recumbent _____ □ Dribbling Urine _____ □ Abortion _____
□ Unable to Rise _____ □ Other _____

Was the horse euthanized or died? □ yes □ no If yes, what date? _____
Was the horse necropsied? □ yes □ no If yes, where? _____

Laboratory Results

Laboratory Name:_____ Phone Number: _____

Date Collected	Sample Type	Type of Test	Quantitative Result

Travel History: List all locations where the horse has been the **2 weeks** prior to onset of clinical symptoms?

Date of Travel	Reason for Travel (Event Name)	Destination City, State	Transportation Method

Comments:

Exposed Horse Information

Total Number of Exposed horses: _____

Total Number of horses with clinical signs consistent with EHV-1:_____

Total Number of non-clinical EHV-1 test positive horses: _____

Are temperatures taken twice daily on all horses? □ yes □ no

Have any horses died over the last two weeks? □ yes □ no

If yes, provide number of dead horses and clinical presentation prior to death: _____

Are horses on a routine EHV-1 vaccination plan? □ yes □ no

Date of Last Vaccination:_____**Product Administered:** _____

Administered by:_____

Exposed Horses Demographics: (List any potentially exposed horse, clinical & non-clinical)

Owner Name	Animal ID	Breed	Age	Sex	Date Clinical Onset	Clinical Signs* (key below)

***Key:** F: fever, N: neuro, R: respiratory, LE: limb edema, A: abortion, None: none

Investigation Comments:

Trace Exposed Horses

List any horses which have left the premises over the last two weeks?

Date of Departure	Horse Name & Description	Destination Premises Name & Contact Name	Destination Contract Phone Number	Destination Premises Location

Investigation Comments:

Temperature Monitoring Log

Horse Name: _____
Owner Name: _____
Contact Person Name: _____
Cell Phone Number: _____

Medication(s) horse is given daily (Check all applicable boxes):

Bute	☐ AM	☐ PM	Ketofen	☐ AM	☐ PM
Banamine	☐ AM	☐ PM	Dipyrone	☐ AM	☐ PM
Equioxx/Previcox	☐ AM	☐ PM			

Instructions: Record the rectal body temperature of horse two times/day, every morning and evening.

	Temperature	
Date	AM	PM
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F

	Temperature	
Date	AM	PM
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F
	°F	°F

Note: A body temperature recording above 101.5° F (or 101.0° F if horse is on medication listed above) must be reported to a veterinarian and/or barn/ event management.

Sourced From: https://www.cdfa.ca.gov/ahfss/animal_health/pdfs/G.pdf

AAEP Disinfection Chart

For the most current version of this chart, visit:
https://aaep.org/wp-content/uploads/2025/05/AAEP-Biosecurity-Guidelines-Disinfectant-Table.pdf

AAEP Infectious Disease Guidelines: Equine Influenza

AAEP Biosecurity Guidelines: Disinfectant Table

Respiratory: Viral
Respiratory: Bacterial
Gastrointestinal: Viral
Gastrointestinal: Bacterial

	Respiratory: Viral (Influenza, herpesvirus)							
	Antiseptic	Equipment			Stalls		Clothing	
	Skin	Rubber (stethoscopes, etc)	Endoscopes, NG tubes	Plastic (water buckets, pitchforks etc)	Wood*, plastic/canvas, metal	Foot Baths	Clothes, blankets, saddle pads, etc	Boots
Detergent (cleaning)	soap and warm water	soap and warm water, rinse well	soap and water, rinse well	soap and water, rinse well	scrub with soap and water, rinse with water	N/A	wash with soap and water	scrub with soap and water, rinse with water
Disinfection	povidone iodine	70% isopropyl alcohol, 5 min contact time. Wipes preferred for stethoscopes	accelerated hydrogen peroxide (e.g. Oxivir®). Force air dried is preferred.	1:10 dilution sodium hypochlorite (bleach)	accelerated hydrogen peroxide (e.g. Intervention®)	1:10 dilution sodium hypochlorite (bleach), or Peroxygen Compounds (e.g. Virkon LPS)	spray on 3% hydrogen peroxide or machine wash with 1 cup Lysol® in standard washing machine, then a second cycle with standard laundry detergent. Can also use accelerated hydrogen peroxide (e.g. Oxivir®)	accelerated hydrogen peroxide (e.g. Oxivir®)

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	Respiratory: Bacterial (S. equi)							
	Antiseptic	Equipment			Stalls		Clothing	
	Skin	Rubber (stethoscopes, etc)	Endoscopes, NG tubes	Plastic (water buckets, pitchforks etc)	Wood*, plastic/canvas, metal	Foot Baths	Clothes, blankets, saddle pads, etc	Boots
Detergent (cleaning)	soap and warm water	soap and warm water, rinse well	soap and water, rinse well	soap and water, rinse well	scrub with soap and water, rinse with water		wash with soap and water	scrub with soap and water, rinse with water
Disinfection	biguanides (chlor hexidine)	70% isopropyl alcohol, 5 min contact time. Wipes preferred for stethoscopes	accelerated hydrogen peroxide (e.g. Oxivir®). Force air dried is preferred.	1:10 dilution sodium hypochlorite (bleach)	accelerated hydrogen peroxide (e.g. Intervention®)	1:10 dilution sodium hypochlorite (bleach), or Peroxygen Compounds (e.g. Virkon LPS)	spray on 3% hydrogen peroxide or machine wash with 1 cup Lysol® in standard washing machine, then a second cycle with standard laundry detergent. Can also use accelerated hydrogen peroxide (e.g. Oxivir®)	accelerated hydrogen peroxide (e.g. Oxivir®)

2

		Gastrointestinal: Viral (Rotavirus)						
	Antiseptic	Equipment			Stalls		Clothing	
	Skin	Rubber (stethoscopes, etc)	Endoscopes, NG tubes	Plastic (water buckets, pitchforks etc)	Wood*, plastic/canvas, metal	Foot Baths	Clothes, blankets, saddle pads, etc	Boots
Detergent (cleaning)	soap and warm water	soap and warm water, rinse well	soap and water, rinse well	soap and water, rinse well	scrub with soap and water, rinse with water		wash with soap and water	scrub with soap and water, rinse with water
Disinfection	povidone iodine	accelerated hydrogen peroxide wipes (e.g. Oxivir® TB)	accelerated hydrogen peroxide (e.g. Oxivir®). Force air dried is preferred.	accelerated hydrogen peroxide (e.g. Oxivir®)	accelerated hydrogen peroxide (e.g. Intervention®)	Peroxygen Compounds (e.g. Virkon LPS)	spray on 3% hydrogen peroxide or use accelerated hydrogen peroxide (e.g. Oxivir®)	accelerated hydrogen peroxide (e.g. Oxivir®)

