

Alberta Veterinary Medical Association and Alberta Equestrian Federation

Equine **Biosecurity** Principles and Best Practices

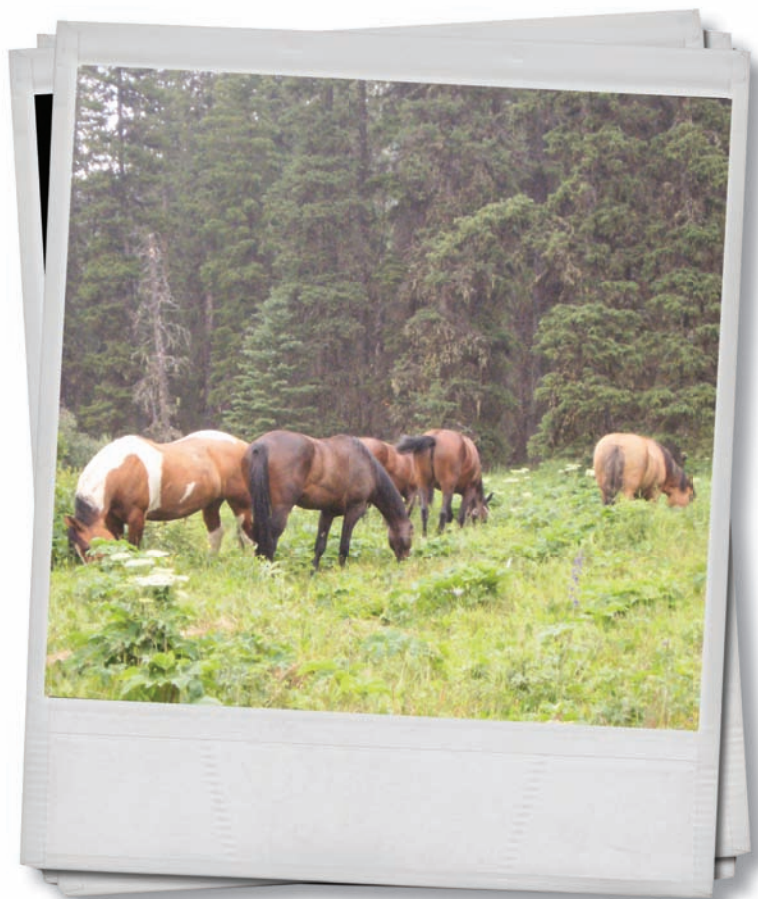


AEF Educational Outreach: Equine Biosecurity Principles and Best Practices

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Rationale

An Industry Reality

On June 25, 2010, CBC News published the following:

A flu-like illness in a horse has led to the cancellation of performances by the RCMP Musical Ride in Alberta and Saskatchewan.

*The RCMP said Friday that a horse contracted what was described as a low-grade case of *Streptococcus equi*, a bacterial infection commonly known as strangles. The condition produces symptoms similar to the flu in humans.*

The RCMP musical ride has been on tour performing in communities across Quebec, as well as in Toronto, since May.

One of the animals on the tour caught the illness, which is contagious among horses. The RCMP noted that the illness is not a threat to humans, but people working with horses can spread it. As a result, officials decided to isolate the horses at the RCMP's Rockcliffe stables in Ottawa.

Shows that were set between July 2 and July 20 were cancelled. In Saskatchewan, shows in Regina were cancelled. In Alberta, the cancellation affects two shows in Calgary and those in Irricana, Cold Lake, and Redcliff. Officials said they hope to resume the tour in Edmonton on July 23.

Musical Ride performances in Ottawa, set for the last week in June and Canada Day were still on. However, members of the public will not be able to access the horses directly.

Officials said they can still perform in Ottawa, because handlers can control the environment where the horses are stabled and perform.

The Regina shows, which were to take place at the RCMP training academy on July 4 and 5, were rescheduled to Sept. 4. There will two performances on that day, at 2 p.m. and 7 p.m. CST. The RCMP said tickets for the July dates would be honoured in September.

The academy is celebrating its 125th anniversary this year. There was no word on any new dates for the cancelled Alberta shows.

Notes



Here are some common sense tips that will help you fulfill your obligations to your horses, horses in your care and the equine community at large:

- Avoid travel with your horses if you suspect (or know!) they have an infectious disease.
- Avoid travelling with a horse(s) that may have been exposed to an infectious disease until you can be sure they are disease free (2-3 weeks). Discuss with a veterinarian whether they pose a disease transmission risk prior to exposure to other horses.
- In the event of a disease outbreak at a coningling site, such as a stable, do not allow horses to leave or new horses to arrive until the disease has been eliminated or tightly controlled with a quarantine or isolation program **and** a veterinarian has given the ALL CLEAR.

In the event your horses contract an infectious disease:

- ✓ Consult your veterinarian for diagnosis and medical treatment,
- ✓ Isolate and restrict access to sick animals, and
- ✓ Advise recent visitors to your property of an outbreak and advise them to monitor their own animals for signs of disease





A horse actively shedding a pathogenic organism; may or may not appear sick; contaminated equipment or environment



New Animals, Travelling Animals, Visitors, Wildlife, Transport Trucks, Veterinarians, Farriers etc.

