



## GENERAL BIOSECURITY GUIDELINES

The AAEP Biosecurity Guidelines were developed as an instructional resource for equine veterinarians working collaboratively with clients and industry stakeholders to develop and implement biosecurity plans on equine facilities.

Biosecurity plans for equine facilities enhance equine health, public health, and business continuity. Biosecurity for equine facilities includes all practices intended to prevent the introduction and minimize the spread of infectious disease agents in equine populations. Veterinarians often provide services for equids in environments at high-risk of infectious disease introduction and transmission, including veterinary clinics, equine event facilities, and stables where there is frequent movement of equids on and off the premises. This document will concentrate on biosecurity recommendations for equine events and stables. Several private and university veterinary hospitals have written biosecurity standard operating procedures for their equine veterinary field practice and clinics. In addition to assisting their clients in developing a biosecurity plan, it is important that the equine veterinarian have a plan to minimize the risk they themselves might pose while providing their professional services. At all times, the veterinarian should serve as a model citizen of biosecurity by demonstrating practices that protect their patients from infectious disease and educating clients as they develop biosecurity programs for their facilities.

While there are overarching infection control principles which have broad applicability across most diseases and facility types, every equine event and every premises is unique. Therefore, it is important for veterinarians to work with other event and/or facility stakeholders in advance of an urgent issue (i.e., BEFORE an outbreak) to develop plans that are practical and effective for the particular facility in question. Many people focus on the “outbreak management” aspect of biosecurity, but arguably more important are the day-to-day biosecurity practices that minimize the likelihood of a disease outbreak in the first place or make it easier to quickly contain an outbreak with minimal disruption and expense. Therefore, a comprehensive biosecurity plan developed collaboratively with an equine veterinarian includes implementing routine preventative protocols that take into consideration all means by which infectious disease could be introduced and spread, as well as developing protocols for responding to confirmed or suspected cases of infectious disease.

The following document provides step-by-step instruction for practitioners striving to develop effective biosecurity and outbreak response protocols for their clients and practices. It is important that protocols be updated regularly on the basis of information gained in the wake of managing a prior incident or new findings pertaining to specific infectious diseases.



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## I. Identification of Key Personnel, Important Contacts, and Reference Materials

1. Facility personnel responsible for organization of biosecurity (both routine and outbreak related) should be identified. Responsibilities and numbers of these personnel will vary and are dependent upon the type of facility but there should be a “person-in-charge” and a “chain of command” established. In the event of an outbreak, additional personnel will be required to facilitate immediate actions, such as isolation of affected horses. These individuals should be designated ahead of time.
2. Other contacts to identify and record:
  - a. State and Federal Animal Health Official
  - b. State Office of Public Health
  - c. Event or Stable Veterinarian
  - d. Veterinary diagnostic laboratory of choice
  - e. Competition/Event Manager
  - f. Equine Event Facility manager if different than the event manager
  - g. Governing body of event
  - h. Carcass removal company
  - i. Referral hospital(s) for treatment of ill equids
  - j. Potential locations for off-site isolation of exposed and/or ill horses
  - k. Local feed store
  - l. Manure and bedding disposal company
  - m. Farrier
3. [The Equine Disease Communication Center](#) is an excellent resource for outbreak alerts, disease information, state veterinarians and reportable diseases by state, as well as additional advice on biosecurity.
4. A [Biosecurity Worksheet](#) is provided to assist veterinarians in taking a practical approach to the development and implementation of biosecurity protocols

## II. Routine Biosecurity Protocols

1. Equine entry onto the premises
  - a. Routine requirements
    - i. For events or stables, restrict entry to healthy equids only and set policy for refusing entry of equids displaying clinical signs of infectious disease ([see Section III.b.iii](#)). Ideally, staff should observe equids upon arrival to confirm animal identification, check health documents and observe equids for general signs of good health. Consideration can be given to the requirement for a recent certificate of veterinary inspection (CVI) and certification by the exhibitor or owner regarding the horse's recent disease exposure history.
    - ii. New entries to stables where there are long-term resident equids should be isolated from the resident equids for 2-3 weeks and monitored for signs of contagious disease. During this time, equipment should not be shared among new and resident equids, and caretakers should ideally follow protocols described in [Section III](#).



