A RISK ASSESSMENT COMPILED BY A RENOWNED EPIDEMIOLOGIST FROM AUSVET CONFIRMS THAT THE RISK OF AFRICAN HORSE SICKNESS *CAN* BE MANAGED WHEN EXPORTING FROM SA

The Equine Health Fund enlisted the help of internationally acclaimed Epidemiologist, Dr Evan Sergeant, of AusVet, to conduct an assessment on the risk of exporting horses from South Africa, particularly with regard to African horse sickness. Dr Sergeant worked in collaboration with the Horse Import Export Task Team (HIETT), in particular Prof Alan Guthrie (Equine Research Centre), Dr John Grewar (Western Cape Department of Agriculture – Veterinary Services) and Dr Camilla Weyer (ERC Epidemiology Unit). Dr Sergeant presented his paper at the International Symposium for Veterinary Epidemiology and Economics (ISVEE Congress) in Mexico in November 2015, and it was very well received. This project was generously funded by Rainbow Beach Trading and Drakenstein Stud.

African horse sickness risk assessment – Summary Report

Aims

The aims of the project were to:

- Model the probability of undetected AHS infection in horses exported from an infected zone/country;
- The model assumed:
  - OIE recommended vector-protected pre-export quarantine (PEQ)
  - 16 day pre-export quarantine and AHS RT- PCR test prior to and during the PEQ period
  - Quarantine facility located in either low-risk (current free zone) or endemic area (rest of SA)
  - Included the addition or not of post-arrival vector-protected quarantine (PAQ) and PCR in the importing country

Model Summary

- Five pathways identified possible times where an undetected, infected horse could be exported, depending on when infection might occur in relation to quarantine period and PCR testing.
- Pathways modelled in a quantitative probability model.
- Probabilities entered as probability distributions to reflect uncertainty about true values.
- Results presented as median estimate and 95% probability interval.

Results

- The median annual probability of exporting one or more undetected infected horses from the low-risk area, assuming 300 horses exported annually, was 1.6×10^{-3} (95% interval: 1.5×10^{-4} – 1.2×10^{-2}), with no post-arrival quarantine.
- Addition of post-arrival quarantine and PCR further reduced the risk by about 12-fold.
- Exporting from the endemic area increased the risk by about 16-fold.
- Assuming a higher (and more realistic) value for PCR sensitivity reduced the risk by 7 and 77-fold, without or with post arrival quarantine and PCR respectively.
- The most important risk period was the 12 days immediately prior to entering quarantine.

Conclusions

- **AHS risk can be managed**
- Exports from the low-risk area and/or with post-arrival quarantine and PCR testing
- Higher risk for endemic area can be managed by post-arrival vector-protected quarantine and PCR
- The model assumes that exports can occur year-round and regardless of the occurrence of AHS outbreaks. Risk could be further reduced by :
    - Limiting exports to low-risk time of the year or
    - Suspending exports during outbreaks
    - Extending the proposed quarantine period (currently 16 days in the model)
    - **Final choice of risk management measures depends on the level of risk acceptable to the importing country.**

The median probability of an export horses being infected and not detected was equivalent to one undetected infected horse in every 187 000 horses exported from the low-risk area with no post-arrival quarantine. An additional PCR test while in vector-protected post-arrival quarantine reduced this probability by 12-fold.

Probabilities for horses exported from an area where AHS is endemic were approximately 15 to 17 times higher than for horses exported from the low-risk area under comparable scenarios.

Import and export conditions are negotiated between veterinary administrations of the two countries. One of the important factors importing countries take into account is the level of risk an import poses. A sound risk assessment allows the importing country to make decisions based on science. South Africa will use the information in the risk assessment to negotiate with potential importing countries.

TIPS RE EQUINE HERPES VIRUS FOLLOWING A CASE IN THE WESTERN CAPE

What is Equine Herpes Virus?

There are two types of herpesvirus found in SA, namely EHV-1 and EHV-4.

The respiratory tract is a common site for replication for both viruses, and therefore nose to nose contact can lead to transmission from infected to susceptible horses. Horses can become lifelong carriers with triggers leading to "activation" of the virus and subsequent shedding. Stressful conditions can lead to activation. (Similar to having a cold sore as a human)

Clinical Signs

EHV-1 is a primary respiratory disease, which can lead to late term abortions, foal death, neurological symptoms.

The respiratory symptoms are normally seen in all cases; the neurological symptoms (hindlegs are wobbly, can even lead to paralysis, urinary incontinence), are normally preceded by the viraemia, which means that at the time of the symptoms you will not find virus in the blood.

EHV-4 is normally restricted to the respiratory tract. Fever, coughing, nasal and ocular discharge.

