

# Neurological Herpesvirus in Florida 2006

## Recommendations for Owners and Veterinarians

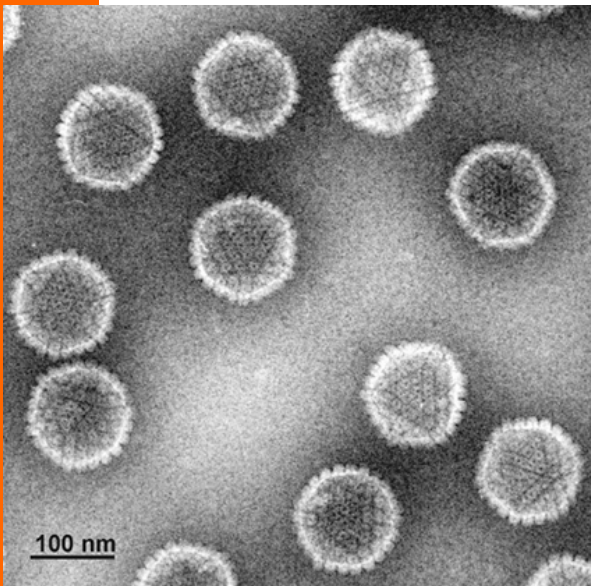
**UF** | College of  
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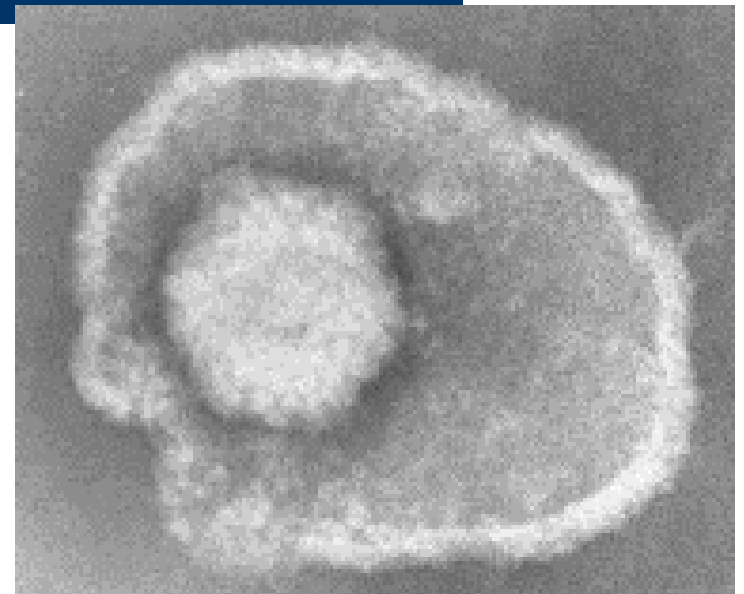
Family: **Herpesviridae**