Portal of Entry or Exit

Reservoir

Susceptible Host

Chain of Infection

Mode of Transmission

Infectious Agent



Nose to nose contact; contaminated equipment; aerosols (coughing, sneezing droplets); manure; pets and pests; visitors clothing and boots

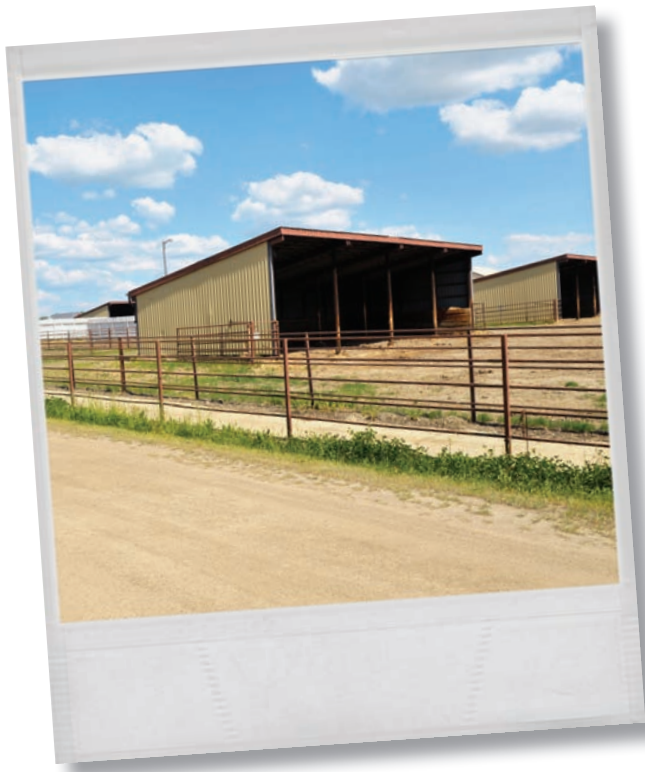


Yearlings, older horses, unvaccinated horses, immune compromised horses, broodmares, aerosols (coughing, sneezing droplets); manure; pets and pests; visitors clothing and boots

Equine diseases use vectors and fomites to enter into an animal or herd that is susceptible to hosting the bacteria or virus. Hosts might not always get sick. Regardless, the host horse or horses then serve as a reservoir of that infectious agent. The infection agent may be passed from horse to horse via vectors (living entity that may carry the organism) or fomites (inanimate objects that carry organisms on their surface). Examples of vectors are: people, dogs, cats, other horses and wildlife. Examples of fomites are brushes, halters, buckets, horse trailers, saddle pads, stall doors etc. The fomites or vector facilitates infectious organisms travel around a premise or community. Without your biosecurity efforts, the cycle continues to spread disease.



Notes



Step 1: Risk Assessments

Biosecurity programs should be developed specific to each horse, herd, horse owner's or facilities individual needs. The most effective way to evaluate need is to participate in a risk assessment survey of risk factors. Following a risk assessment, you and your veterinarian can clearly identify the following:

1. What areas have sufficient biosecurity in place?
2. Where can you change the way daily operations are done to improve disease prevention and control?
3. How can biosecurity be improved?

After completing a risk assessment survey, horse owners can have an educated discussion with their veterinarian about biosecurity and make informed decisions about which biosecurity protocols to implement to manage their unique risk.

The following Risk Assessment Charts are designed for horse owners and facility operators to effectively review their current herd demographic, facility design and horse and facility risk factors to pinpoint disease control

and prevention areas. It serves as a powerful tool to use in discussions with your veterinarian about developing specific protocols that you may consider implementing based on risk factors.

The following Risk Assessment surveys are separated into 5 sections:

1. Animal Risk Factors
2. Feed and Water Risk Factors
3. Owner and Employee Risk Factors
4. Visitor and Facility Users Risk Factors
5. Premise Risk Factors

Assess your risks and then make informed decisions about implementing biosecurity protocols.

Each area inquires about what your current practices are for disease control and prevention. Once you have identified current practices, you can analyse your answers to determine what areas you want to implement additional biosecurity practices.

Once risk assessment has been completed, the next step is to decide what practices of disease control and prevention you want to engage in. Your veterinarian can help you prioritize areas for implementation based on your real and perceived risks.



What diseases are you concerned about?

What operational practices put you at risk of disease introduction, recycling and or transmission?

What *should* you be concerned about? Ask your veterinarian!

What are you already doing to limit your risks of disease in your horses?

Notes

Step 2: Identifying protocols for implementation

Let's be honest. Biosecurity isn't always convenient. If it was, everyone would do it! But it is necessary in many situations, to protect your horse's health and the health of the horses in your equine community and in some cases, human health.

Develop your personalised biosecurity program using the 3 management pillars of biosecurity.

- Animal health management and,
- Access management and,
- Operational management

These pillars cannot be viewed in isolation. To do so may give a horse owner a false sense of security that they are doing what they can to be proactive in disease control, when they may not be. You must consider all the variables of animals, facilities and people to develop the best most effective program. Your veterinarian is the trained professional to account for all the variable and offer advice on how to manage a complex environment.

Access Management

Access management principles serve to address risk management by looking at how disease may be introduced into a herd, either from outside the farm or from another group of animals on the same premise. This pillar focuses on knowing what areas of a farm, barn or stable are needed based on the use of the facilities and animal movement.