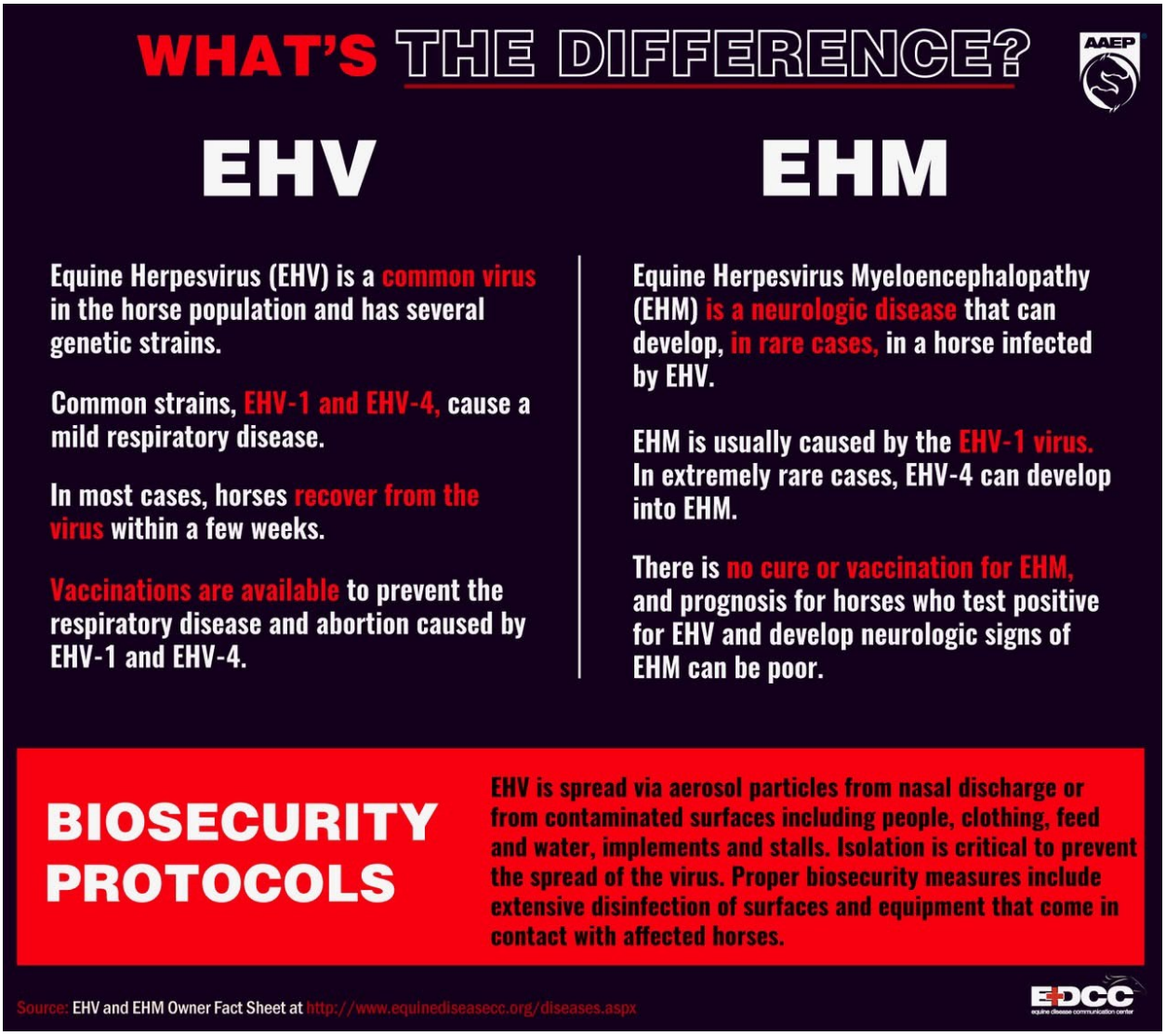
3

		Gastrointestinal: Bacterial (Salmonella)						
	Antiseptic	Equipment			Stalls		Clothing	
	Skin	Rubber (stethoscopes, etc)	Endoscopes, NG tubes	Plastic (water buckets, pitchforks etc)	Wood*, plastic/canvas, metal	Foot Baths	Clothes, blankets, saddle pads, etc	Boots
Detergent (cleaning)	soap and warm water	soap and warm water, rinse well	soap and water, rinse well	soap and water, rinse well	scrub with soap and water, rinse with water		wash with soap and water	scrub with soap and water, rinse with water
Disinfection	povidone iodine	70% isopropyl alcohol, 5 min contact time. Wipes preferred for stethoscopes	accelerated hydrogen peroxide (e.g. Oxivir®). Force air dried is preferred.	1:10 dilution sodium hypochlorite (bleach)	accelerated hydrogen peroxide (e.g. Intervention®)	Peroxygen Compounds (e.g. Virkon LPS)	spray on 3% hydrogen peroxide or machine wash with 1 cup Lysol® in standard washing machine, then a second cycle with standard laundry detergent. Can also use accelerated hydrogen peroxide (e.g. Oxivir®)	accelerated hydrogen peroxide (e.g. Oxivir®)

*Unsealed wood & dirt or otherwise unsealed floors cannot be effectively disinfected

Outbreak Infographics

Sourced from:
https://www.facebook.com/AAEPHorseDocs/
https://www.facebook.com/EquineDiseaseCC/



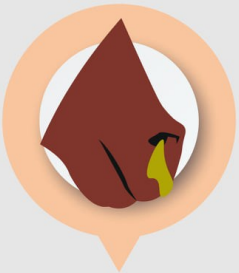

WHAT TO DO?
ACTIONS TO TAKE DURING A SUSPECTED INFECTIOUS DISEASE OUTBREAK
AAEP
EDCC
equine disease communication center
Monitor your horse for clinical signs and check their temperature daily if they have attended an event in the area
>101.5F is considered a fever
Immediately isolate any horse(s) showing clinical signs; handle and treat infected horses last
Implement movement restrictions until the situation is evaluated
Contact your veterinarian to evaluate your horse and to define the proper biosecurity protocol
Make sure your horse is up to date on vaccinations
Minimize the use of shared equipment and tack to avoid cross-contamination
Increase biosecurity measures — wash and disinfect your hands, surfaces and equipment that come in contact with affected horses

WHAT ARE SOME OF THE SIGNS OF EHV?