Subfamily: **Alphaherpesvirinae**

- Genus: **Varicellovirus**



- EHV-1
- EHV-4



**Related to:** herpes simplex virus, varicella zoster virus



## **EHV-1**

Abortion, Upper Respiratory,  
Neurological Disease



## **EHV-4**

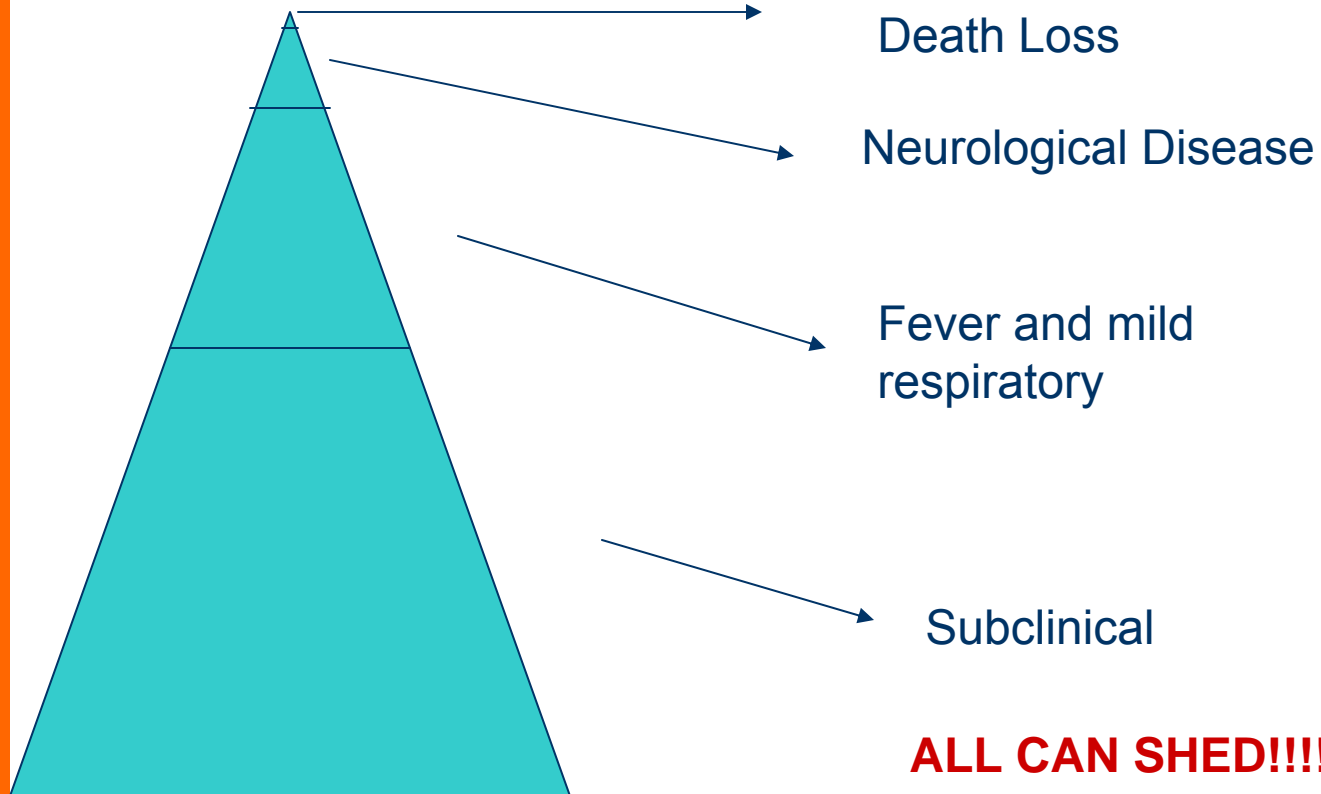
Upper respiratory

# Why Neurological Disease

- New infection
- Reactivation of latent virus
- Increase circulation of virus that
  - Causes neurological disease (Allen)
- Occurs in horses UNDER STRESS
  - Makes medical sense to not ship:
    - Do not ship horses in contact and horses with fever
    - Minimize contact between shipping horses and resident horses
    - REST HORSES