Control Access to Farms, Barns and Horses at Critical Points

- Establish visitor parking well away from barns, pens and pastures. Use clear signs!
- Consider having a clearly identified area for visiting horse trailers to park, well away from the main entrance to the facility, barn or paddocks and pastures
- Establish zones to reflect differing standards of biosecurity
- **Public Access Zone** is an area with where no animal contact or crossover is anticipated. Identifying a public zone indicates to the public that there are also

areas where you may not go! These areas may include viewing/bleacher area, parking lot, stable/event office etc.

- **Controlled Access Zone** is an area that you may identify around barns, pens, handling areas that should be restricted to employees and biosecurity educated facility users. May be identified by a fence, sign, strip of crushed gravel etc.
- **Restricted access zones** should be any area/pasture/pen where animals commonly reside
- **Quarantine** should be an area used for newly arriving animals as an evaluation for disease status before being introduced to main herd (especially important for closed herds) or for animals that may be at risk of contracting disease e.g. compromised animals. The following are important components of a quarantine program:
 - Maintain a 2-3 week period of quarantine.
 - Eliminate nose to nose contact with any other horses.
 - Have separate waterers, feed bins and buckets for quarantined horses.
 - Label equipment, including halter, shovel, bucket, blanket, bridle etc., as QUARANTINE and with the horse name
 - Post signs outside of quarantine pens and stalls indicating quarantine status and restricted access.
 - Wash hands prior to going in and coming out of pens/stalls.
 - Clean and disinfect boots when exiting.

Best practices for quarantine programs include:

- Having outwear dedicated to the quarantine horses and labeled as such.
- Restricting facility use by horses in quarantine until quarantine period is expired e.g. wash rack, arena, alleyway would be off limits.
- **Isolation** should be used for sick animals and should have the highest level of biosecurity protocols in place. The following are components of an effective isolation set up:

- **NO contact with any other horses.**
- Wash hands prior to going in and coming out of pens/stalls.
- If in a stall, have at the end of the row and with an empty stall beside the isolation stall.
- Have separate waterers, feed bins and buckets for isolation horses. Clean and disinfect daily.
- Have non porous (rubber) boots identified as isolation boots. Clean and disinfect them prior to going into isolation and upon exit from isolation. Consider using disposable booties also.
- Label equipment, including halter, shovel, bucket, blanket, bridle etc., as "ISOLATION" and with the horse name.
- Keep isolation equipment in a closed bin directly outside the quarantine stall/pen. Disinfect the outside every time it is opened.
- Post signs outside of isolation pens and stalls indicating isolation status and restricted access. Signs are most effective if posted a bit away from the stall/pen versus directly on the stall.
- Have coveralls specifically for use in isolation.
 - ☞ Label them and launder them after each use or animal.

- ☞ Keep a covered isolation laundry bin directly outside isolation. Wash isolation laundry with detergent and bleach. Wear gloves when transferring to washer. Remember to label the washer as isolation!
- ☞ Keep clean "ISOLATION" coveralls in a closed bin outside the isolation area for quick access.
- ☞ **Horses should not leave isolation until cleared by veterinarian as being safe to return to general population. Some horses may still be infectious even if they are not showing clinical signs.**
- ☞ All facility use is off limits to protect other horses in the facility.
- ☞ **Best Practice:** Use disposable coveralls and dispose of them after each use, in a covered isolation garbage.
- Post biosecurity signs at barn and pasture entrances. Additional signage may benefit specific cases, such as outside the stall of a new horse.

Best Practice: Restrict pets' access to horses in different access zones. Whether they are from the neighbors, visitors or stray animals, they can present a risk for transmitting disease from groups of horses or farm to farm. For example, there is a story of a collie that roamed a neighborhood and is suspected to have been the cause of spreading a significant bacterial disease thru the small community.

Draw a diagram of your farm, stable or facility. Include stalls, outbuilding, corrals, pastures, gates. Identify different areas of the diagram where you could implement a zoning system. With a ★, identify where signs should be posted. With a ↕, identify areas where disease transmission may occur.



- Ensure transport trucks are clean, disinfected and rinsed properly prior to transporting horses.
- In the event it is not practical to quarantine horses on return home, you must be diligent about minimizing your risk of contracting a viral or bacterial disease while away from home.

Manage disease risk while travelling

If you are travelling with horses on a weekly or even monthly basis, attending agricultural events, maybe competing or attending clinics, it may not be practical for you to quarantine your horses when they return home. If this is your case, here are some recommendations you should consider to minimize the risk of bringing home a disease:

1. Ensure your horse, and any that it might be in contact with when it returns home, have vaccinations that are current and relevant to the diseases in your area. Consult your veterinarian to establish a relevant vaccination program for travelling horses and those they are in contact with!
2. Bring your own water bucket and avoid communal waterers and troughs. Do not let your horse drink from communal water sources. Fill your bucket from a hose or pump that delivers fresh clean water.
3. Tie your horse to your own trailer. If you must tie to another site, choose a non porous surface and disinfect it prior to leaving your horse tied.

Manage disease risk while travelling, if you cannot quarantine travelling horses at home.



