Equine Herpesvirus -1
Subcommittee Report

Dr. Katie Flynn
USAHA 2014
Infectious Disease of Horse Committee
Kansas City, MO
Subcommittee Members

- Katie Flynn- California Dept of Ag, Chair
- Sara Ahola- Colorado Dept of Ag
- Rory Carolan – USDA:APHIS:VS:SPRS
- Ann Dwyer- American Association of Equine Practitioners
- Rusty Ford- Kentucky Dept of Ag
- Kent Fowler- California Dept of Ag
- Carl Heckendorf- Colorado Dept of Ag
- Mike Herrin- Oklahoma Dept of Ag
- RJ Layher- American Horse Council
- Eileen Ostlund-USDA:APHIS:VS: NVSL
- Angela Pelzel-McCluskey- USDA:APHIS:VS:SPRS
- Keith Roehr- Colorado Dept of Ag
- Mike Short- Florida Dept of Ag
- Andy Schwartz- Texas Animal Health Commission
- Peter Timoney- Gluck Equine Research Center
- Josie Traub- Dargatz USDA APHIS VS CEAH and Colorado State University
Committee Formation

• 2013 USAHA/ AAEP Sponsored EHV-1 Workshop Identified Need
  – Regulatory Consensus on Case Definition, Outbreak Definition, quarantine parameters, diagnostic testing and biosecurity practices.
• Goal: Develop a consensus document related to EHV-1 regulatory mitigation
• Product: EHM Incident Guidance Document for State Animal Health Officials
  – Document is based on the diagnosis or suspicion of an Equine Herpesvirus Myeloencephalopathy.
EHM Guidance Document
Outline

- Introduction
- Definitions
- Diagnostic Testing
- Quarantine Placement
- Quarantine Release
- Vaccination
- Investigation
- Reporting
- Communication
- Resources
- Appendix

SECTION PENDING
Definition Highlights

• EHM Incident
• Index Premises
• Index Point of Exposure
• Temperature greater then 101.5F
• Exposure: 14 days preceding
• Confirmation by Virus Isolation and/or PCR on nasal Swab or buffy coat
• Non-clinical EHV-1 horse: Exposed horse with no clinical signs testing positive
Diagnostic Testing Highlights

• Serology:
  – Single point in time uninformative
  – Neutralizing antibodies do not distinguish between EHV-1 and EHV-4
  – Four fold increase in Virus Neutralization sampled 10-21 days apart (limited use)

• PCR Technology
  – High sensitivity and specificity
  – Recommend BOTH nasal swab and uncoagulated blood (buffy coat)
  – Quantitation: assess potential for transmission
  – Lack of standardized protocols
EHV-1 PCR

- Types:
  - Conventional, nested and real time
  - Recommend real time or nested

- EHV-1 PCR
  - Glycoprotein B Assay- Screening Assay (Does not differentiate)
  - DNA Polymerase Assay
    - Differentiates nucleotide polymorphism at position 2254 of open reading frame 30
    - Differentiates neuropathogenic (G2254) and non-neuropathogenic (A2254) strains
• Ideal PCR Protocol
  – Sensitivity, Timeliness, Quantitation, Turn around time, Laboratory Assistance for interpretation, State Animal Health Official Acceptance

• Sampling Protocol
  – Clinical Horses at onset of clinical signs
  – Non clinical horses – not recommended for testing
    • If positive potential risk of transmission of virus to exposed
Testing for EHV-1

• Assessment of Situation
  – Isolation (30ft) or removal of EHM case
  – Clinical signs within 14 day period
  – Biosecurity measures

• Test Interpretation
  – Status at time of sampling
  – A positive PCR does NOT equal infectious virus being shed
  – Positive nasal swab or buffy coat: detection of virus
Quarantine Placement Highlights

• No one size fits all protocol
• Science based criteria
• Assessment of risk on premises
• Impact of Quarantine to Equine Industry
• Scenarios
  – Index suspect or confirmed case, index animal and high risk exposed, all horses on premises or all horses on index premises and high risk horses on exposes premises
• Assessment
  – Of Index Case: Potential to shed, Potential to Expose
  – Of Exposure Risk within Herd: Exposure to index case, biosecurity practices prior to and at time of detection, degree of disease agent transmission, Assessment of Transmission via testing at investigation onset
Quarantine Release Highlights

- No one size fits all protocol
- Science based criteria
- Assessment of disease on premises
- 21 Day Release without testing
  - Immediate removal or appropriate isolation (30ft biosecurity and barrier protection) of EHM case
  - Consider 14 day release with removal of index animal and evidence of limited spread
- Release with testing
  - Clinical horses two negative tests 7 days apart
  - Testing exposed non clinical not recommended but if done remove any virus positives and isolate
- Release of subpopulations
Appendix Highlights

• Quarantine Risk Assessment
• Exposure Risk Assessment
• Premises Biosecurity Risk Assessment
• Quarantine Release Assessment
Comparison to AAEP EHV-1 Guidance Document

• AAEP Variations
  – 28 days for quarantine release without testing. (ACVIM recognizes 21 days but switched to 28 days based on AAEP)
  – Temperature cut off is greater than 101F
  – Recommends both blood and nasopharyngeal swab (not nasal swab)
  – Recommends real time PCR
Future Work

• Vaccination
  – Awaiting AAEP recommendation revision

• Investigation
  – To include investigation templates and suggestions for consistent data capture.

• Reporting
  – State level and National Level guidance

• Communications