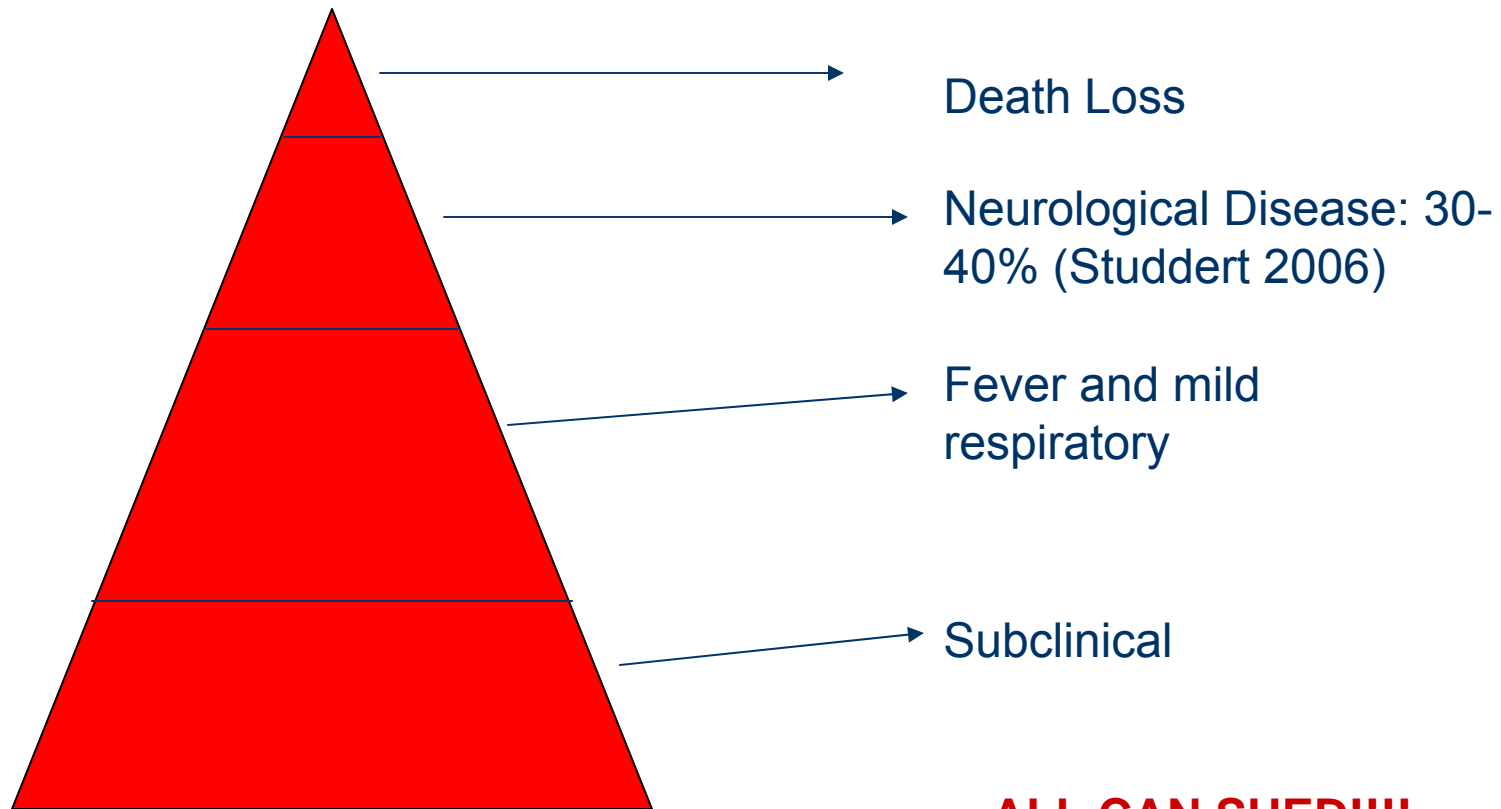


# Neurological Disease-Non Outbreak



**ALL CAN SHED!!!!**

# Neurological Disease Outbreaks

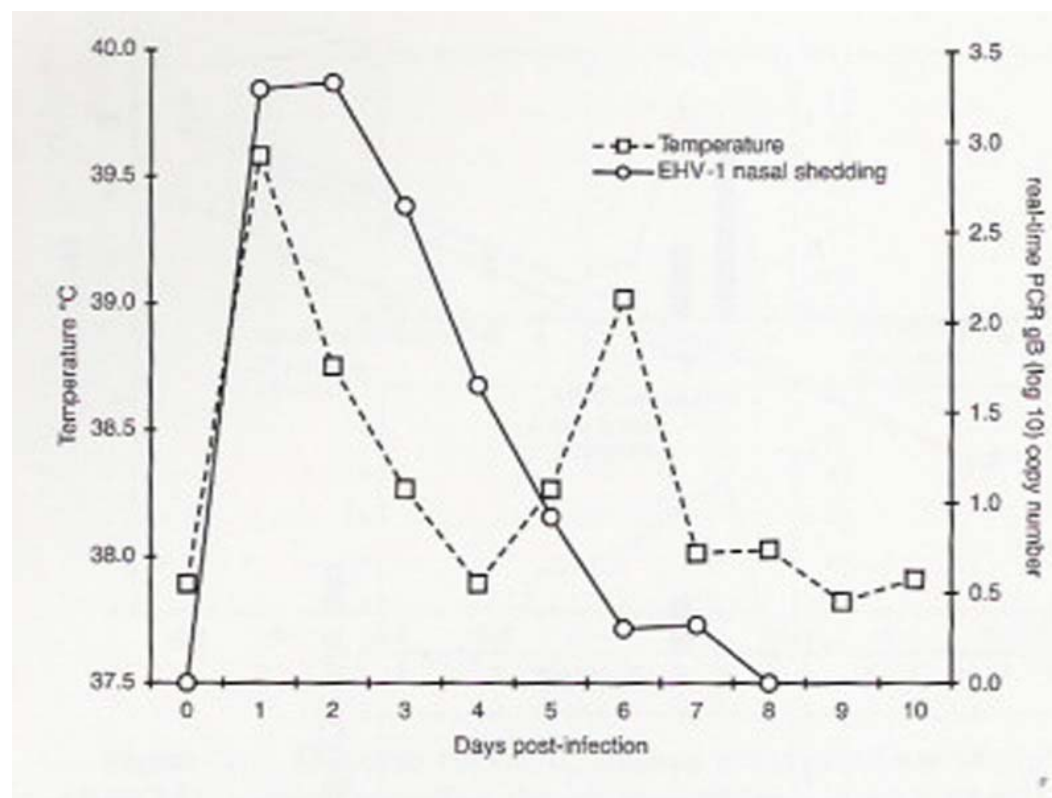


**ALL CAN SHED!!!!**

# Neurological Disease

- Characterization of outbreaks:
  - Very mild respiratory signs
  - Fever: may be only sign of circulation
    - Biphasic
    - Early mild fever-serves as an indication that virus exposure
      - Leave that horse in stall
    - 3-5 days later higher fever
      - EXTENSIVE VIRAL SHEDDING
  - Neurological horses actually have high virus

# Neurological Disease & Virus Detection by PCR



Hussey et al. 2006

# Neurological Disease

- May not show any other signs!
- Paresis, ataxia
- Pelvic limb involvement
- Cranial nerve signs
- Bladder atony
- Rapid onset, then signs stabilize



Debra C. Sellon

Washington State University

# Neurological Disease

MOST HORSES DO WELL

Rapid stabilize and improvement

Poor prognosis if recumbent

May have residual deficits but most clear by that time



L. Chris Sanchez

University of Florida

# Facts

- Spread
  - Nose - Nose contact
  - Nose-Hand-Nose contact
  - Nose-Equipment-Nose contact
  - Virus shed 35 feet by horses

# Fact

- Risk Factors for This Outbreak
  - ANY age
  - Event activities: showing, racing, polo
  - Transport activities: commercial
  - Pertinent Destinations/Areas of Co-mingling
    - Quarantine Facilities
    - Racetracks/Public exercise facilities
    - Show Grounds
    - Veterinary Clinics