- iii. Resident equids returning to their home stable from an event should be fully isolated or at least have their temperatures checked twice daily for at least 1 week to allow early detection of disease.
  - iv. It is good practice to segregate equids on a facility by use and age. For example, show equids should be segregated from resident broodmares and their foals.
  - v. Premises may require that equids have documentation of specific vaccinations (See [AAEP Vaccination Guidelines](#) for recommendations).
    1. For premises with increased public exposure risks, a rabies vaccination requirement is prudent to protect both animal and public health.
  - vi. Apply animal health standards for other species of animals (e.g., cattle) entering the premises.
    1. Recommend housing different species of animals separate from equine populations.
  - vii. Equids belonging to the same owner or trainer should be housed together with empty stalls between groups of equids if possible.
- b. Requirements for entry during local disease outbreak
- i. When an infectious disease outbreak occurs locally, additional restrictions should be applied for animal entry to events or stables.
  - ii. Restrict entry to equids for which the owner/agent provides a CVI issued within 7 days of arrival at the event venue. A CVI issued 72 hours before arrival is optimal. If a CVI is not required, then an owner/agent [declaration statement](#) attesting that the listed equid(s) arriving at the premises has/have been healthy with no clinical signs of a contagious disease or body temperature(s) above 101.5°F (38.61°C) for the preceding 7 days may be warranted.
  - iii. Additional health requirements may be required such as a written statement on the CVI which attests to the equid's health and exposure status. For example, an additional requirement may include a statement that "The listed equid(s) has/have not been on a premises with a confirmed case of neurologic form of EHV-1 in the preceding twenty-one (21) days" if there is a local outbreak of neurologic EHV-1.
- c. Facility records should be maintained on equid movements (entering, remaining on, and exiting the premises), location of individual animals, and equid health status procedures (monitoring and treatment records).
2. Equine Health Monitoring
- a. **Continuous health monitoring of all equids on the premises should be required.** This is the key to early identification and containment of infectious disease with minimal disruption.
    - i. Options include having designated staff performing periodic walk-throughs of stables to directly observe equids for any clinical signs of disease or relying on self-reporting of disease by exhibitors or owners (the requirement for which should be stipulated in entry forms or boarding agreements).



- ii. Any sign of disease should be reported to the designated individual with the authority to initiate immediate disease control measures, such as isolation.
  - iii. Requirements at events should include taking equid temperatures twice daily and documenting temperature readings in a log. Consider requiring the posting of a temperature monitoring log on the stall door which allows designated staff to easily perform checks on temperature recordings. To ensure compliance with the equid temperature monitoring requirement, staff should perform random audits of logs.
  - iv. Owners of equids at boarding stables should be instructed to report clinical signs of disease in their equid to the facility owner or manager.
3. General Protocols
- a. Water sources
    - i. Communal water sources should not be offered at events and exhibitors should be instructed to use their own buckets and to not share any type of equipment with other exhibitors.
    - ii. To avoid cross-contamination, hoses should not be allowed to touch or submerge in water buckets while filling.
  - b. Housing
    - i. Stalls should be cleaned regularly, and waste stored in an area remote from equids. Equipment used for cleaning stalls should not be used for feed and vice versa, e.g., the same wheelbarrow used to transport soiled bedding should not be used to move feed.
    - ii. Stall designs and construction impact infectious disease transmission within facilities. Housing that prevents equid to equid contact over or through walls, and/or prevents equids from reaching into the barn aisle can limit disease transmission.
    - iii. Stalls should be cleared of bedding and disinfected between each horse.
      - 1. Stall cleaning and disinfection starts with removal of all buckets, hay nets, feed tubs, stall webbings, metal grates, etc. followed by scrubbing with detergent solution, rinse, then disinfection. Disinfectant solutions require appropriate surface contact time and should be applied according to product label directions. Finally, surfaces are rinsed thoroughly with potable water and allowed to dry.
      - 2. For stalls with non-porous walls and floors (ideal situation):
        - a. The most important step in sanitizing livestock facilities is the cleaning (detergent) step.
        - b. Wet down all surfaces -- walls, ceilings, ledges (top of walls) -- with detergent and water. Powdered laundry detergent can be used; some veterinary disinfectants also have a detergent incorporated in the mix.
        - c. Allow 5-10 minutes for the detergent liquid to soften dried organic material, then scrub surfaces