EHV stands for equine herpes virus. Equine herpesvirus myeloencephalopathy (EHM) is another name for the neurologic disease associated with equine herpesvirus (EHV) infections.

Transmission occurs via respiratory route. All horses have the potential to be carriers of the virus whether or not they demonstrate clinical signs. There is never an "all clear/no risk" when horses commingle, and **basic everyday security is always recommended**.

INFECTION



INCUBATION

Can be as short as 24 hours; typically 4-6 days but can be as long as 10 day.

RESPIRATORY DISEASE

Clinical signs include:

- Mild fever (rectal temperature >101.5 degrees F)
- Coughing
- Nasal discharge (clear but often progresses to a yellow thick exudate)

NEUROLOGICAL DISEASE

Common clinical signs include:

- Hind-end weakness
- Incoordination
- Toe-dragging
- Dog-sitting
- Urinary/fecal incontinence

Please note: with the neurologic form, there are *typically minimal respiratory signs*, fever being the only warning sign. Horses may develop EHM even without any preceding fever and/or respiratory signs.

AAEP®

Consult your veterinarian for more information and to discuss the appropriate methods to avoid disease outbreak on your premises.

EQUINE HERPESVIRUS

Equine herpesviruses (EHV) are viruses that are found in most horses all over the world. Almost all horses have been infected with the virus and have no serious side effects. It is currently unknown what causes some infected horses to develop the serious neurological forms that may be fatal. There are 9 viruses in this family, but **EHV-1, -3, and -4 pose the most serious health risks for domestic horses.**

Clinical signs depend on the form of the disease (respiratory, abortigenic or neurologic)

- Fever
- Nasal discharge and coughing
- Depression
- Enlarged lymph nodes
- Loss of appetite
- Abortion
- Loss of bladder and tail function
- Hind limb paralysis

SPREAD OF DISEASE

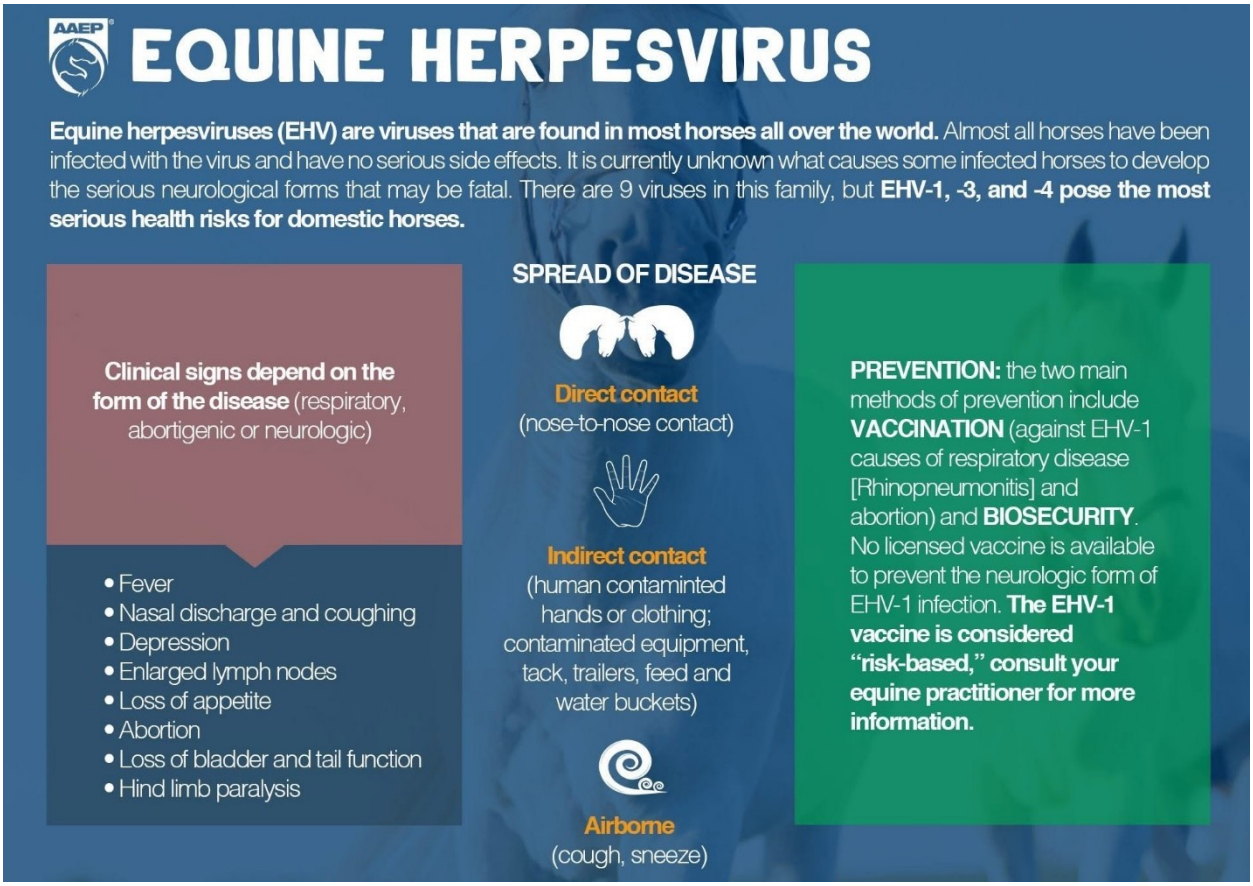
Direct contact
(nose-to-nose contact)

Indirect contact
(human contaminted hands or clothing; contaminated equipment, tack, trailers, feed and water buckets)

Airborne
(cough, sneeze)

PREVENTION: the two main methods of prevention include **VACCINATION** (against EHV-1 causes of respiratory disease [Rhinopneumonitis] and abortion) and **BIOSECURITY**. No licensed vaccine is available to prevent the neurologic form of EHV-1 infection. **The EHV-1 vaccine is considered "risk-based," consult your equine practitioner for more information.**

AAEP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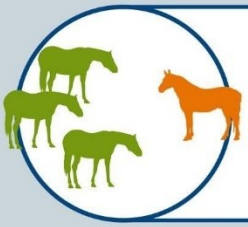
TIPS FOR PREVENTING INFECTION
AT YOUR FARM

DOCUMENT HEALTH HISTORY

Require a **current health certificate for new arrivals**; ask owners about history of infectious diseases.