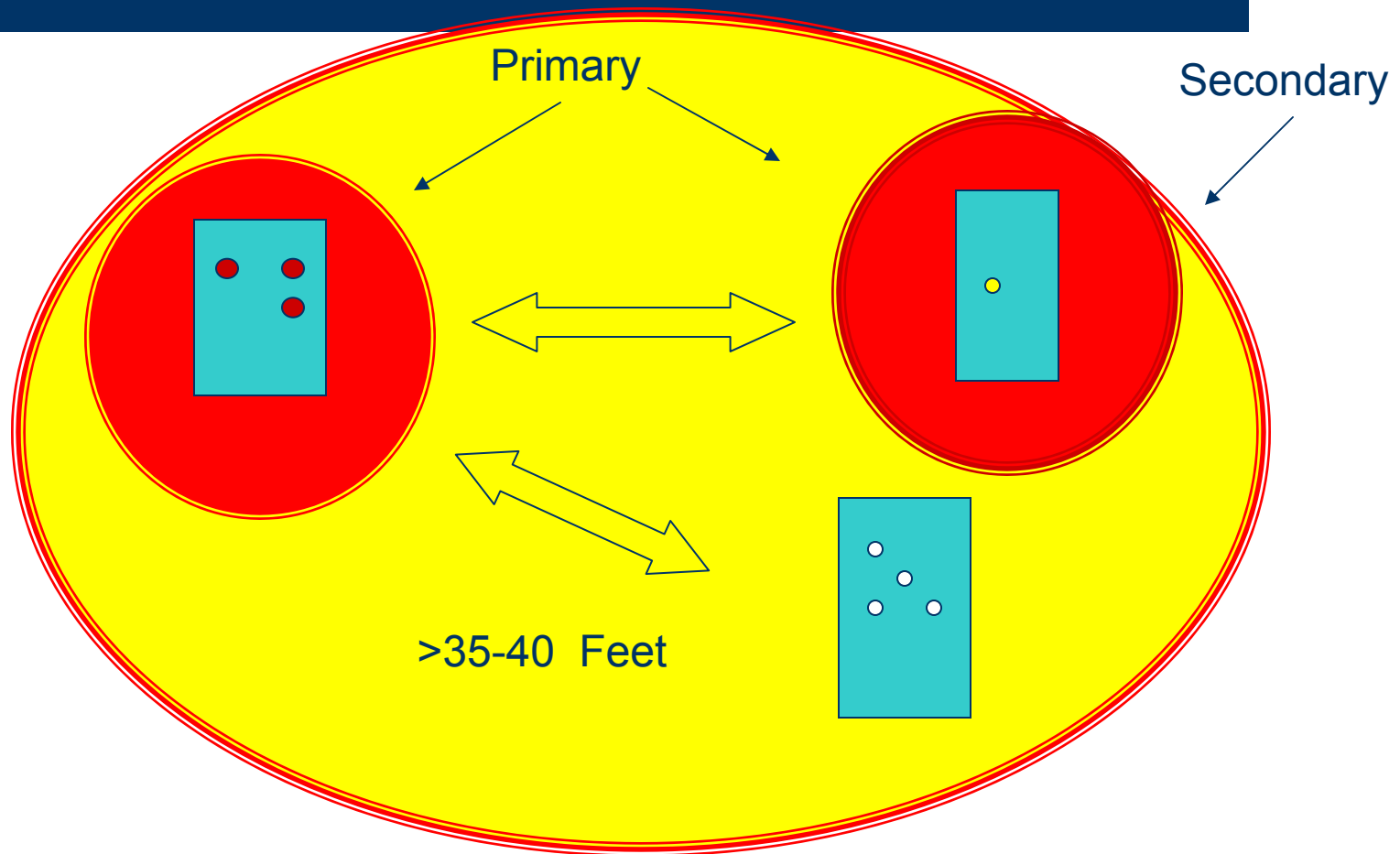
# Fact

- Horses will be virus positive
  - Primarily 7-14 days
  - Some can shed for a month
- Virus is easily inactivated
  - Soap, rinsing, followed by bleach
- Virus can stay in environment without cleaning
  - 1 week most of the time
  - Up to one month

# Concept of Standard of Care

- AAEP
  - Guidelines
  - AAEP.org
    - Members Only Site
- FAEP Website
- University of Florida Website
- Europe: Standard of Practice
  - Horse Racing Levy Board
  - Document that has guidelines

# Concept of Perimeters



# Exercise

- It is appropriate to exercise healthy horses within perimeter
- Can send horses to exercise areas at designated times
- For track to track movement consider having health declarations for the horses

# Biosecurity Protocols

- Separate personnel and equipment for infected and exposed horses
  - **When animals are in separate barns this becomes difficult**
- Clean and feed in this order:
  - Unexposed, exposed, infected
- Quarantine premises for 28 days after last horse sick and recovered
  - Shed virus for 7 to 28 days
- Disinfect contaminated areas