- with a stiff-bristled broom used only for stall cleaning.
- d. Rinse, beginning at the top of walls and working toward the drain. Repeat until surfaces are clean, including corners, ledges, and drains. NOTE: Do not use power washers set at >120 psi, as they can aerosolize pathogens. A garden hose with a regular nozzle is acceptable.
  - e. Squeegee excess water off surfaces or allow them to dry.
  - f. Carefully read all disinfectant labels and implement necessary protective clothing as well as eye and respiratory protective equipment prior to starting the disinfection step of cleaning and disinfection procedure.
  - g. Apply disinfectant according to label directions to all vertical and horizontal surfaces, starting at the top of stall walls and working from the far end of the stall to the exit. Allow to dry.
  - h. Repeat disinfection may be necessary for difficult to inactivate pathogens, such as *Salmonella* and rotavirus. Herpes and influenza viruses are more susceptible to detergents and disinfectants and one cycle is generally sufficient.
3. If stalls are constructed of porous materials (untreated wood construction, dirt, or clay flooring, etc.), it must be recognized that these are extremely difficult to adequately clean and disinfect.
    - a. Remove all bedding and organic matter and thoroughly dry scrub all surfaces to remove as much organic matter as possible.
    - b. Follow up by scrubbing stall walls with a detergent solution. Cleaning with large quantities of water can turn dirt or sand floors into a slurry and should be avoided.
    - c. Disinfectants sprayed on porous surfaces may yield inadequate results, and the effectiveness of application will depend upon the targeted organism and the amount of organic material still present.
    - d. Sunlight exposure may be helpful for inactivation of potential pathogens (Weese *et al*, Survival of *Streptococcus equi* on surfaces in an outdoor environment. *Can Vet J.* 2009;50(9):968-70).
    - e. Stalls should be allowed to dry with open ventilation and sunlight for as long as feasible.
  4. Improving air circulation and ventilation in barns reduces ammonia levels and may help reduce transmission of respiratory and airborne pathogens.



5. It is important to remember that exposure as a result of shared air spaces may differ by pathogen. For example, for airborne pathogens such as influenza, all equids stabled under one roof would all be considered exposed, however, in an outbreak of *Streptococcus equi*, more direct contact would be required for a horse to be considered exposed.
- c. General recommendations for disinfectant use
    - i. Follow all product label instructions, especially precautionary warnings and personal protection equipment requirements for proper use and disposal.
    - ii. **DO NOT** mix disinfectants with other chemicals.
    - iii. Select a disinfectant that has documented effectiveness in the presence of organic matter, works in the water hardness of the locale, and is safe to use around equids and humans.
    - iv. Diluted bleach is readily inactivated by organic matter; use only after thorough cleaning. **Note:** Diluted bleach is the only practical, commercially available disinfectant that kills clostridial spores.
    - v. Viruses with envelopes (e.g., influenza, herpesviruses 1 & 4, equine arteritis virus, etc.) are readily inactivated by detergents and disinfectants.
    - vi. Phenolic and peroxygen based products are effective for viruses lacking an envelope (e.g., rotavirus).
    - vii. Determine where drains discharge prior to using detergents and disinfectants. Certain detergents and disinfectants cannot be discharged directly into bodies of water.
  - d. Disinfectant Resources for Practitioners
    - i. [AAEP disinfectant table](#) provides practical information of common equine pathogens and the efficacy of disinfectants on various surfaces and materials.
    - ii. Disinfection 101 from The Center for Food Security and Public Health at Iowa State University
    - iii. [Table of Characteristics of Selected Disinfectants](#) from The Center for Food Security and Public Health at Iowa State University
  - e. Hand Hygiene
    - i. If equids are being handled for inspection by facility staff for any reason, hands should be washed between equids or at least between groups of equids owned by different exhibitor groups. Alternatively, disposable gloves could be worn and changed between patients.
    - ii. Whenever possible, touching the equid should be avoided. For example, in bit inspections, the handler can remove the bit from the equid's mouth without the inspector contacting the bit or equid.
    - iii. If contact between the public and equids cannot be avoided or is encouraged (e.g., petting zoo situation), handwashing or sanitizing facilities should be strategically placed to encourage use.
    - iv. Instructions for handwashing



