# 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 — SECTION PENDING
- Investigation — SECTION PENDING
- Reporting — SECTION PENDING
- Communication — SECTION PENDING
- Resources — SECTION PENDING
- Appendix




# 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




# EHV-1 PCR Cont.

- 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