QUARANTINE

Separate the home-based herd from new arrivals and horses that have traveled to shows or have been at a veterinary hospital. **Work with a veterinarian to determine the best procedure** to keep horses apart at your farm.

SHARING IS NOT CARING

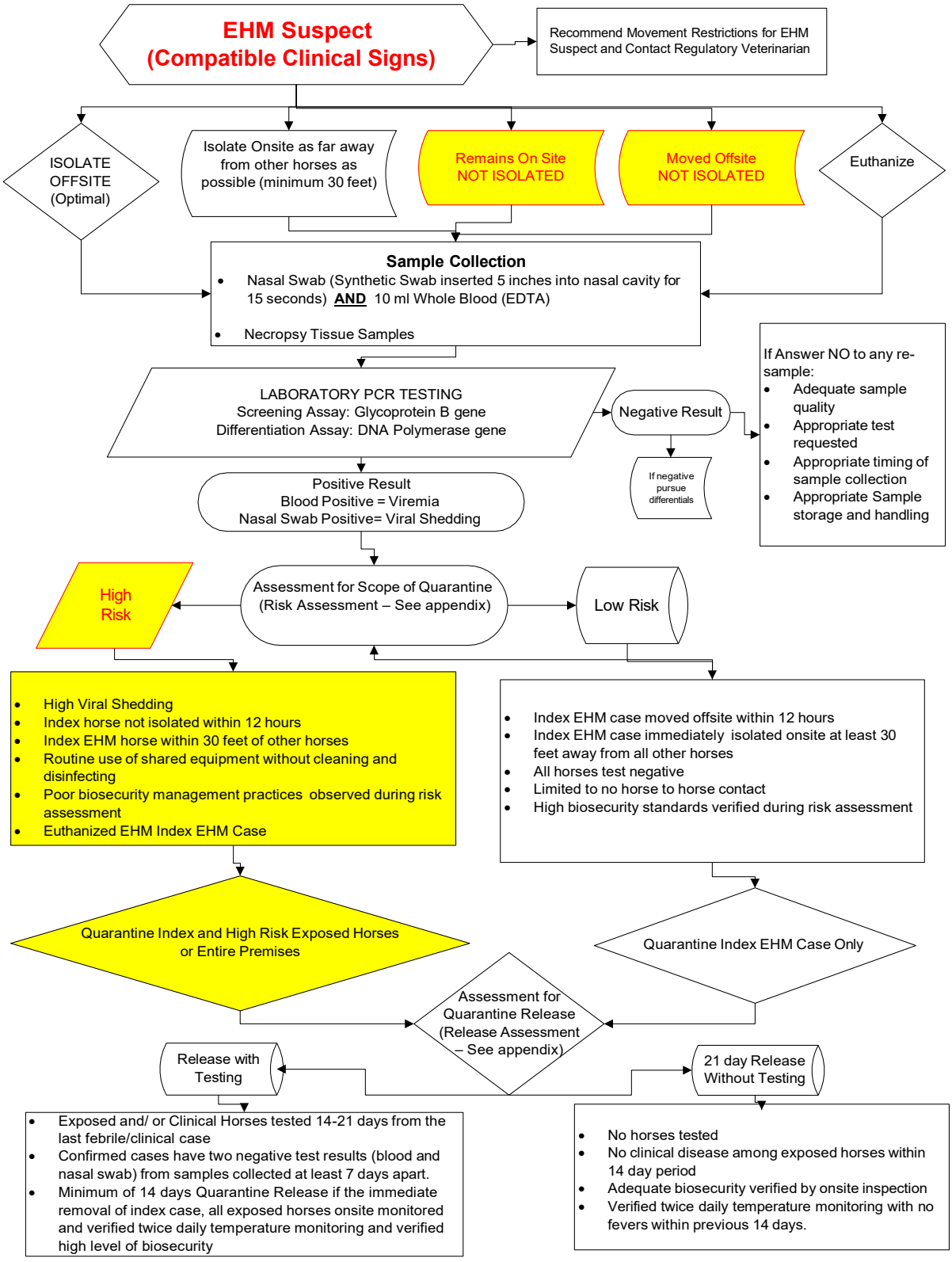
Use individual water buckets for each horse and **disinfect routinely**. **Don't share equipment** such as feed tubs, water buckets, tack and grooming equipment between horses being kept separate.

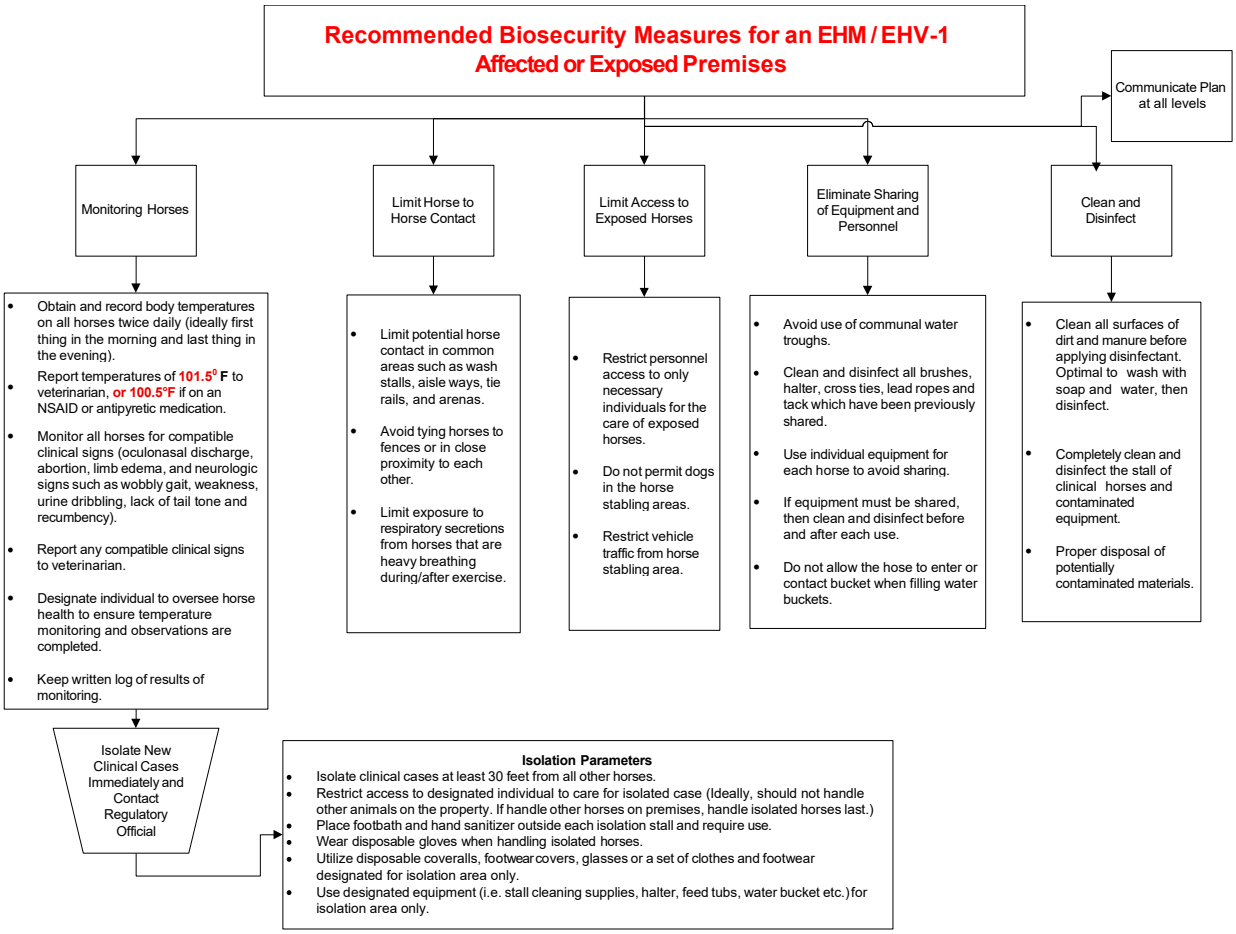
PRACTICE GOOD MANAGEMENT

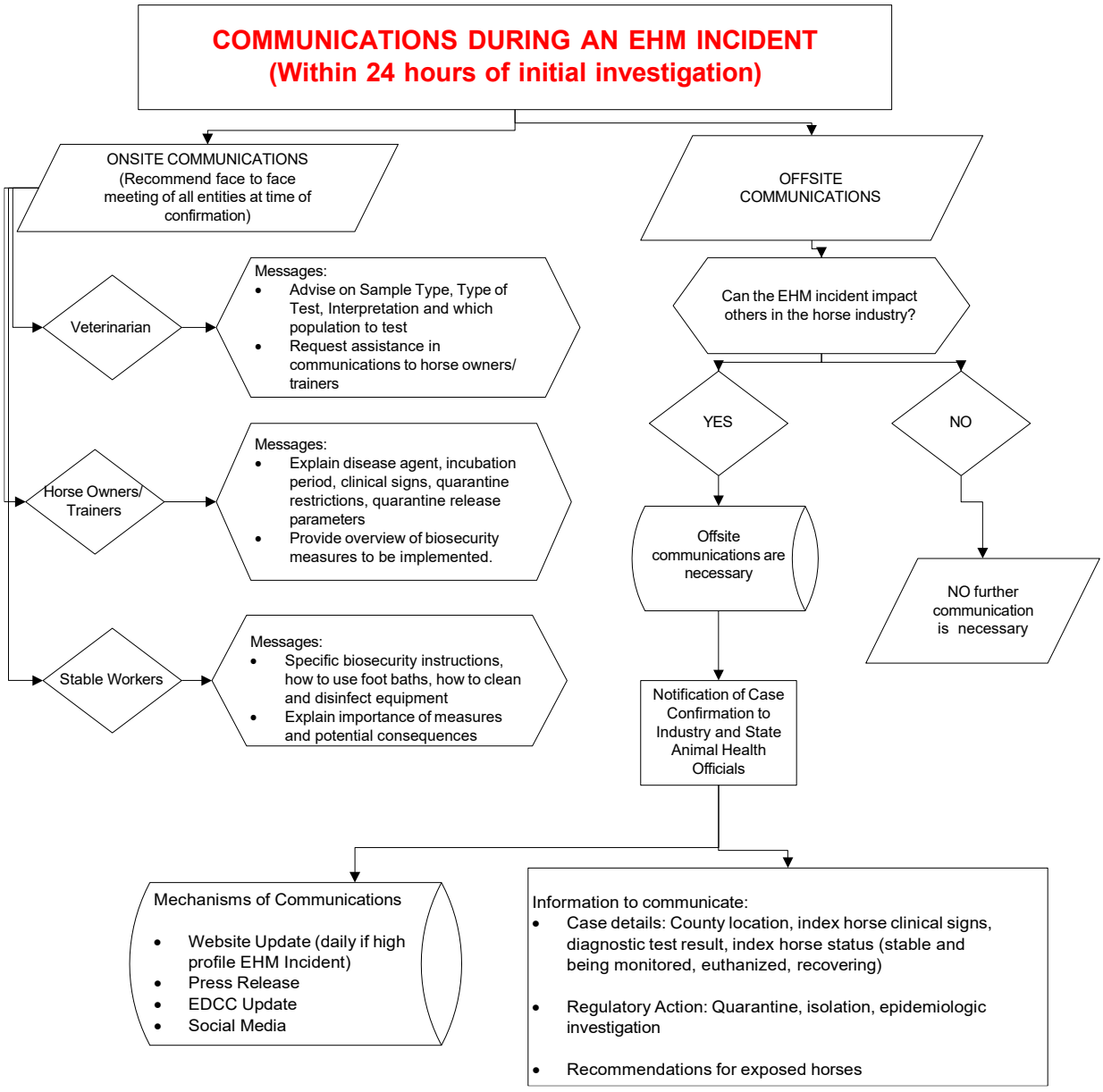
Secure horse feed to **keep out rodents** and other wildlife that may spread disease agents. **Reduce exposure to mosquitoes**. **Remove manure** from fields and paddocks. Keep facility and equipment as clean as possible. Disinfect, disinfect, **disinfect!**