4. When arriving at your event, staging area or temporary stall:
 - a. Remove used bedding that may be present.
 - b. Clean the walls, railings and door to remove organic material (mud, manure, dirt).
 - c. Disinfect the walls, railings, doors, and floor (if not dirt) paying attention to waterers and handles, and latches. Ensure you leave the disinfectant on for the appropriate contact time and rinse if required by manufacturers instructions.
 - d. Put in fresh clean bedding (if needed)

Tool Kit for Mobile Biosecurity Efforts

1. Scrub brush
2. Shovel and broom
3. Soap or detergent concentrate for cleaning
4. 4L jug of water for mixing cleaner and disinfectant (separately of course!)
5. Measuring cup for measuring accurate amounts of water and disinfectant concentrate
6. Bucket for cleaning and mixing disinfectant (should not be used to water horses)
7. Appropriate disinfectant concentrate e.g. Virkon powder or tabs
8. Hand held spray bottle for applying disinfectant

What else would **you** carry in your tool kit?



Monitor individual animal and herd health

In conjunction with your veterinarian, establish a Disease Response Plan. A disease response plan is especially valuable if there is more than 1 person who may be in charge of the care of your horses. It may include:

- Normal horse vital signs and guidelines about when values are abnormal.
- When to contact a veterinarian, who will contact the veterinarian and contact information.
- Treatment protocols approved by your veterinarian.
- Protocols for in the event of an emergency, such as colic, tangled in wire, trailer accident, severe weather etc.

Establish and follow regular routines for observing animals; daily is recommended.

- Keep a record for individual animals that may include:

Work with your veterinarian to develop and document a disease response plan.

- ☞ Normal values for vital statistics (heart rate, respiration rate, temperature, gut sounds, weight, height).
- ☞ Notes of changes of behaviour, feeding pattern.
- ☞ Veterinary examinations.

☞ Medications administered (including dose, amount, frequency, duration).

☞ Vaccines or dewormers administered.

- Work with a veterinarian to design a personalized vaccine program for your particular herds.
- Follow established vaccine program; consult your veterinarian prior to diverging.
- **Quarantine new animals** until disease status is established and vaccinations are in place.
- Isolate sick animals as soon as possible and consult your veterinarian for appropriate diagnosis and treatment.

Summary for an Effective Biosecurity Program: Animal Management

- **Quarantine new animals for a minimum of 2-3 weeks**
- **Participate in traceability programs**
- **Handle healthy animals before sick animals as routine practice**
- **Establish a disease response plan with your veterinarian**
- **Keep a health record for each animal**
- **Get veterinary advice about vaccination protocols for your horse(s)**
- **Isolate sick animals as soon as possible and consult your veterinarian for appropriate diagnosis and treatment**

Where might you make changes to your animal management strategies to improve your disease prevention and control efforts?



Handwriting practice area with multiple horizontal lines for notes.

Notes

Operational Management

Animal Husbandry

- **Wash your hands** after handling a horse and before handling a horse in a different zones
- Keep young or susceptible animals as clean and dry as possible
- Use pastures that are well drained
- Avoid forcing animals to graze down to the roots of grasslands to limit the parasites they ingest residing on the ground
- Handle healthy horses before sick horses as routine practice
- Monitor all animals on a daily basis for normal versus abnormal behavior and health indicators such as:
 - ☞ Wounds, lesions, hair loss
 - ☞ Signs of depression
 - ☞ Abnormal discharge from eyes or nose

Clean and Disinfect Equipment and Barns

- Designate equipment for each horse, herd and farm
- Avoid sharing equipment with other barns
- Wash vehicles regularly, and especially after visiting another farm or co-mingling site, high pressure wash and disinfectant the under carriage and wheel wells.
- Keep the interior cab of farm vehicles clean and free of dirty coveralls, boots or equipment. Disinfect regularly.
- Follow manufacturer's directions when using commercial cleaning and disinfection products.



Designate equipment for horses that are housed separately. Label brushes, buckets, halters, etc. to help keep equipment use consistent. **Clean and disinfect equipment** before using on a horse that is housed in another zone or on another premise.

Keep in mind the following points when cleaning and disinfecting equipment, barns, pens, stalls:

- ☞ Read all labels thoroughly for Use, Direction, Safety Requirements and Toxicological Information.
- ☞ Cleaning and Disinfection should have a protocol just as vaccination and medication programs.
- ☞ In the protocol record the following information:
 - Product used
 - Rationale for selection of that product
 - Concentration used (include calculations)
 - Mixing procedure
 - Volume used
 - Area covered
 - Application method (spray, fog, etc.)
 - Safety precautions suggested by manufacturer
 - Drying conditions
 - Cleaner used
 - Validations for all of the above
 - ☞ Disinfectants have strengths and weaknesses. Those that are excellent against bacteria may not be the product of choice against viruses. Ease of application and safety are major considerations. Consult your veterinarian for recommendations.

- ☞ There are alkaline and acid cleaners. **DO NOT USE (OR MIX) CHLORINE WITH ACID CLEANERS.**
- ☞ Use the correct dilution of disinfectant. Disinfectants work best at approved levels. More is not necessarily better.
- ☞ Disinfectants must be mixed properly before use. Use warm or hot water to mix disinfectants, as most disinfectants, detergents and soaps have increased activity in warm water.
- ☞ Follow local government regulations regarding the application of disinfectants to ensure compliance with environmental legislation.



5. If time does not allow for complete drying before applying **disinfectant** solution, squeegee as much water as possible to the drain; apply disinfectant and allow a minimum contact time of **according to manufacturer's directions**. (Virkon 1% is 15 minutes) After this, if the area is needed; the Virkon may then be squeegeed off.

Use Personal Protective Equipment (PPE)

For producers, staff and visitors entering restricted areas, including isolation or quarantine:

- Have clean coveralls and boots available for visitors and service personnel...and make sure they use them! This will minimize the risk visitors will introduce a disease causing pathogen into your herd.
- Consider using disposable booties and coveralls when entering quarantine and/or isolation.



A simple crossover station at the entrance and exit to isolation. Physical barriers serve to remind people to change footwear, outwear and wash hands prior to entering and upon exiting quarantine and/or isolation

Disinfectants require **contact time** with surfaces to be effective. Check manufacturer's directions.

Cleaning and Disinfection Protocol

Here is a sample cleaning and disinfection protocol that may be modified to fit your own use and facility. This protocol may be applied to rails, equine stalls, stocks, tie rail, walls, doors and non porous floors to clean and disinfect. Don't forget your horse trailer!

1. The floors will initially be scooped and free of fecal material. Fecal material will be transported by wheelbarrow to identified area where uncontaminated animal waste is to be deposited; ideally compost area. Floors may also be swept if applicable.
2. The animal housing/treatment area such as rails, chutes, stalls, stocks and walls, doors and floors should be sprayed and cleaned. Consider using a dilution device such as a pressure washer with hot water and detergent (such as Nutrafoam or Sun-light™, which is a neutral pH detergent). The area will be generally scrubbed and washed and free from any gross contaminant.
3. The area should be left to dry. If area use is continuing within the same day, the area should be squeegeed in order to remove as much water as possible.
4. The following day, after drying, the area will be completely covered in disinfectant solution (such as Virkon 1%), and then allowed to dry.

Notes

Notes

Control Pests with a Pest Management Program

- Conduct control measures weekly to effectively disrupt the fly lifecycle.
- If/when insecticides are used, remove animals and follow manufacturer's directions.
- Build rodent proof feed storage areas.
- Keep vegetation mowed short and eliminate standing water sites.
- Establish, follow and document a deworming program for all species on the premise.

- Use bait stations for insects and rodents. **Be sure they are out of reach of pets and stray animals.**
- Eliminate pest habitats and breeding areas for pests.
- Clean up manure, spilled feed and standing water as soon as possible.
- Keep feed stored in pest proof bins.
- Communicate with neighbors about your efforts to reduce fly populations.

Communicate Biosecurity Program Effectively

- Use highly visible clear signage to post your biosecurity protocols.
- Include biosecurity protocols in staff training and document employees completion of training.
- Educate facility users about biosecurity expectations. Consider adding a discussion of biosecurity to a Welcome Booklet.
- Make Visitors aware of biosecurity protocols before they arrive on the farm, at the barn or at the stable.
- Keep a Visitor log book with date, name and any previous animal contact in the last 7 days. Display the log book in a location that is accessible to employees, facility users, owners and visitors. Encourage them to use it!
- Consider having a copy of the facilities biosecurity program and protocols available for review in the same location as the guest book.
- Visitors should be accompanied by an employee or facility user educated in the biosecurity expectations to assist in com-



pliance with biosecurity protocols or ensure signage is adequate to communicate expectations.

Enhance your biosecurity measures with the following Best Practices:

- Identify access/entry points (roadways, laneways etc.), ideally with a physical barrier such as a gate.
- Establish vaccine expectations for haul in facility users; ask them to commit to meeting those expectations by signing a waiver or providing proof of vaccines with the individual horses health record.
- Consider recognizing an individual with your organization, barn, riding club etc. as a Biosecurity Champion. Maybe it is the stable manager, or riding instructor, or a facility user with an interest in animal health and wellness. Their role might include:
 - ☞ Documenting biosecurity program for your club
 - ☞ Go to person for information on your club's biosecurity standards



Summary for an Effective Biosecurity Program: Operational Management

- **Communicate biosecurity program effectively with clear visible signs**
- **Control pests and pets**
- **Encourage use of personal protective equipment (PPE)**
- **Clean and disinfect equipment prior to and after use**
- **Maintain good animal husbandry**



Where might you add components of Operational Management to your facility or farm to increase disease prevention and control measures?



A large rectangular area with an orange border containing horizontal lines for writing.

Notes

Where can you get help?

NO biosecurity program is 100% effective because programs are only effective as long as owners, handlers and visitors are educated about the program and are committed to practicing good disease prevention and control. **EVERYDAY.**

Veterinarians are the logical choice to help protect the health and wellness of your equine partners. Disease control is their professional area of focus in the interests of animal health and public health. The information presented in this booklet is intended to encourage you to have an educated discussion with your veterinarian to be sure that you are doing what you can (and want to do!) to protect your equine investment and fulfill your obligation of protecting the equine community at large. Specific questions, concerns, ideas and protocols should be discussed with your veterinarian who has the best understanding of your risk factors. Use that resource!

Visit the Alberta Veterinary Medical Association Public Resources website at www.abvma.ca, and click on **Biosecurity** for additional resources on a variety of species.

If you suspect your horse(s) have been exposed to or contracted a disease, contact your **veterinarian immediately.**

These resources have been produced in cooperation with each animal production industry. Click on the Directory tab to search for a veterinarian close to you.

For additional information, or access to this booklet and accompanying PowerPoint presentation to deliver to your own group of horse enthusiasts, contact the Alberta Equestrian Federation, www.albertaequestrian.com

Alberta Agriculture and Rural Development has a wide variety of resources for public review and use. Visit their biosecurity website www.agric.gov.ab.ca/biosecurity





Notes

Summary

You have obligations as a member of the equine community. One of those obligations is to practice safe and effective means of disease prevention and control. Be conscious of your role in the transmission of pathogenic organisms and how those organisms may affect you, your horse, your herd, and the equine community at large. Do not travel with your horse if you suspect your horse or another horse that it is housed with, has a contagious disease.

Effective biosecurity programs can be developed in 2 steps. Step #1 is assessing your horses’ risk of contracting (and spreading) pathogenic organisms that may cause disease. At the end of this booklet are a series of Risk Assessment charts that may be used by horse owners, handlers, facility operators, event managers and anyone who has or is involved in horses. Complete them at your leisure to identify areas that may require some attention to close gaps in disease transmission, introduction and recycling. You may also

consider using them as a platform to discuss specific biosecurity recommendations with your veterinarian.

Step #2 of establishing effective biosecurity is implementation of procedures and protocols related to risk management. Signage, education awareness and commitment are key components to effective programs.

This manual contains a wide variety of recommendations based on the 3 pillars of biosecurity including Animal Management, Access Management and Operational Management. Implement them all, or pick and choose which recommendations are practical for your situation. Be aware and educated of the risks you need to manage and the choices you can make to manage those risks.



Glossary

Best Practices: For this document a best practice is a program, process, strategy, or activity that has been shown to be effective in the prevention and control of disease; is based on current information; is of value to, or transferable to, other organizations.

Biocontainment: Keeping disease causing pathogens inside a particular area to avoid contaminating other animals, equipment, premises etc.

Bioexclusion: a set of practices used to minimize the introduction of pathogens and pests in animal and plant populations into specific pathogen free (SPF) herds/facilities, breeding facilities or other such operations.

Biosecurity: a set of practices used to minimize the transmission of pathogens and pests in animal and plant populations including their introduction (bioexclusion), spread within the populations, and release (biocontainment)

Comingling Site: Any location where animals are brought together from more than one location; May be short or long term; Examples include veterinary clinic, auction, summer pasture, staging site, horse show, rodeo, 4-H event, horse clinic etc.

Closed Herd: A herd that does not introduce new animals on a regular basis; maintains its own breeding stock; is isolated from direct contact with other same species herds, flocks etc.; introduction of new animals follows a strict quarantine and observation period which may include diagnostic testing to determine health status.

Contact time: A specific amount of time, identified by manufacturers, required by disinfectants to adequately disinfect or sterilize a surface; may vary with concentration, temperature, presence/absence of organic matter.

Decontamination: the process that removes microorganisms from an object, rendering it safe for handling; the process of cleaning, followed by the inactivation of pathogenic microorganisms, in order to render an object safe for handling.

Disinfectant: a chemical agent used on inanimate objects to destroy virtually all recognized pathogenic microorganisms, but not all microbial forms (e.g. bacterial spores).

Disinfection: a process that kills most organisms but rarely kills all spores; a process that kills most forms of microorganisms on inanimate surfaces; 3 levels of disinfection are low, intermediate and high.

Fomite: An inanimate object or substance, such as clothing, furniture, or soap, that is capable of transmitting infectious organisms from one individual to another.

FAD: Foreign Animal Disease; a disease not normally found in Canada; federally and provincially reportable by a veterinarian or diagnostic lab immediately upon suspicion or confirmation of presence in animal(s).

Infectious Agent: microorganism capable of causing disease in humans; infectivity is affected by the organisms' viability, virulence, invasiveness and pathogenicity.

Mode of Transmission: the method whereby the organisms are transmitted from one place to the next. Examples may be by direct contact, indirect contact with a contaminated body substance, vectors, and fomites (contact with inanimate objects carrying infectious disease).

Pathogen: something that can cause disease; e.g. bacteria, virus, toxin

Personal protective equipment (PPE): Specialized equipment or protective clothing used to protect oneself from direct exposure to blood, tissue or body fluids; may include gloves, gowns, fluid-resistant aprons, head and foot coverings, face shields or masks, eye protection, and ventilation devices (e.g. mouthpieces, respirator bags, pocket masks).

Premise: an area of land where recordable animals are bred, kept, raised, displayed, assembled or disposed of.

Protocol: a set of rules or practices that outline a way of behaviour or accomplishing tasks, daily operations, treatments; ideally written and accessible to employees, facility users, producers, horse owners.

Reportable: A disease that either the federal or provincial government identify as poses a risk to animal or public health and safety.

Reservoir: a source that allows for microbial growth and multiplication; examples include people, equipment, and materials.

Sanitize: a process that substantially reduced the bacterial count without eliminating all microbial forms.

Sterilization: a process that kills all microorganisms, including bacteria, viruses, spores and fungi.

Susceptible Host: a person or animal who lacks the immunity or resistance to the invasion of the body and reproduction by the microorganisms, resulting in infection.

Vector: An organism, such as a mosquito, tick or person, that transmits disease-causing microorganisms from an infected person or animal to another.

Zoonotic Disease: disease caused by viruses, bacteria, parasites and fungi that are transmitted from animals and insects to humans and can cause human disease. E.g. Methicillin Resistant Staphylococcus aureus (MRSA), Salmonella ssp.



Risk Assessment Charts

Section A: Animal Risk Factors				
Do you:	YES / Always	Sometimes	NO / Never	Comments / Action Points
Operate as a closed herd?				
<i>If no, do you:</i>				
Isolate new horses for 2-3 weeks?				
Identify zones that are closed to public access?				
Breed by live cover?				
Breed by Artificial Insemination (AI)?				
Test all breeding specimens, either studs or semen, for Contagious Equine Metritis (CEM)?				
Isolate new horses for 2-3 weeks?				
Isolate clinically sick animals?				
Use separate pens for foaling and sick animals? If yes:				
Clean and disinfect foaling pens between births?				
Clean and disinfect sick pens/crates between animals?				
Follow a veterinarian reviewed vaccination program against specific diseases of concern? If yes:				
Vaccine program documented?				
Require all boarders/leases to comply with the vaccine policy?				
Require all facility users to comply with vaccination policy?				
Have a health record for each animal? If yes:				
Document medications, vaccines and dewormer given, when and by whom?				
Record normal vitals for each horse (HR, RR, Temp)				



Do you:	YES / Always	Sometimes	NO / Never	Comments / Action Points
<i>Document all incidences of horse illness to monitor for trends?</i>				
<i>Follow a veterinarian reviewed dewormer program? If yes:</i>				
<i>Document dewormer program?</i>				
<i>Have effectiveness of deworming policy tested regularly with fecal floats?</i>				
<i>Require all boarder/leases to comply with the deworming program?</i>				

Section B: Feed and Water Risk Factors

Do you:	YES / Always	Sometimes	NO / Never	Comments / Action Points
<i>Take measures to ensure that the main feed supply cannot be contaminated with manure?</i>				
<i>Restrict manure application to field crops?</i>				
<i>Take measures to limit exposure of feed supply to rodents, pets and/or wildlife?</i>				
<i>Clean and disinfect waters between horses or herds?</i>				
<i>Practice sanitation to minimize contamination of livestock waters by manure and/or urine?</i>				
<i>Is the source of livestock drinking water:</i>				
<i>Untreated surface water?</i>				
<i>Ground water?</i>				
<i>Treated surface water?</i>				
<i>Municipal water?</i>				



Section C: Owner and Employee Risk Factors

Do you:	YES / Always	Sometimes	NO / Never	Comments / Action Points
<i>Work with animals youngest to oldest?</i>				
<i>Work with horses from healthy to sick?</i>				
<i>Clean and disinfect equipment between animals or groups of animals housed separately?</i>				
<i>Use equipment for single purposes? E.g. shovel for manure, different one for clean bedding</i>				
<i>Change, disinfect boots or use disposable boot covers boots when working with neonate foals?</i>				
<i>Put on or change outerwear and footwear before working with horses in isolation, sick pens or quarantine?</i>				
<i>Change to clean outerwear and disinfect footwear after working with horses in isolation, sick pens or quarantine?</i>				
<i>Wear footwear and outerwear specific to that barn/stable/facility?</i>				
<i>Have access to or know where the barn/stable/facility is biosecurity protocols are documented?</i>				
<i>Understand and comply with the biosecurity protocols?</i>				

Section D: Facility User and Visitor Risk Factors

Do you:	YES / Always	Sometimes	NO / Never	Comments / Action Points
<i>Have a visitor log book in plain view of the main entrance that would be used by visitors?</i>				
<i>Require all visitors to sign the visitor log at each visit?</i>				
<i>Post biosecurity protocols in plain sight for visitors to read understand and follow?</i>				
<i>Have posted protocols that include a name and contact information for visitors to be directed to for clarification?</i>				
<i>Restrict visitors from entering the barn and outbuildings prior to contacting management?</i>				
<i>Provide hand washing stations?</i>				
<i>Provide visitors and farm service workers with clean boots, and/or outwear?</i>				
<i>Have a designated, signed parking area for visitors, visiting trailers and employees?</i>				
<i>Post a diagram of farm/barn layout clearly identifying access zones?</i>				
<i>Have access to or know where the barn/stable/facility is biosecurity protocols are documented?</i>				
<i>Understand and comply with the biosecurity protocols?</i>				



Section E: Premise Risk Factors

Do you:	YES / Always	Sometimes	NO / Never	Comments / Action Points
<i>Keep animals from different sites or zones separate at all times?</i>				
<i>Prevent uncontrolled pets from accessing barns and stalls?</i>				
<i>Return animals to the farm that have left the premise? If yes:</i>				
<i>Isolate those animals on return?</i>				
<i>Ensure they are fully vaccinated?</i>				
<i>Ensure any horses that may come into contact with them are compliant to the vaccine policy?</i>				
<i>Clean and disinfect truck and trailer after returning?</i>				
<i>Have regularly positioned and maintained hand washing stations?</i>				
<i>Soap and water?</i>				
<i>Waterless hand washing agents?</i>				
<i>Encourage hand washing between animal contacts?</i>				
<i>Make available and maintain boot washes?</i>				
<i>Near main entrances?</i>				
<i>Outside isolation stalls/pens?</i>				
<i>Outside quarantine stalls/pens?</i>				
<i>Outside foaling stalls/pens?</i>				
<i>Have a documented pest control program especially to limit flies in facilities and on horses?</i>				
<i>Identify one halter and lead rope per horse? If no:</i>				
<i>Limit halters and lead ropes to one group of animals?</i>				



