



Laboratorio Central de Veterinaria



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## Webinar #2: AHS diagnostic tests and possible support from the OIE Reference Laboratories



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## **4. Diagnosis: Recommendations**

# African horse sickness diagnosis

## Diagnostic strategy during an outbreak



time →

### BEFORE VACCINATION

- RT-PCR to **confirm clinical cases**
- Type-specific RT-PCR

### AFTER VACCINATION

- RT-PCR to **confirm clinical cases**
- Type-specific RT-PCR

### DEMONSTRATE FREE STATUS

- Passive/clinical surveillance
- Active surveillance
- Serology (**sentinel animals**)
- Virology (RT-PCR)

### FURTHER CHARACTERIZATION

- Virus isolation (primary outbreaks)
- Sequencing of strains. Phylogeny and recombination analysis
- ELISA and/or SNT. **Antibody responses**

**SEROTYPE HAS BEEN DETERMINED AND VACCINATION STARTED**

# African horse sickness diagnosis

## **DIAGNOSIS: RECOMMENDATIONS**

- Recommend to establish a **laboratory network in Thailand** for AHS virological and serological diagnosis.
- **Neighbouring countries** should be ready to carry out AHS diagnosis to support active surveillance.
- **Group specific tests (RT-PCR and ELISA)** are the most suitable diagnostic tools.

# African horse sickness diagnosis

## **DIAGNOSIS: RECOMMENDATIONS**

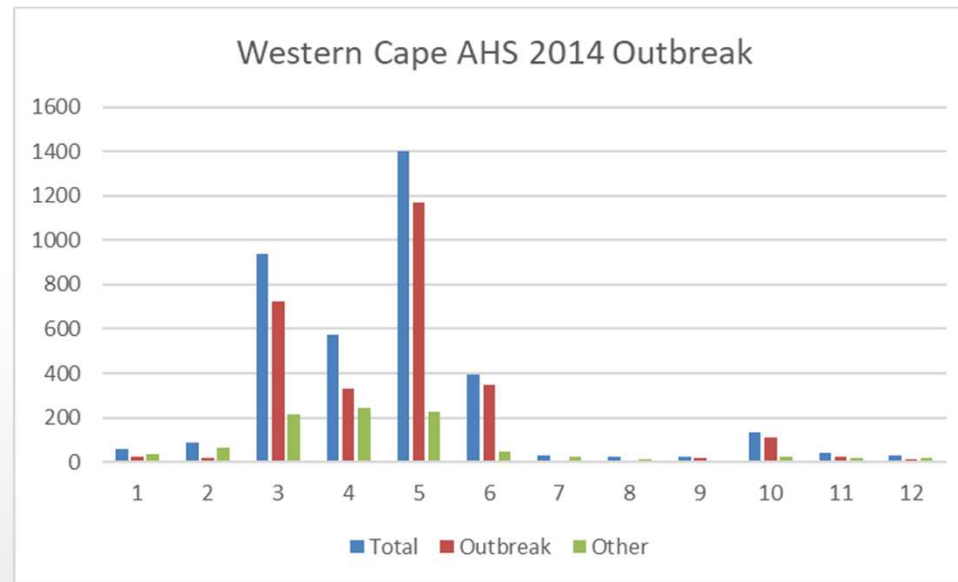
- **Group-specific AHSV RT-qPCR,**
  - rapid,
  - higher sensitivity than gel-based RT-PCR, and
  - suitable for high-throughput automation.

Therefore **RT-qPCR combined with automated sample extraction** would be recommended in at least one laboratory in Thailand, in order to process 500 to 1000 samples at week.

- If samples were appropriately stored, **other characterization activities**, such as molecular typing, virus isolation and possibly whole genome sequencing could be conducted once the outbreaks were under control.

# African horse sickness diagnosis

## DIAGNOSIS: RECOMMENDATIONS



### **African Horse Sickness Caused by Genome Reassortment and Reversion to Virulence of Live, Attenuated Vaccine Viruses, South Africa, 2004–2014**

Camilla T. Weyer, John D. Grewar, Phillippa Burger, Esthea Rossouw, Carlna Lourens,  
Christopher Joone, Misha le Grange, Peter Coetzee, Estelle Venter,  
Darren P. Martin, N. James MacLachlan, Alan J. Guthrie

Emerging Infectious Diseases, (2016) 22: 12, 2087-2096

# African horse sickness diagnosis

## **DIAGNOSIS: Extraction**



**Kingfisher 96**

**MagMAX 96**



**MagMAX Core Kit**

# African horse sickness diagnosis

## DIAGNOSIS: RT-qPCR



**VetMAX Plus One Step RT-PCR Kit**

**VetMAX African horse sickness Reagents**



**QuantStudio5 Real-time PCR System**





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