1. Hands should be washed under running water with pump-dispensed liquid soap (not bar soap) for a minimum of 20 seconds.
  2. If facilities are not available for handwashing, hand sanitizer containing at least 61% alcohol should be used and allowed to dry for 10-15 seconds. Hand wipes should be available to remove all organic debris prior to using hand sanitizer. Caution: avoid exposure to open flame due to flammability.
  3. Extensive information about hand hygiene is available through the [Centers for Disease Control and Prevention](#).
  4. Also, please [see this article](#) from the AAEP proceedings on hand hygiene protocols in the equine veterinary setting
- f. Equipment and Supplies
- i. Equid-specific equipment (feed tubs, water buckets, halters, pitchfork, wheelbarrow, etc.) should be clearly identified as belonging to an individual equid and should be used only for that equid or the group of equids. Ideally, color-coded (a strip of colored tape works well) buckets and cleaning equipment should be used for groups of equids.
  - ii. Shared equipment (lead shanks, lip chains, bits/bridles, twitches, dose syringes, thermometers, grooming supplies) should be cleaned of organic debris and disinfected between equids.
    1. All equipment should be thoroughly scrubbed and cleaned with a detergent and water, rinsed, disinfected, and followed by a final rinse. This should be done in an area with minimal foot and vehicular traffic flow that can be cleaned and disinfected after this procedure (e.g., on a solid surface with a drain rather than a grazing area)
    2. Cloth items (saddle cloths, towels, bandages, halter fleeces, rub or wipe rags) should be laundered and thoroughly dried between each use. Disinfectant may be added to rinse water, but an additional rinse cycle must be included to remove disinfectant residue.
    3. Tack and other equipment which cannot be completely disinfected should be cleaned as well as possible and then placed in the sun until dry or as long as feasible, as sunlight inactivates many potentially infectious agents.
  - iii. Equipment that cannot be effectively disinfected (sponges, brushes not designed to be disinfected) should not be shared between equids. Multiple dose medications (oral pastes/ophthalmic ointments, etc.) should be labeled for use by a specific equid and not shared.
  - iv. Ointments/topical medications should be removed from larger tubs and aliquoted into smaller containers for use on individual equids.
  - v. Horse trailers and vans should be cleaned and disinfected between uses even if there is no known risk of disease. In general, protocols for cleaning stalls can be adapted to the cleaning of trailers and vans. Mats should be removed to allow wood plank floors to dry.





Surfaces around the feeders and cross ties should be given special consideration due to contact with potentially infectious nasal secretions.

- g. Traffic
  - i. The movement of trucks, trailers, tractors, golf carts, wheelbarrows and bicycles around an equine premises have the potential to spread infectious disease agents. Restrict vehicles to designated parking areas and designated routes without animal access to limit risk of disease introduction and spread.
  - ii. Outside supply trucks and non-essential vehicles should not be permitted in the equid stabling area.
- h. Non-equine species
  - i. Dogs and other pets should be prohibited from event grounds. If dogs are to be permitted, leashes should be required.
  - ii. Certified service animals should be allowed with appropriate restraint and efforts taken to avoid their direct contact with livestock.
- i. Vermin and vector control
  - i. Vermin control is critical, especially for disease agents transmitted through fomites. Simple control measures, such as securing feed storage areas from unwanted wildlife, removing brush and wildlife habitats, instituting rodent control measures, and eliminating areas of standing water, will contribute significantly to the reduction of disease transmission risks on the event premises
    - 1. The [USDA IPM Road Map's](#) Appendix 1A PRINCIPLES OF INTEGRATED PEST MANAGEMENT (IPM) outlines considerations for pest management and implementation. Additional resources are available within the USDA's [Information Resources for Animal Control and Wildlife Damage Management](#).
  - ii. Rodent, bird, and insect control should be evaluated, and further measures implemented, as necessary.
    - 1. The [AAEP External Parasite and Vector Control Guidelines](#) outline recommendations for control of external vectors important in disease transmission.
  - iii. For large premises with significant equid traffic and accumulation of manure and soiled bedding, consult an insect control specialist for the most appropriate recommendations.
  - iv. Individual animals can be protected from insect vectors via topical insect repellents and physical barriers such as face masks with ear protection, leg boots and fly sheets.

