



**INTERNATIONAL BREEDERS' MEETING**  
**INTERNATIONAL COLLATING CENTRE**

**Animal Health Trust**

**Information Exchange on Infectious Equine Disease**

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*Please note that due to changes in reporting from Australia, their reports are being reported one quarter in arrears behind the quarter being reported. Here we provide reports for the **THIRD QUARTER** of 2009 for Australia. Please note that data **IS** for the quarter being reported. Fourth quarter reports for other countries are provided after this in the usual way*

**REPORT FOR THIRD QUARTER 2009 FROM AUSTRALIA**

*Animal Health Surveillance Quarterly (AHSQ) Compiled by Animal Health Australia (AHA)  
(<http://www.animalhealthaustralia.com.au/status/ahsq.cfm>)*

**Hendra virus update**

Contributed by Hume Field, Queensland Department of Employment, Economic Development and Innovation

Two separate incidents of Hendra virus infection occurred in Queensland in mid-2009. The first, in July–August at Cawarral near Rockhampton in central Queensland, involved four of 26 horses on one property.

The veterinarian attending one of the horses, before a diagnosis of Hendra virus was made, also became infected and died. The second incident, in Bowen in north Queensland in August–September, involved two of three horses on the property. These two incidents have brought the total number of known

spillover events to 13 since the virus was first detected in 1994. Species of fruit bats (flying foxes, *Pteropus* sp.) are the natural hosts of the virus.

Further details of these incidents are in the Queensland report (under 'State and territory reports') in this issue.

Of the 13 identified incidents, five have resulted in human infection. Four of the seven human cases died from Hendra virus disease.

Hendra virus is not highly infectious; transmission from bat to horse, horse to horse, and horse to human does not occur readily. Early consideration of Hendra virus as a possible cause of an acute febrile illness in a horse is essential to minimise horse and human exposure. In many incidents to date, the primary case has been identified retrospectively, delaying the implementation of basic biosecurity measures that could prevent further transmission. This is reinforced by the findings of recent experimental studies at the CSIRO Australian Animal Health Laboratory, which indicated that infected horses excrete an increasing amount of virus in nasal secretions, saliva, urine and faeces, starting up to 48 hours before the onset of clinical signs, and reaching a peak on the death of the horse.

The nonspecific clinical signs associated with Hendra virus infection in horses make early detection based on clinical presentation challenging. Cases may present as very mild, with quite vague signs, right through to very acute respiratory and/or neurological signs. It is therefore essential that veterinarians promptly submit samples for laboratory testing from any horses fitting the broad clinical case definition, and manage such horses appropriately until test results are received. Without an effective, commercially available vaccine for horses, mitigation of the risk of Hendra virus infection comes back to the fundamentals:

- awareness in horse carers and veterinarians
- implementation of strategies to minimise the risk of exposure in horses
- routine use of basic personal protective equipment and infection control measures by veterinarians attending horses
- early consideration of Hendra virus as a differential diagnosis for febrile horses
- use of biosecurity for suspect cases pending laboratory diagnosis
- rapid laboratory diagnosis
- effective management of diagnosed cases and contacts.

Hendra virus infection in horses and humans is a rare event. However, the dire consequences and the recent annual occurrence of incidents influence the perception of risk by the public and the media. Clinical trials in animals suggest that immediate postexposure treatment using anti-Hendra virus monoclonal antibodies is promising as a human treatment.

## **STATE AND TERRITORY REPORTS**

### **NEW SOUTH WALES**

*Contributed by Rory Arthur, Department of Industry and Investment*



Around the time of the outbreak of Hendra virus at Cawarral in Queensland in late July and August 2009 (see the Queensland report), an apparently healthy horse was transported from the Cawarral property to a property in the Tamworth region of New South Wales. Not all horses infected with Hendra virus die, and horses that recover can carry the virus and present a risk to other horses and public health.

The case was investigated to assess whether the horse had been infected and recovered. Whole blood was collected for serology, and blood in heparin was collected for PCR testing (the white blood cells are the target sample). The test results were negative, and the movement restrictions on the horse were removed.

#### *Rapid test for abortions due to equine herpesvirus 1 infection*

Rapid diagnosis of abortion in mares due to equine herpesvirus 1 (EHV-1) infection is now provided by the virology laboratory at the Elizabeth Macarthur Agricultural Institute, which uses a rapid PCR test for diagnosis of the disease. Test results are usually available about 24 hours after receipt of samples. Six cases of equine abortion due to EHV-1, on three studs, were diagnosed during the quarter using the EHV-1 PCR test on foetal tissues — especially lung, liver, thymus and spleen. Three of the cases were also confirmed by histopathology performed at another laboratory; viral inclusion bodies, pathognomonic for EHV, were observed in foetal lung, liver, spleen and thymus samples.

Although studs try to manage the problem using a number of strategies — for example, requiring vaccination for EHV-1, keeping mares in small groups without introductions, and separating visiting mares from home mares — occasional cases of EHV-1 abortion are diagnosed in New South Wales. Vaccination is not completely protective. Movement of mares in the breeding season, with the attendant stresses, can reactivate latent EHV-1 infection or lead to infection of other horses via contaminated transport vehicles or equipment.

#### **Equine influenza exclusion**

Two of seven stabled horses on a property near Bingara, central-northern New South Wales, were investigated for possible equine influenza (EI). The affected horses had fevers over 40.0 °C, copious serous to mucopurulent nasal discharge, and frequent coughing. This occurred shortly after the introduction of two younger horses. Treatment with antibiotics, mucolytics and nonsteroidal anti-inflammatory agents produced little response. Notably, one of the unaffected horses had been imported from the Northern Hemisphere some years previously and is likely to have been vaccinated against EI.

Samples were taken by the district veterinarian for PCR testing and serology, and swabs were cultured to exclude strangles. Both horses returned a positive test for equine herpesvirus (EHV) 4, which is common in younger horses; the two affected horses were eight and 17 years old. The other laboratory results excluded EI, EHV-1 and strangles. Both horses recovered over a period of three weeks. The source of the infection is presumed to have been the introduced horses.

## NORTHERN TERRITORY

*Contributed by Francois Human, Department of Resources*



### Exotic disease exclusions in horses

Two horses that were recently introduced from interstate to the Darwin rural area showed signs of coughing, assumed to result from the transport or dust in their paddock. Blood and nasal swab samples were taken from them, and from two resident horses that developed fever, nasal discharge and coughing a few days later. Infection with equine influenza virus was ruled out by PCR tests on samples submitted to the Berrimah Veterinary Laboratories. A bacterial culture performed on the nasal swabs demonstrated the presence of *Streptococcus equi* subspecies *zooepidemicus*. This bacterium is a mucosal commensal, but has been reported to cause respiratory disease in recently transported or heat-stressed horses.

A carer in Katherine reported a horse with an acute onset of a bloody nasal discharge and bilateral nystagmus. The animal appeared nonresponsive and developed ataxia within a few hours. Blood samples and mucosal swabs were taken before euthanasia. The carcass was buried without a necropsy due to the perceived risk involved, as Hendra virus was a possible differential diagnosis. Hendra virus infection was subsequently excluded by the CSIRO Australian Animal Health Laboratory.

## QUEENSLAND

*Contributed by Greg Williamson, Department of Employment, