Biosecurity Basics

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Building Better Athletes Through Science-Based Prevention and Maintenance

Definition

- Biosecurity is the principles, actions, precautions and protocols that protect the health of livestock by preventing the transmission of disease through physical barriers and hygiene practices.
- Biosecurity is protecting an animal, farm community and industry against biological agents. It employs strategies to prevent disease introduction and recycling within a herd, facility or community.

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Introduction

- Biosecurity Basics
  - Hazard identification and risk assessment and management practices
  - Team approach: all involved in the equine community are responsible
    - We share an obligation to the individual horses we own or work with and to the entire equine community
    - Our actions or inactions may have far reaching effects given the highly transmissible nature of many equine diseases
  - An ounce of prevention is worth a pound of cure
  - Do the small things right
  - No program is 100% effective but education and commitment to the program everyday helps

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Biosecurity Impacts

- Animal health and welfare
- Human health (zoonotic diseases)
- International trade and movement of livestock
  - Reduce or eliminate reportable diseases
- Good business practices
  - Promote industry by preventing disease introduction and outbreaks
- Legal accountability
- Economics
  - Prevent financial losses from illness

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Legalities

- Federal and provincial agencies exist which are responsible for maintaining animal and human health
- Each has enabling legislation which allows action including:
  - Prescribing control measures for public good
  - Regulation regarding movement, quarantine, control and destruction
  - Governance of international export and import
  - Protection of health and welfare of people and animals

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Getting Started

- Everyone is in favour of progress its change they don't like
- Biosecurity programs and measures typically not directed at a specific pathogen but rather collection of important management practices in general which positively affect health and welfare
- Proactive and preventative versus reactive
  - Identification of hazards before they threaten people, animals or operations (HACCP)
    - Hazard Analysis and Critical Control Point concepts

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Hazard Analysis

- We are most worries about
  - Gastrointestinal pathogens (fecal-oral transmission) eg. Salmonella and E.coli
  - Respiratory pathogens (aerosol transmission) eg. Strangles, Influenza
  - Zoonosis and reportable diseases
    - Consider immunocompromised individuals

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Hazard Analysis

- Mode of transmission is important
- What are the components in the chain of infection?
  - Direct controls at chain links to break the chain of infection
  - Critical control points
    - Frequent hand washing
    - Appropriate cleaning and disinfection (schedule & training)
    - Preventative animal husbandry practices
      - Eg. Vaccination protocols, temporary quarantines

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Disease Transmission

- Equine diseases use vectors and fomites to enter an animal or herd that is susceptible to a bacteria or virus
  - Hosts may be asymptomatic acting as a reservoir
- Vector- living entity that carries the infection
  - Eg. People, other domestic and wild animals etc.
  - WNV and WEE via mosquitoes
  - EIA and Anthrax via large biting flies
- Fomite- inanimate objects that carry the organism on their surface
  - Eg. Halters, bedding, grooming kits, buckets, medical equipment, tack and trailers etc.

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Steps in Biosecurity Development

- Step 1
  - Biosecurity officer
    - Risk assessments and hazard surveys
    - Documenting protocols for implementation
    - Presenting plans to management, staff and clients
    - Establish measures of success to evaluate program
    - Review and improvement of program
    - Monitoring of program compliance
    - Oversee training initiatives
    - Maintain biosecurity information binder

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Steps in Biosecurity Development

- Step 2 Outcomes for Success
  - What are our goals?
    - Risk of diseases are minimized
    - Health and welfare of animals and people are promoted
- Step 3 Risk Assessment
  - Many questionnaires developed
  - Alberta Veterinary Medical Association is a great resource
  - Must identify the hazard to control the risk
    - HACCP concepts

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Steps in Biosecurity Development

- Risk assessment can be separated into five sections
  - Animal risk factors
  - Feed and water risk factors
  - Owner and employee risk factors
  - Visitor and facility users risk factors
  - Premise risk factors

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Steps in Biosecurity Development

- Risk and risk assessments
  - Developed specific to each horse, herd, horse owner`s or facilities individual needs
    - Consider current herd demographics, facility design and horse and facility risk factors
  - A function of the likelihood and consequences of undesired events
  - How do breaches in biosecurity affect risk
    - Assessment of factors from lowest to highest risk is important for biosecurity planning

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Steps in Biosecurity Development

- Step 4 Identification of hazard controls already in place
  - Identify current biosecurity measures
  - Where and how can you change daily operations to improve disease prevention and control?
  - How can you improve your biosecurity?
    - Vaccination
    - Management practices
    - Facilities

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Steps in Biosecurity Development

- Step 5 Establish protocols and mitigation strategies
  - 3 main pillars of Biosecurity
    - Access management
      - Look at how disease may be introduced into a herd, either from outside the farm or from another group of animals on the same premise
    - Animal health management
      - Plan animal movements to minimize risk of introduction, transmission or recycling of disease
    - Operations management
      - Good animal husbandry practices, equipment and facility maintenance

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Steps in Biosecurity Development

- Access Management- understand your herd and facility risk factors and create physical barriers established to reduce risk of disease transmission
  - Movement of vehicles, animals, and people
    - designated visitor and trailer parking areas clear of barns, pastures and pens
    - Manage visitor risk: health care professionals
  - Different zones based on risk and critical access points reflecting different standards of biosecurity
    - Public, controlled, restricted access, quarantine and isolation
    - Signage and protocols for each zone

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Biosecurity Zones

- Use appropriate signage to indicate specific Zones
- Public Access Zone
  - No anticipated animal contact or crossover
- Controlled Access Zone
  - Around barns, pens, arenas and handling areas should be restricted to employees and biosecurity educated facility users
- Restricted Access Zone
  - Locations where animals commonly reside