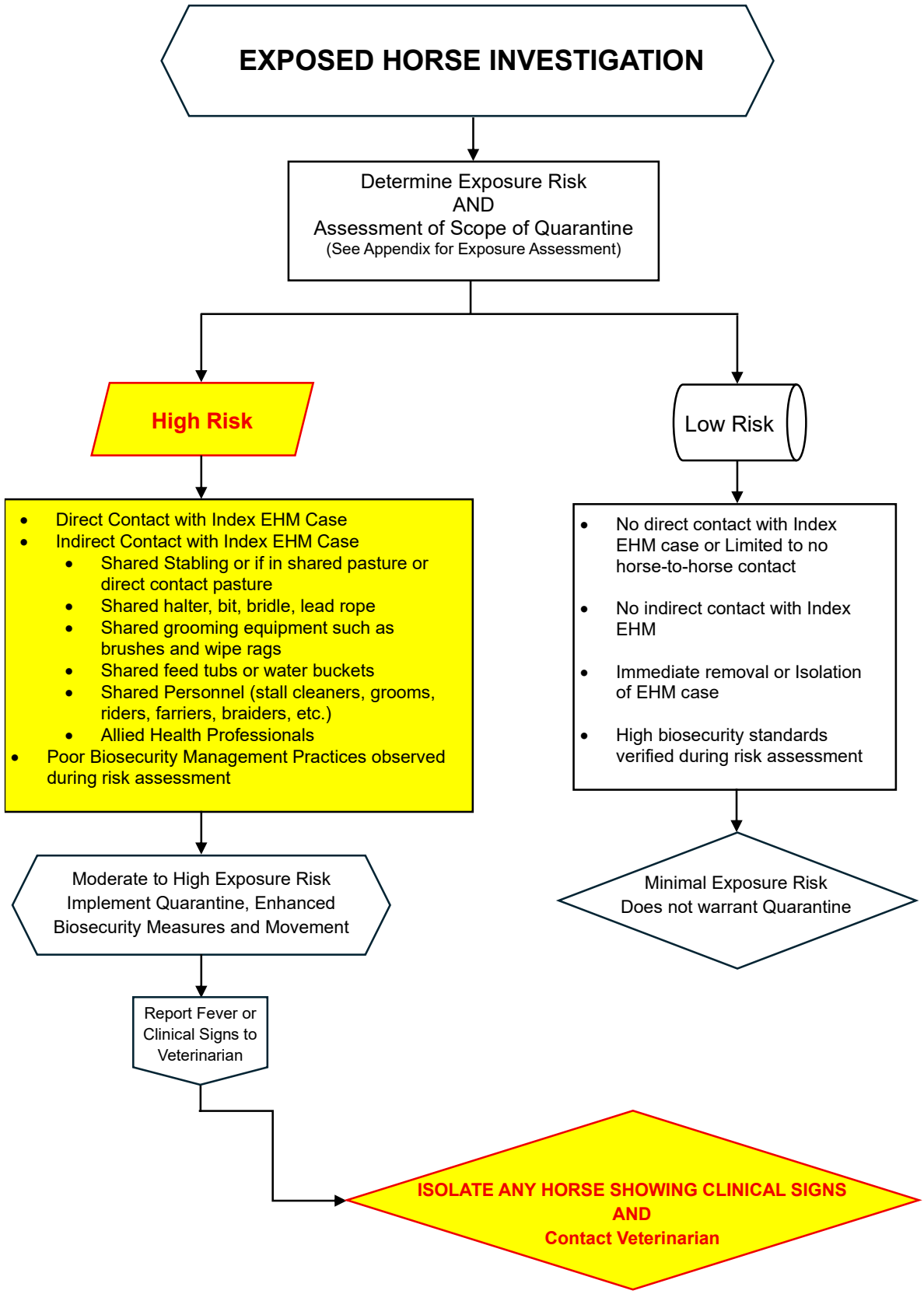
These are just a few examples, there are many ways to reduce exposure to infection causing agents. **Consult your veterinarian to determine the disease agents of most concern in your area and how your horses could most likely be exposed.**

AAEP


EHM Suspect
(Compatible Clinical Signs)
Recommend Movement Restrictions for EHM Suspect and Contact Regulatory Veterinarian
ISOLATE OFFSITE (Optimal)
Isolate Onsite as far away from other horses as possible (minimum 30 feet)
Remains On Site NOT ISOLATED
Moved Offsite NOT ISOLATED
Euthanize
Sample Collection
Nasal Swab (Synthetic Swab inserted 5 inches into nasal cavity for 15 seconds) AND 10 ml Whole Blood (EDTA)
Necropsy Tissue Samples
LABORATORY PCR TESTING
Screening Assay: Glycoprotein B gene
Differentiation Assay: DNA Polymerase gene
Negative Result
If negative pursue differentials
If Answer NO to any re-sample:
Adequate sample quality
Appropriate test requested
Appropriate timing of sample collection
Appropriate Sample storage and handling
Positive Result
Blood Positive = Viremia
Nasal Swab Positive= Viral Shedding
High Risk
Assessment for Scope of Quarantine (Risk Assessment – See appendix)
Low Risk
High Viral Shedding
Index horse not isolated within 12 hours
Index EHM horse within 30 feet of other horses
Routine use of shared equipment without cleaning and disinfecting
Poor biosecurity management practices observed during risk assessment
Euthanized EHM Index EHM Case
Index EHM case moved offsite within 12 hours
Index EHM case immediately isolated onsite at least 30 feet away from all other horses
All horses test negative
Limited to no horse to horse contact
High biosecurity standards verified during risk assessment
Quarantine Index and High Risk Exposed Horses or Entire Premises
Quarantine Index EHM Case Only
Assessment for Quarantine Release (Release Assessment – See appendix)
Release with Testing
21 day Release Without Testing
Exposed and/ or Clinical Horses tested 14-21 days from the last febrile/clinical case
Confirmed cases have two negative test results (blood and nasal swab) from samples collected at least 7 days apart.
Minimum of 14 days Quarantine Release if the immediate removal of index case, all exposed horses onsite monitored and verified twice daily temperature monitoring and verified high level of biosecurity
No horses tested
No clinical disease among exposed horses within 14 day period
Adequate biosecurity verified by onsite inspection
Verified twice daily temperature monitoring with no fevers within previous 14 days.