Quick Reference Disinfectant Chart for Producers

Type	Products ³	Uses ⁴	Advantages	Disadvantages	Cautions ⁵
Alcohols	AlphaDyne Plus (Chemi3); Relyon Disinfectant Spray (Dupont)	Disinfecting	Rapid action, evaporate with little residue; good for disinfecting clean hands	Fast evaporation reduces available contact time; Reduced activity in the presence of organic matter	
Aldehydes: Formaldehyde/ Gluteraldehyde	Formaline (Vétoquinol); Profilim® (Pfizer); Virocid® (Merial)	Vapor-Phase Surface Disinfecting Fumigant			Eye and skin irritation. Poisonous if inhaled.
Hypochlorites	BioSentry™ Chlor-A-Foam™ (Pfizer); Javex® (Colgate-Palmolive)	For the cleaning and disinfection of hard non-porous environment surfaces	Viricidal; biodegradable	Do not mix with other disinfectants. Do not use with acid cleaner.	Keep out of reach of children. The powder is irritating to eyes, skin and mucous membranes.
Iodophors	Biodine, Mikrokylene, Barn-Storm Iodine Cleaner Sanitizer (Ostrem)	Cleaning and disinfecting buildings, crates and trucks	Not adversely affected by water hardness or low temperature water. Inexpensive; many are biodegradable; long storage life	No residual activity. Stains some surfaces; Rapidly inactivated in organic material; Effectiveness decreased in basic pH (>7)	May cause burns to the skin and eyes. The vapour is harmful if inhaled.
Oxidizing Agents	Virkon (Vétoquinol); Hyperox (Vétoquinol); Hyperox	Cleaning & disinfection of surfaces & equipment. Aerial disinfection. Sanitizing drinking water system	Biodegradable	Do not exceed thirty minutes for metal objects. Handle in such a way to minimize dust release.	Do not get powder in eyes. Powder irritating to eyes, skin and mucous membranes. Poison. Keep out of reach of children.
Phenols	1-Stroke Environ® (Steris); Multi- Phenolic Disinfectant (Bio Agri Mix); Environ LPH	Simultaneous cleaning, disinfection and deodorization.	Not affected by hard water, residue activity, good storage life; Effective in presence of some organic material; Compatible with many soaps, detergents; Good residual activity; Does not stain surfaces	Concentrate is corrosive.	Causes eye and skin damage. Do not get in eyes, on skin or on clothing
Quaternary Ammonium	BioSentry™ 904™ (Pfizer); Clinicide (Bimeda-MTC); Proquat® (Pfizer); Quatsyl®-D Plus (Pfizer); Rocco (Vétoquinol)	Cleaning and disinfection of vehicles, animal buildings and equipment.	Effective at high pH and temp.; Very good storage life; Many are biodegradable; Effective over wide pH range. Detergent activity, residual activity	Inactivated in organic matter, hard water and by many soaps/detergents	Corrosive to eyes. Wear goggles or face shield, protective clothing and rubber gloves when handling.
Peroxide	Peroxigard™ (Bayer), accelerated hydrogen peroxide	Sanitizing and disinfecting in veterinary hospitals and animal care facilities.		Corrosive material. May dry with a residue that requires rinsing. Do not mix with other cleaning or disinfecting products.	May cause burns. Avoid contact with eyes and skin. Wear suitable protective clothing. Do not store in food processing areas. Avoid storage at elevated temperatures.

³ Does not constitute an endorsement or guarantee effectiveness of product.

⁴ Consult a professional for recommendations for specific purposes.

⁵ Read all warning labels. Follow manufacturer's directions.



Checklist and Tool Kit for the Travelling Horse

What		Why
Did you consult a veterinarian about vaccines for your travelling horse(s)?	✓	To ensure you have considered all the diseases that can be vaccinated against that may present a risk to your horse and herd
Did you consult a veterinarian about vaccines for your not travelling horses?	✓	Horses in contact with travelling horses are at risk of contracting a pathogenic organism that a travelling horse may bring home
Are vaccines current and up to date on travelling and not travelling horses?	✓	Most vaccines are labelled for yearly administration. Protection a vaccine offers does decrease with time. How long? Ask your veterinarian!
Do you have the following information:		
Health record, including normal values	✓	Health records may be required by facilities, shows, events etc. to provide assurance of horses' vaccination and disease status. E.g. Coggin's tests. Knowing normal values for each horse can help identify when values are not normal and by how much
Contact information for veterinarian on site or local to destination?	✓	In case you need it in an emergency!
Do you have the following equipment to enact your own biosecurity measures while away:		
Scrub brush	✓	To clean stalls/pens prior to disinfecting
Shovel and broom	✓	To remove existing, possibly dirty or contaminated bedding
Soap or detergent concentrate	✓	For cleaning
4L jug of water; measuring cup may be helpful	✓	For measuring and mixing cleaner and/or disinfectant
Bucket	✓	For cleaning and disinfectant mixing
Appropriate disinfectant concentrate	✓	To make up practical usable volumes of disinfectant as needed
Hand held spray bottle	✓	To apply disinfectant to non porous surfaces e.g. stalls, railings, tie rail as needed
Own water bucket(s)	✓	To water your horses and avoid communal waterers
Own feed bucket(s)	✓	
Is all your equipment labelled?	✓	
Do you have clear, visible signage indicating special instructions, such as: Please wash hands Restricted access Contact name and phone number	✓	



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