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Biosecurity Zones

- Quarantine
  - An area used for new arrivals as an means to evaluate disease status before being introduced into the main herd or for animals that are at risk eg. Sick foals, Show horses?
    - Usually 2-3 week period for quarantine
    - No direct contact with other horses
    - Have separate waters, feed bins, grooming supplies, shovels and buckets etc. Ensure they are well labelled
    - Appropriate attire, good hygiene, hand washing and disinfection of boots etc.
    - Restricted facility use for horses in quarantine

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Biosecurity Zones

- Isolation
  - Used for sick animals and should have highest levels of biosecurity in place
    - No contact with other horses
    - Separate equipment and supplies that are well labelled
    - Appropriate attire and strict hygiene and disinfection standards in place
    - Means to dispose of bio-hazard waste
    - Animals should not be removed from isolation stalls until cleared by a vet

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Steps in Biosecurity Development

- Animal Health Management- preventative programs that limit the risk of either introducing disease or transmitting it
  - Closed herd is lowest risk not practical for many
    - Separate groups based on movement and avoid direct and indirect contact
  - New animals or animals returning into the herd, quarantine and isolation protocols, treatment and vaccine regimes and disease surveillance
  - Managing animal health overall intimate association with animal welfare initiatives and good production practices
  - Vaccination Regimes- critical to reducing risks
  - Establish a disease and disaster response plan

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Disease and Disaster Planning

- Consider what are the potential scenarios
  - Fire, flood, storms, power outages etc.
    - Who is on your team?
    - Human safety and animal safety
    - Important contact information and numbers
  - What disease outbreaks are likely or possible?
    - Consider supplies, personel and actions which will be required to deal with the situation
  - Participate in traceability programs
    - www.agric.gov.ab.ca for more info

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Disease Response Plan

- Work with your vet to establish guidelines when veterinary assistance is required
  - Knowledge of normal
    - Good medical records
      - Follow regular routines for observing animals daily
        - » TPR, behaviour and feeding patterns, veterinary exams, medications, worming protocols, vaccine history
        - » Monitor other heath indicators: wounds, lesions, hair loss, signs of depression or inappetance, ocular or nasal discharge
    - Establish basic flow charts and treatment protocols
      - Colics, wire injuries, trailer accidents, sever weather etc.

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Steps in Biosecurity Development

- Operational Management- feed, water and equipment, animal transportation and handling and carcass disposal
  - Basic hygiene
    - Hand washing, good pasture management
  - Clean and disinfect equipment, barns, stalls and vehicles regularly to prevent the spread and recycling of disease
    - Designated equipment, tack etc. for each horse and zone
  - Control pests and other pets to prevent the spread of disease
    - Insects and rodents
  - Responsible use of pharmaceuticals and deworming products

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Biosecurity on the Road

- Minimize the risk of bringing home an infectious disease, also more practical that quarantine for horses that are frequently at competition, clinics, etc.
  - Ensure up to date vaccination protocols for your horse and those she may be in contact with upon returning home
  - Avoid communal waterers and troughs
  - Tie your horse to your own trailer whenever possible
  - Clean temporary stall of biological material and disinfect

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Cleaning and Disinfection

- Follow manufacturer's protocol and instructions
  - Any zoonotic potential?
  - Use of personal protective equipment
  - Clean away organic matter first (biofilm), pressure washer and detergent, rinse and allow to dry
  - Spray with disinfectant following the manufacturer`s directions for dilutions and contact time
  - Don`t forget the fomites
  - Disposal of biohazard material and sharps
  - ** Do not mix chlorine with acid cleaners**

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Biosecurity Common Principles

- Optimal hygiene
- Education and awareness
- Prevention and control procedures
  - Vaccination
  - Show season
- Disruption of transmission cycles
  - Handle animals from youngest to oldest and healthy to sick
  - Isolation and quarantine procedures creating barriers

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Basic Biosecurity Tips

- Avoid travel with your horses if you know or suspect that they have an infectious disease
- Avoid traveling with horses that may have been exposed to an infectious disease
  - Discuss incubation periods to know when they are likely clear
- In the event of an outbreak do not move horses into or out of the facility until the disease has been eliminated or tightly controlled with quarantine and isolation procedures

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Basic Biosecurity Tips

- If your horse contracts an infectious disease
  - Consult your vet for diagnosis and treatment options
    - Execute your disease response plan
  - Set up quarantine and isolation protocols restricting access to sick animals
  - Handle healthy animals before sick, young before old
  - Advise visitors who may have had contact of the situation so that they can take appropriate measures
    - Visitor log

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Communication of Biosecurity Measures

- Communication is essential
  - Signage
  - Include protocols in staff manuals and focus on training and education
  - Keep a visitor log book with facility biosecurity manual
  - Educate facility users about biosecurity expectations
    - Vaccination requirements or blood tests EIA

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Biosecurity Kits

- Disposable coveralls
- Gloves
- Plastic boots
- Footbaths
- Scrub brush, shovel, broom
- Soap or detergent and disinfectants
- Measuring cups and mixing vessels

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More Information

- Veterinary College Websites
- The AAEP Website and publications
- Alberta Agriculture and Rural Development
  - www.agric.gov.ab.ca/biosecurity
- The Alberta Veterinary Medical Association
  - www.abvma.ca click on *Biosecurity*
- Alberta Equestrian Foundation
  - www.albertaequestrian.com
  - Equine Biosecurity Principles and Best Practices

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Final Thoughts and Questions??

- Be aware and educated of the risks that you need to manage and the choices you can make to manage those risks.

- Copy of talk will be on my website:
  - www.brightsidevet.ca

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