### III Outbreak Response

- 1. Prompt isolation of sick equids is critical to the successful control of an infectious disease outbreak.
  - a. Preparation of Isolation Area
    - i. Location and Attributes



1. As far away as possible from general human, equine, and vehicle traffic areas. A pre-designated offsite facility may be preferable.
  2. External perimeter secure and clearly marked with adequate [signage in both English and Spanish](#) designating it as a restricted area.
  3. Set up a temporary pen structure if no suitable permanent stabling is available
  4. Optimal isolation stabling has non-porous flooring, running water, and electricity, and is in an area where run-off will not occur
  5. Openings in stall walls (windows, gaps between boards) should be covered with solid barrier material to prevent equid to equid contact.
  6. Should be accessible to large equipment if necessary to handle a down or deceased equid
  7. A local veterinary hospital should be pre-designated that can treat equids requiring isolation with medical needs that cannot be addressed at the show facility's isolation area
- ii. Supplies
1. An adequate inventory of disposable personal protective equipment in a variety of sizes and other necessary equipment and supplies (including disinfectants as described in section II) should be acquired in advance and stored in a location accessible to the isolation area. In the case of an outbreak, there should be enough supplies to operate immediately until additional supplies can be delivered.
  2. Ensure that adequate trash receptacles with lids and receptacles for sharps and biohazardous materials are conveniently located around isolation area.
  3. List of suggested items
- b. Sick Equid Trigger Point:
- i. The definition of a sick equid and specific trigger points warranting the response of isolation of an equid should be outlined for the premises.
  - ii. Consult local, state, or federal animal health officials to determine specific trigger points and response action for reportable diseases. **Note**, the response to a reportable disease may vary by state; therefore, it is necessary to contact the official in the state where the event is held to determine which are reportable diseases.
  - iii. General recommendations to consider for designation as a response trigger for isolation include detection of:
    1. Body temperature greater than 101.5°F (38.61°C)
    2. Ataxia or recumbency or other neurologic signs
    3. Aggressive behavior or stupor
    4. Passage of frequent loose feces
    5. Oral or coronary band vesicular or ulcerative lesions
    6. Nasal discharge, coughing, and/or lymphadenopathy
    7. Limb or ventral body wall edema especially if it occurs in multiple horses



- c. Entry and Exit Protocols
  - i. All movement in and out of the isolation area should be regulated and recorded, e.g., with check in sheets.
  - ii. Additionally, maintain a log, recording events as they occur, including case identification (which horses got sick), control measures implemented, diagnostic testing results, and communications.
  - iii. Disinfectant footbaths or mats should be placed at all entry and exit points to and from the isolation area and each stall.
    - 1. Disinfectants suitable for footbaths and mats include 10% bleach or peroxygen compounds such as Virkon® S. Read label indication, instructions for use and safety information prior to using any disinfectant. Please see the disinfectant table linked in Section II.C.3 for more information.
    - 2. Disinfectants should be chosen based on environmental temperature considerations. Partially frozen foot baths/mats are likely to have minimal efficacy.
    - 3. The footbaths and mats should be kept as free of organic matter as possible and routinely filled with new disinfectant solution (at least every 2-3 days and preferably daily).
    - 4. Rubber boots or other footwear suitable for disinfection should be worn. If other types of footwear are used, plastic over-boots should be employed and disposed of after each use. The tread of rubber boots should be kept free of organic debris with a brush.
  - iv. Handwashing or hand sanitizer stations should be placed at all entry and exit points to and from the isolation area and each stall (See section II.C.4 for information on hand hygiene). Hand hygiene should be performed before entering and when leaving each stall, and before entering and leaving the isolation area.
  - v. Personnel should don a protective gown and latex or nitrile gloves before entering a stall to examine or care for an equid. Gowns and gloves should be disposed of after each use and between equids in a covered refuse container. If a cloth gown is used, it should only be used once and then laundered.
  - vi. Caretakers should be provided with a changing area. Clothes should be changed and laundered, and footwear changed or disinfected after leaving the isolation area and before handling other equids.
  - vii. All necessary supplies should be in the isolation area before moving the sick equid into the area. If necessary, additional supplies may be brought to an area adjacent to the isolation area for easy transfer. Designated equipment should remain in the isolation area.
- d. Care, monitoring, and testing of sick equid(s) in isolation
  - i. ANYTHING that touches an infected equid, and its secretions or excretions has the potential to transmit pathogens to other equids. Pathogens can be indirectly transmitted to other equids on equipment, tack, hands, footwear, or clothes.
  - ii. Ideally, designated trained staff provided by the facility should work exclusively in the isolation area to care for equids and designated



equipment should remain in the isolation area. If multiple individuals are moving in and out of isolation to care for equids, extreme care must be exercised in following biosecurity protocols, especially if these individuals are also caring for well equids not in isolation. This situation is not ideal.