Diagnosis

Contact the Equine Research Centre to arrange testing by PCR. The best sample is a dry nasal swab, and this should be accompanied by an EDTA (purple top) blood sample. In the case of abortions, foetal lung samples and placental tissue (FRESH and never in formalin) as well as a vaginal swab from the mare are the specimens required for testing.

Treatment and Control

Symptomatic treatment is the mainstay. The infection is normally mild and self-limiting.

Prevention of spread is critical and direct contact is the main form of spread.

Vaccination options are available. Contact your vet for more information.

This disease is considered endemic in RSA. As EHV is not a controlled disease, no specific state veterinary control measures are in place for EHV.

Responsible horse ownership must be relied on. Basic hygiene principals at shows and within stable yards are paramount to successful control. Direct contact with horses from other yards should be avoided, as well as use of shared water buckets etc. In the face of an outbreak, horses should be separated into groups or if possible, housed individually, until the outbreak is under control. This applies especially to pregnant mares, as an aborted foetus is a large source of virus for other mares within the same paddock.

Contact:
Dr Camilla Weyer for sample organization (Best done in consultation with your vet)
076 152 2782

HORSE IMPORT EXPORT TASK TEAM REPORT

The following is a short summary of salient points that were discussed at the seventh Horse Import Export Task Team (HIETT) meeting held on the 28th October 2015:

1) African horse sickness(AHS) Vaccines

There is no evidence of a repeat of the problems experienced last year in terms of AHS vaccine supply, although some veterinarians have complained about the method of distribution via Bayer and UTI. The complaints are receiving attention from the vaccine supplier, Onderstepoort Biological Products (OBP).

2) AHS Surveillance Reports

- Serology Report August 2014 – August 2015: All samples up to August 2015 had been tested and results logged. Dr John Grewar is collating the report.
- Reverse Transcription Polymerase Chain Reaction (RT-PCR) Report August 2014 – August 2015: All samples up to end August 2015 had been tested and results logged. Dr John Grewar is collating the report.
- Monthly Surveillance Reports: Reports will be issued monthly by Dr John Grewar and will include a methods paragraph and maps.

3) AHS RT-PCR Validation

All validation testing has been completed for the test developed at the ERC and there have been no issues with robustness. A dossier for evaluation will be submitted to the OIE Biological Standards Commission by mid-January 2016.

4) UAE Visit

A UAE delegation visited South Africa in June 2015 to assess the control of African horse sickness in South Africa. The delegation is awaiting the outcome of the RT-PCR test validation.

5) Risk Assessment

A Risk Assessment on the export of African horse sickness from South Africa was prepared by a team lead by Dr Evan Sergeant of AusVet. The risk assessment was presented at ISVEE (International Symposium of Veterinary Epidemiology and Economics) in Mexico in November 2015.

6) Olympic Bid

There is no confirmation from the Department of Sport and Recreation that South Africa will bid to host the Olympics in 2024. The implications of African horse sickness (AHS) on the Equestrian Olympics will need to be carefully considered.

7) Import of horses from neighbouring countries

Direct movement from a neighbouring country to the AHS Controlled Areas (CA) is not permitted. In order to enter the AHS CA a 40 day residency in the AHS infected zone of SA or a minimum of a 14 day stopover in a registered facility with a negative RT- PCR test for AHS is required. The Veterinary Import Permit (VIP) application form has changed to include

details of the stopover quarantine for horses moving from a neighbouring country into the AHS CA.

8) Reporting of AHS cases by laboratories to a central point

In addition to the mandatory reporting of all suspect cases of AHS and all AHS laboratory results (positive and negative) to the state vet, appeals are being made to each of the provinces with regard to the additional reporting of AHS laboratory results to a central point.

9) Import of horses from the USA – Vesicular Stomatitis

DAFF are finalising changes to the Veterinary Import Permit (VIP) for horses from the USA. Input on the clause regarding Vesicular Stomatitis was requested. The HIETT has not seen the final draft but DAFF agreed that any changes to Veterinary Import Permits would be handled in a timeous and transparent manner to minimise trade disruptions.