Recommended Biosecurity Measures for an EHM / EHV-1 Affected or Exposed Premises
Communicate Plan at all levels
Monitoring Horses
Limit Horse to Horse Contact
Limit Access to Exposed Horses
Eliminate Sharing of Equipment and Personnel
Clean and Disinfect
Obtain and record body temperatures on all horses twice daily (ideally first thing in the morning and last thing in the evening).
Report temperatures of 101.5° F to veterinarian, or 100.5°F if on an NSAID or antipyretic medication.
Monitor all horses for compatible clinical signs (oculonasal discharge, abortion, limb edema, and neurologic signs such as wobbly gait, weakness, urine dribbling, lack of tail tone and recumbency).
Report any compatible clinical signs to veterinarian.
Designate individual to oversee horse health to ensure temperature monitoring and observations are completed.
Keep written log of results of monitoring.
Limit potential horse contact in common areas such as wash stalls, aisle ways, tie rails, and arenas.
Avoid tying horses to fences or in close proximity to each other.
Limit exposure to respiratory secretions from horses that are heavy breathing during/after exercise.
Restrict personnel access to only necessary individuals for the care of exposed horses.
Do not permit dogs in the horse stabling areas.
Restrict vehicle traffic from horse stabling area.
Avoid use of communal water troughs.
Clean and disinfect all brushes, halter, cross ties, lead ropes and tack which have been previously shared.
Use individual equipment for each horse to avoid sharing.
If equipment must be shared, then clean and disinfect before and after each use.
Do not allow the hose to enter or contact bucket when filling water buckets.
Clean all surfaces of dirt and manure before applying disinfectant. Optimal to wash with soap and water, then disinfect.
Completely clean and disinfect the stall of clinical horses and contaminated equipment.
Proper disposal of potentially contaminated materials.
Isolate New Clinical Cases Immediately and Contact Regulatory Official
Isolation Parameters
Isolate clinical cases at least 30 feet from all other horses.
Restrict access to designated individual to care for isolated case (Ideally, should not handle other animals on the property. If handle other horses on premises, handle isolated horses last.)
Place footbath and hand sanitizer outside each isolation stall and require use.
Wear disposable gloves when handling isolated horses.
Utilize disposable coveralls, footwear covers, glasses or a set of clothes and footwear designated for isolation area only.
Use designated equipment (i.e. stall cleaning supplies, halter, feed tubs, water bucket etc.) for isolation area only.


COMMUNICATIONS DURING AN EHM INCIDENT
(Within 24 hours of initial investigation)
ONSITE COMMUNICATIONS
(Recommend face to face meeting of all entities at time of confirmation)
OFFSITE COMMUNICATIONS
Veterinarian
Messages:
Advise on Sample Type, Type of Test, Interpretation and which population to test
Request assistance in communications to horse owners/ trainers
Can the EHM incident impact others in the horse industry?
YES
NO
Horse Owners/ Trainers
Messages:
Explain disease agent, incubation period, clinical signs, quarantine restrictions, quarantine release parameters
Provide overview of biosecurity measures to be implemented.
Offsite communications are necessary
NO further communication is necessary
Stable Workers
Messages:
Specific biosecurity instructions, how to use foot baths, how to clean and disinfect equipment
Explain importance of measures and potential consequences
Notification of Case Confirmation to Industry and State Animal Health Officials
Mechanisms of Communications
Website Update (daily if high profile EHM Incident)
Press Release
EDCC Update
Social Media
Information to communicate:
Case details: County location, index horse clinical signs, diagnostic test result, index horse status (stable and being monitored, euthanized, recovering)
Regulatory Action: Quarantine, isolation, epidemiologic investigation
Recommendations for exposed horses


EXPOSED HORSE INVESTIGATION
Determine Exposure Risk
AND
Assessment of Scope of Quarantine
(See Appendix for Exposure Assessment)
High Risk
Low Risk
Direct Contact with Index EHM Case
Indirect Contact with Index EHM Case
Shared Stabling or if in shared pasture or direct contact pasture
Shared halter, bit, bridle, lead rope
Shared grooming equipment such as brushes and wipe rags
Shared feed tubs or water buckets
Shared Personnel (stall cleaners, grooms, riders, farriers, braiders, etc.)
Allied Health Professionals
Poor Biosecurity Management Practices observed during risk assessment
No direct contact with Index EHM case or Limited to no horse-to-horse contact
No indirect contact with Index EHM
Immediate removal or Isolation of EHM case
High biosecurity standards verified during risk assessment
Moderate to High Exposure Risk
Implement Quarantine, Enhanced Biosecurity Measures and Movement
Minimal Exposure Risk
Does not warrant Quarantine
Report Fever or Clinical Signs to Veterinarian
ISOLATE ANY HORSE SHOWING CLINICAL SIGNS
AND
Contact Veterinarian

EHV-1 References

1. Maxwell, LK., Bentz, BG., Gilliam LL, et al. (2017) Efficacy of the early administration of valacyclovir hydrochloride for the treatment of neuropathogenic equine herpesvirus-1 infection in horses. American Journal of Veterinary Research, 78(10), 1126-1139
2. Dayaram A. et al (2017) Long term stability and infectivity of herpesviruses in water. Scientific Reports. 21 (7).
3. Pusterla, N. et al (2016) Prevalence factors associated with equine herpesvirus type 1 infection in equids with upper respiratory tract infection and/or acute onset neurological signs from 2008 to 2014. Veterinary Record, 178(3), 70.
4. Pusterla, N., Mapes, S., Wademan, C., White, A., Estell, K. and Swain, E. (2015) Investigations of the role of mules as silent shedders of EHV_1 during and outbreak of EHV-1 myeloencephalopathy in California. Veterinary Record.
5. Traub-Dargatz, J.L, Pelzel-McCluskey, A.M., Creekmore, L.H., Geiser-Novotny, S., Kasari, T.R., Wiedenheft, A.M., Bush,E.J., Bjork, K.E. (2013) Case-control study of a multistate equine herpesvirus myeloencephalopathy outbreak. J. Vet Intern Med., 27(2), 339-346.
6. Burgess B.A., Tokateloff N., Manning S., Lohmann K., Lunn D.P., Hussey S.B., Morley P.S. (2012) Nasal Shedding of Equine Herpesvirus-1 from horses in an Outbreak of Equine Herpes Myeloencephalopthy in Western Canada. J. Vet Intern Med., 2, 384-392.
7. Third International Havemeyer Workshop on Equine Herpesvirus type 1. 2012. Eq Vet J. 44, 513-517.
8. Pronost, S., Cook, R.F, Fortier,G., Timoney, P.J., and Balasuriya, U.B.R. (2010) Relationship between equine herpesvirus-1 myeloencephalopathy and viral genotype. Equine Vet. J. 42, 672-674.
9. Pusterla, N., Wilson, W.D., Mapes, S., Finno, C., Isbell, D., Arthur, R.M. and Ferraro, G.L. (2009) Characterization of viral loads, strain and state of equine herpesvirus-1 using real-time PCR in horses following natural exposure at a racetrack in California. Vet. J. 179, 230-239.
10. Allen, G.P. (2008) Risk factors for the development of neurologic disease after experimental exposure to equine herpesvirus -1 in horses. Am. J. of Vet. Research. 69, 1595-1600.
11. Perkins, G.A., Goodman, L.B., Dubovi, E.J., Kim, S.G., and Osterrieder,N. (2008) Detection of Equine Herpesvirus-1 in Nasal Swabs of Horses by Quantitative Real-Time PCR. J. Vet Intern. Med. 22, 1234- 1238.
12. Pusterla, N., Mapes, S. and Wilson, W.D. (2008) Use of viral loads in blood and nasopharyngeal secretions for the diagnosis of EHV-1 infection in field cases. Veterinary Record. 162, 728-729.
13. Henninger, R.W., Reed, S.M. and Saville, W.J. (2007) Outbreak of neurologic disease