- iii. If it is unavoidable that an individual has to provide care to both affected and unaffected animals, then the following precautions should be observed:
  1. Care of healthy, unexposed animals (feed/groom/exercise/muck stall) should be completed first
  2. Exposed but healthy animals next
  3. Affected/sick animals last
- iv. The health of all equids in isolation should be closely monitored and necessary supportive care and medical treatments provided. If required medical care exceeds the capabilities of the isolation unit, the equid should be transferred to an isolation facility at a referral veterinary hospital.
- v. Depending on clinical presentation, determine the samples for diagnostic testing and send to pre-determined diagnostic laboratory in order to confirm or rule-out specific infectious diseases of interest.
- vi. Manure and soiled bedding from stalls of sick equids should not be put in open air piles or pits or spread on pastures. It should be placed in heavy plastic bags or covered secure dumpsters for disposal in a landfill. If the disease is zoonotic, any potentially infectious waste should be disposed of by the method recommended by public health officials.
  1. Composting can be a successful method, but care must be taken to follow specific guidelines. Reach out to local organics or composting professionals for guidance.
- vii. If a professional laundering service is used, they should be informed if any of the materials are potentially infectious. If barn laundering facilities are used, the washing machine should be cleaned by running empty with a suitable disinfectant following use on potentially infectious materials.
- viii. All equids demonstrating neurologic clinical signs with no confirmed diagnosis should be clearly marked with a “rabies suspect” sign on the stall and reported to public health authorities. Restrict personnel access to the equid and ensure that anyone contacting the equid wears double gloves, protective clothing, and splash protective equipment (face shield or goggles) as necessary. Record the names of all who make contact with the equid in a log so that they can be contacted in the event of a positive rabies diagnosis. See AAEP Rabies Guidelines for further information.
- ix. If euthanasia is required, the ideal location is on a remote area of the grounds accessible to large equipment or trucks, with no public access.
  1. If euthanizing an animal that has been quarantined by the State, contact the State or Federal Animal Health Official for permits and guidance for disposal and movement.



2. Consider collecting appropriate biologic samples prior to euthanasia, if not already performed, for banking and subsequent testing. The method of euthanasia should be considered in light of suspected disease.
  3. Someone capable of removing or burying carcasses should be identified in advance of necessity.
  4. The route of a rendering truck or dead stock hauler on and off the premises should not cross any live equid routes or exercise areas.
  5. Necropsy of any equid that dies or is euthanized should be strongly recommended and optimally performed off-site at a veterinary diagnostic laboratory. The State Animal Health Official should be consulted in case they would like to request specific and expedited tests. In the case of a potential zoonosis, necropsy is essential to protect public health.
- e. Release of equids from isolation
- i. The state or federal animal health official will be in charge of determining release protocols in the event of a reportable disease.
  - ii. The event veterinarian and management should work together to determine isolation release protocols in cases of non-reportable potentially contagious diseases.
  - iii. In general, potentially exposed equids should be maintained separate from the general population at the event until one of the following occurs:
    1. The index equid no longer has clinical signs and tests negative for all suspected infectious disease agents
    2. A non-contagious disease is confirmed
    3. A time period of appropriate surveillance has passed, or diagnostics have been performed, confirming disease transmission has not occurred.
    4. Permission is given by the appropriate authorities to move the equid to another location.
2. Management of premises not in primary isolation perimeter
- a. Exposure assessment and risk assignment of equids without clinical disease
    - i. High Risk: An equid that had direct contact (nose to nose, shared fence-line) with a sick equid
    - ii. Moderate Risk: An equid that may have had indirect contact (communal water trough, shared wash rack, shared equipment, common personnel) with a sick equid
    - iii. Exposure assessments may vary depending upon disease agent. In the case of a disease such as equine influenza that is transmitted over longer distances than a bacterium such as *Streptococcus equi* subsp. *equi*, high risk equids may include all equids sharing air space (i.e., in the same barn or transported in the same trailer/van) as affected equid(s).
  - b. Restrictions on equid movement during an outbreak
    - i. Restrictions on equids will vary dependent upon risk assignment and the disease agent