10) Contagious Equine Metritis (CEM)

- Pregnant mare quarantine testing: DAFF confirmed that the current protocol lists bacterial culture as the test required for clearance of mares and foals in pregnant mare quarantine. Problems have been experienced with culture in terms of delayed transportation, samples getting lost en route etc. Onderstepoort Veterinary Institute (OVI) have confirmed that they will receive and test samples for CEM culture 7 days a week as long as prior arrangements are made. DAFF require all samples from pregnant mare quarantine to be tested by both culture and RT-PCR and registration of facilities will depend on the ability to comply. The Standard Operating Procedure (SOP) for pregnant mare quarantine facilities will include strict instructions regarding testing.
- DAFF agreed to discuss and report on closing the CEM outbreaks and submit a report to the OIE (World Organisation for Animal Health). Substantial information has been gained from the Equine Research Centre (ERC). Ongoing stallion screening is required to underpin a future claim of country freedom.
- Studbook have had resistance from several breed societies regarding the costs associated with the annual CEM screening of stallions. A meeting between DAFF and relevant breed societies has been arranged for 18th November 2015.
- CEM in semen has been identified as a problem. Industry needs to ensure there is a current negative CEM certificate for donor stallions at the time of semen collection.
- If there is continued resistance to stallion screening from certain breed societies, it may be necessary for individual breed societies e.g. the thoroughbred industry, to appoint a project leader to evaluate the risk of CEM in the thoroughbred population and establish a code of practise for CEM in the thoroughbred population, as is done in the UK.

11) Taylorella asinigenitalis (CEM in a donkey)

The ERC identified *T. asinigenitalis* via RT-PCR in an imported donkey jack during post arrival quarantine. The organism had not been picked up during pre-export testing in the country of origin. The donkey was successfully treated at the veterinary faculty. Credit must go to

Prof Guthrie for the identification and successful treatment- i.e. the introduction of "donkey CEM" into South Africa was prevented.

12) European Union (EU) Protocol

June 2016 will mark 2 years after the last outbreak of AHS in the AHS controlled area. A task team will be formed to prepare for a probable Food and Veterinary Office (FVO) audit ahead of an application to reinstate direct exports from South Africa to the EU.

13) Import from Zimbabwe to South Africa

Horses from Zimbabwe have to be tested for Surra, which is an emerging disease worldwide, prior to importation into SA. Testing can be done at the OVI.

14) DAFF approval of laboratories

The previous DAFF Approval program was terminated at the end of 2014. SANAS Accreditation is a requirement for all laboratories testing for controlled and notifiable diseases. Results for controlled and notifiable animal diseases from laboratories without DAFF approval will not be accepted. Laboratories may apply to the Director for dispensation should they have temporary challenges in complying with the current requirements.

15) Vaccination permissions in the CA outside the 1 June – 31 October period

Applications to the Director of Animal Health for permission to vaccinate for AHS in the CA outside the restricted period must follow a detailed protocol and include valid reasons to support the application.

CLIMATE CHANGE AND VECTOR BORNE DISEASES

Dr John Grewar, State vet Epidemiology in the Western Cape, attended the 14th International Symposium for Veterinary Epidemiology and Economics (ISVEE) which took place in Mérida, Mexico from 2-7 November 2015.

The following extract is taken from THE WESTERN CAPE EPIDEMIOLOGY REPORT, VETERINARY SERVICES, November 2015, Volume 7 Issue 11, compiled by Dr John Grewar

One of the congress days revolved around climate change and the vast impact climate change has on the epidemiology of diseases.

Increased temperatures cause an increase in number and an expansion in range of vectors and pathogens, while indirectly, land use and biodiversity are changed by the changing climatic conditions.

For instance, bluetongue virus replicates faster at higher temperatures, and vectors are more susceptible to infection at these increased temperatures. In the host, increases in environmental temperature cause a higher degree of physiological stress, decreasing immunity and therefore increasing the risk of disease. Additionally, a drying climate causes more farmers to switch to irrigating their crops, creating new habitats for vectors in previously unsuitable areas.

(The same principles would apply to African horse sickness.)

Veterinary professionals should therefore be aware of the effects of climate change in their areas and the previously unencountered diseases that may occur as a result.

AFRICAN HORSE SICKNESS CAN OCCUR IN DOGS – ANOTHER CASE REPORTED

We refer to the edited publication, "First documented case of African horse sickness in a domestic dog without apparent ingestion of horse meat", in the Equine Research Centre Newsletter, January 2014. Visit the following link to read this publication :

http://www.equinehealthfund.co.za/Portals/0/ERC%20newsletter_Jan2014%20FINAL.pdf

There has been another case of AHS in a dog in the Pyramid area, just north of Pretoria.

Clinical signs of AHS in dogs includes fever, an increased respiration rate, white foam around the nostrils, pharyngitis and coughing. Diarrhoea and convulsions may also occur.

The Equine Health Fund congratulates our Animal Health Technician, Esthea Russouw and her husband on the birth of their first baby, a son named Nicolaas Johannes. Esthea is a valued member of our surveillance team in the Western Cape.

Nora-Jean (NJ) Freeman on behalf of Equine Health Fund – nfreeman@witshealth.co.za