caused by equine herpesvirus-1 at a university equestrian center. J. Vet. Intern. Med. 21, 157-165.
14. Hussey, S.B., Clark, R., Lunn, K.F., Breathnach, C., Soboll, G., Whalley, J.M. and Lunn, D.P. (2006) Detection and quantification of equine herpesvirus-1 viremia and nasal shedding by real-time polymerase chain reaction. J. Vet. Diagn. Invest. 18, 335-342.
15. Marenzoni, M.L., De Waure C., Timoney P.J. (2023) Efficacy of vaccination against equine herpesvirus type 1 (EHV-1) infection: Systematic review and meta-analysis of randomized controlled challenge trials. Equine Vet J. 55(3): 389-404.
16. Osterrieder K., Dorman D.C., Burgess B.A., Goehring L.S., Gross P., Neinast C., Pusterla N., Hussey G.S., Lunn D.P. (2024) Vaccination for the prevention of equine herpesvirus-1 disease in domesticated horses: A systematic review and meta-analysis. J Vet Intern Med. 38(3): 1858-1871.
17. Pusterla, N., Lawton, K., Barnum, S., Ross, K., & Purcell, K. (2024). Investigation of an Outbreak of Equine Herpesvirus-1 Myeloencephalopathy in a Population of Aged Working Equids. *Viruses*, *16*(12), 1963.
18. Pusterla, N., Lawton, K., Barnum, S., Flynn, K., Hankin, S., Runk, D., Mendonsa, E., & Doherty, T. (2025). Management of an Equine Herpesvirus-1 Outbreak During a Multi-Week Equestrian Event. *Viruses*, *17*(5), 608.
19. Marenzoni, M. L., De Waure, C., & Timoney, P. J. (2023). Efficacy of vaccination against equine herpesvirus type 1 (EHV-1) infection: Systematic review and meta-analysis of randomized controlled challenge trials. *Equine veterinary journal*, *55*(3), 389–404.
20. Pusterla, N., Barnum, S., Miller, J., Varnell, S., Dallap-Schaer, B., Aceto, H., & Simeone, A. (2021). Investigation of an EHV-1 Outbreak in the United States Caused by a New H_{752} Genotype. Pathogens (Basel, Switzerland), 10(6), 747.
21. Osterrieder, K., Dorman, D. C., Burgess, B. A., Goehring, L. S., Gross, P., Neinast, C., Pusterla, N., Hussey, G. S., & Lunn, D. P. (2024). Vaccination for the prevention of equine herpesvirus-1 disease in domesticated horses: A systematic review and meta-analysis. *Journal of veterinary internal medicine*, *38*(3), 1858–1871.
22. de la Cuesta-Torrado, M., Velloso Alvarez, A., Neira-Egea, P., & Cuervo-Arango, J. (2024). Long-term performance of show-jumping horses and relationship with severity of ataxia and complications associated with myeloencephalopathy caused by equine herpes virus-1. Journal of veterinary internal medicine, 38(3), 1799–1807.
23. Goehring, L., Dorman, D. C., Osterrieder, K., Burgess, B. A., Dougherty, K., Gross, P., Neinast, C., Pusterla, N., Soboll-Hussey, G., & Lunn, D. P. (2024). Pharmacologic interventions for the treatment of equine herpesvirus-1 in domesticated horses: A systematic review. Journal of veterinary internal medicine, 38(3), 1892–1905.
24. Lunn, D. P., Burgess, B. A., Dorman, D. C., Goehring, L. S., Gross, P., Osterrieder, K., Pusterla, N., & Soboll Hussey, G. (2024). Updated ACVIM consensus statement on equine herpesvirus-1. Journal of veterinary internal medicine, 38(3), 1290–1299.
25. Hussey, S. B., Clark, R., Lunn, K. F., Breathnach, C., Soboll, G., Whalley, J. M., & Lunn,

D. P. (2006). Detection and quantification of equine herpesvirus-1 viremia and nasal shedding by real-time polymerase chain reaction. Journal of veterinary diagnostic investigation : official publication of the American Association of Veterinary Laboratory Diagnosticians, Inc, 18(4), 335–342.
26. Pusterla, N., Hussey, G. S., & Goehring, L. S. (2022). Equine Herpesvirus-1 Myeloencephalopathy. The Veterinary Clinics of North America. Equine practice, 38(2), 339–362.
27. Khusro, A., Aarti, C., Rivas-Caceres, R. R., & Barbabosa-Pliego, A. (2020). Equine Herpesvirus-I Infection in Horses: Recent Updates on its Pathogenicity, Vaccination, and Preventive Management Strategies. Journal of Equine Veterinary Science, 87, 102923.
28. Thieulent C.J., Sutton G., Toquet M.P., Fremaux S., Hue E., Fortier C., Pléau A., Deslis A., Abrioux S., Guitton E., Pronost S., Paillot R. (2022). Oral Administration of Valganciclovir Reduces Clinical Signs, Virus Shedding and Cell-Associated Viremia in Ponies Experimentally Infected with the Equid Herpesvirus-1 C_{2254} Variant. Pathogens. 4;11(5):539.