# Biosecurity

- Wash hands between horses
- Use booties or different boots
- Dispose of manure
- Wash and disinfect bits and tack
- Use separate stall implements
- Wash water buckets and use one per horse

# High Risk Activities With Florida Cases

- Commercial transport
- Showing
  - Hunter/Jumper/Dressage
  - Racing
  - Polo
- Stabling with sick horses
  - Barns
  - Veterinary Clinics

# CASE CRITERIA: Neurologic Herpes Case

- Animal Tests Positive for EHV-1 (neurotropic)  
AND
- Neurological Signs  
EXPECT
- Quarantine
- Test at 21 days after the end of the last set of acute neurologic signs, release by 28 days if negative by PCR and/or viral culture
- All horses tested at end of quarantine

## **CASE CRITERIA: Herpesvirus Infected Horse**

- Horse may not be sick
- CLEAR association that is more than incidental with EHV-1 case
- Tests positive for EHV-1
- Need to create primary barrier
- Need to test at 21 days, release at 28 days
- Release if negative by PCR and/or viral culture

# High Risk Contact Horse

- These are the horses that are hardest to identify
- Any horse on site of neurological EHV-1 horse
- A horse that has an association with EHV-1 horse
  - Short or long term contact
    - Stalling or Transport
  - Common association of people or equipment
- A primary barrier is made around those horses
- Tested at the end of the 21 day period, release by 28 of tests negative by PCR and/or viral culture

## Suspect Herpesvirus Infected Case: HIGH RISK

Association with sick horse or site that is MORE than incidental

Fever of  $\geq 102^{\circ}$

Report to the veterinarian

Veterinarians must report to the state

STOP training-decrease exposure to other animals

STOP training-decrease exacerbation of disease

Segregate and use biosecurity immediately

Be prepared to quarantine barn

Test THE HORSE!

## Guarded Risk

- Normal undergoing types activities in association with EHV-1 outbreak
- No identifiable contact with cases
- Take temperatures
- Call your veterinarian if horse develops fever or clinical signs
- Testing recommended

## Low Suspect

- NO KNOWN HIGH RISK ACTIVITIES
- IF A HORSE DEVELOPS A FEVER
- CONTACT YOUR VETERINARIAN TO DETERMINE THE CAUSE

# Confirming Diagnosis

- PCR: Nasal Swabs & Purple Top
- Once identified
  - Viral Culture
  - Sequenced at Gluck, U of KY for neurotropic
- Horses that die
  - Recommend Postmortem

# Release From Quarantine

- Confirmed Infected Sites
  - Impose quarantine
  - PCR on cases
    - End of clinical signs + 21 days
    - Noses/buffy coat
  - If whole barn negative-release from perimeter at 28 days
- High Risk Barns
  - Keep checking fevers
    - If fever
      - Moved immediately
      - PCR horse
    - If negative
      - Monitor for cases
      - Release and transport if negative
      - May require 2 (-) tests
  - If positive
    - Restrict barn 21 days
    - Test whole barn 21 days

This Becomes a  
Quarantined Site



# LOW Risk Barn

- Keep under observation
- Interview everyone on activities for horses
  - Carry out honest assessment
  - Transport service personnel
- Do NOT Panic
- Call veterinarian
  - To perform diagnosis

# Reasons for Vaccination Unexposed?

- Decrease viral shedding
- Decrease likelihood and severity of disease
- Decrease transmission, especially after reactivation of latent virus?
  - Shingles in humans
  - Recombinant, MLV virus
- Killed products: EHV1, EHV 4
- MLV product: longer duration of immunity
  - Still ONLY 3-4 months

# Vaccination in Outbreak

- For

- Stimulate immunity
  - Herd immunity
- Prevent reactivation?
- Immunize horses that are naïve in population
- Decrease post-exposure shedding
  - MLV>Killed

- Against

- Stress normal horses
- Become susceptible
- Confuse testing in exposed population
- Modified live
  - Short, low level viremia
    - Keep good records
- Intranasal
  - May detect by PCR