- ii. The state or federal animal health official will be in charge of determining restrictions on at-risk equids in the event of a reportable disease.
  - iii. The event veterinarian and management should work together to determine restrictions in cases of non-reportable potentially contagious diseases.
  - iv. In general, equids that are at high risk would have more stringent restrictions and monitoring than low risk equids. Following biosecurity procedures similar to those used in isolation for higher risk equids is recommended to prevent further disease spread. Higher risk equids should be exercised separately, preferably in a different arena, from equids in lower risk groups.
    - 1. It is recommended participants/boarders sign an agreement with the event/facility stating they will abide by all disease outbreak restrictions and protocols.
  - v. Temporary movement restrictions may be necessary until assessment of the situation is complete, especially in higher risk or higher consequence disease situations, after which permission for allowing certain movements on the premises may occur. Policies should be communicated, preferably face to face, to those impacted, and enforcement of policies should be consistent and fair.
  - vi. A plan for promptly closing the premises should be developed in the event it is needed, with procedures outlined to redirect personnel resources to close and lock gates, block roadways to and from the premises with barriers, and monitor entry and exit of vehicles.
  - vii. It is essential that facility management be aware of what equids are on the premises and where they are stabled. This ideally is a routine practice but is especially important in an outbreak. This may require barn to barn inspection and documentation.
  - viii. A check-out protocol is necessary for equids whose owners are given permission to move them from the premises. A basic check-out process includes follow-up owner/agent contact information (cell phone number and email address), documentation of equid identification, and the intended destination for the equid. This simplifies follow-up if necessary.
- c. Monitoring of equids during an outbreak
- i. Continuous health monitoring of all equids on the premises is a priority during an infectious disease outbreak.
  - ii. Recommend event or facility managers predetermine the consequences of noncompliance with biosecurity protocols and notify individuals prior to horse entry.
  - iii. Designated, knowledgeable, experienced individuals should perform periodic walk-throughs of stables directly observing equids for any sign of clinical disease while abiding by appropriate biosecurity when moving around the facility. Movement should be determined by risk factors and be from low to high-risk areas.
  - iv. Owners/trainers/grooms of equids should be required to monitor their equids for signs of disease and report any clinical signs to show management or attending veterinarian.



- v. Temperatures should be taken on equids twice daily and documented in a log displayed on the stall door for easy assessment. Temperatures should not be taken immediately after exercise, i.e., they should be obtained after equids are cooled out to avoid spurious elevations.
  - vi. An equid body temperature over 101.5°F (38.61°C) should be immediately reported to management. Equids with temperatures between 100°F (38.61°C) and 101.5°F (38.61°C) should be monitored for other signs of disease and have the temperature retaken in 1 hour.
  - vii. Equids demonstrating “sick equid triggers” outlined in III.A.2 should be moved to the isolation area and managed there.
  - viii. Consideration should be given to updating or initiating vaccination in at risk equids when appropriate. Please [see AAEP Vaccination Guidelines](#) for further information.
- d. Additional restrictions and recommendations for disinfection
- i. Since dogs or other pets may carry infectious disease agents from one location to another on the premises, no dogs should be on the grounds during an infectious disease outbreak. Require owners with dogs onsite to immediately remove dogs from the grounds. Dogs should not be placed in trailers or vehicles due to the possibility of escape, barking and temperature stress.
  - ii. Immediately clean equipment of organic matter, thoroughly scrub with detergent and water, rinse, dry and disinfect all previously shared equipment (lead ropes, chains, bits, twitches, thermometers, grooming supplies, etc.). Items, such as tack, to which disinfectants cannot be applied, should be cleaned, and allowed to dry in the sun, since sunlight inactivates/kills many pathogens. Sharing of equipment should be discouraged, but any equipment which must be shared should be cleaned and disinfected between uses.
  - iii. During a disease outbreak, it is essential to communicate disease biosecurity measures to visitors. Keep visitors out of the equid areas and inform them of proper biosecurity measures if they are returning to equid premises.
  - iv. Steps to limit direct and indirect equid contact are necessary. All areas which are touched by human hands or by equids, such as fences, wash racks, bathroom sinks, faucets, light switches, and door handles, should be cleaned and disinfected at least daily. Common use items, such as wash stall cross ties and washing equipment, should be removed and personnel should be required to use their own equipment. Monitor exercise and exhibition areas to ensure that minimal direct or indirect equid-to-equid contact occurs. Restrict individuals from tying equids to fencing outside the arenas or stabling areas, since fencing can be contaminated by secretions of an infected equid. Indoor arenas and indoor stabling can potentially increase the risk of aerosol spread. Indoor arenas may be taken out of use, and individuals required to utilize outdoor arenas if aerosol pathogen spread is suspected.
  - v. During an infectious disease outbreak, only the owner or designated personnel should handle equids on the premises. Limit the sharing of personnel between barns or trainers. Supply additional hand washing



- stations and signage during the outbreak to enable equid handlers to perform proper hand sanitation after handling each equid.
- vi. Thorough cleaning and disinfection of the premises at the beginning of an infectious disease outbreak can significantly reduce the potential for disease agent spread. Start with the removal of all manure, soiled bedding, and uneaten feed, then remove residual organic matter by washing all surfaces with soap and water before the application of a disinfectant. To limit vehicle traffic on and off the premises, consider ordering bulk disinfectant supplies for delivery to a designated biosecure area on the grounds.
  - vii. Sunlight inactivates/kills many pathogens. After cleaning and disinfecting buckets, tack, and equipment allow them to dry in the sunlight if possible. After cleaning and disinfection for some pathogens, like *Salmonella*, it may be necessary to obtain test samples of the environment to determine elimination of the organism.
  - viii. Request that individuals clean and disinfect their equipment, trailer, and vehicle before leaving the grounds.
  - ix. The plan should include feed store contact information to re-arrange for feed and bedding delivery. Delivery protocols that require the cleaning and disinfection of trucks upon entry and exit may be warranted. Vendor personnel may also be required to use disposable coveralls and disposable footwear covers when delivering supplies (i.e., grain, hay, supplements, bedding). Management should assess the potential feed and bedding needs on the premises and consider necessary arrangements for a single delivery to a designated area. To minimize disease spread on the grounds, designate personnel to be responsible for the delivery of the feed to the barns. Deliveries should be first to low risk/healthy equids, then exposed equids and lastly to clinical equids.
  - x. All shared facilities/equipment (e.g., detention barn stalls, receiving barn stalls, starting gate, equine ambulance) should be cleaned and disinfected after each use.
  - xi. Horse trailers and vans should be routinely cleaned and disinfected after each use, but especially after being used to transport ill or potentially ill animals.
    1. Management should predetermine a location for cleaning and disinfection in accordance with Environmental Protection Agency (EPA) guidelines and any applicable local jurisdiction.
- e. Communication
- i. Clear and concise signage and messaging to all on the grounds is essential. During an infectious disease outbreak, there is limited time to develop adequate signage, so developing critical messaging before an outbreak and having clear attention-getting signs available for use in an outbreak will aid in prompt effective communication and successful implementation of enhanced biosecurity and infectious disease control plan measures. Decide in advance where signage will be posted. See link to suggested signs in English and Spanish in section III.A.1.
  - ii. Notification of all affected parties is a critical component for an effective infectious disease control plan. Development of clear, concise, and





accurate messages about a situation, the measures being taken and the procedures for owner/trainers/grooms to follow is critical to prevent the spread of disease and panic among the group. This may be best accomplished by issuing a press release in high profile situations.

- iii. Before a disease outbreak, outline a communication plan to notify staff, trainers, owners, public and vendors of an incident. Consider incorporating several communication modalities to ensure rapid, unified messaging to a large audience. Contact information for other individuals who may be able to assist during an infectious disease outbreak should be organized and readily available. Create a complete emergency contact list and provide it to all staff at the beginning of the disease event. Consider having a public relations specialist develop a communication plan and have their contact information readily available for provision of messaging at the appropriate level and preparation of timely updates.

#### **IV: Additional Resources**

1. [Biosecurity instructions for grooms/caretakers](#) should be provided in English and Spanish.
2. Please see this article from AAEP Proceedings on [management of infectious disease outbreaks](#) for more information.

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**Supported and reviewed by:** AAEP Infectious Disease Committee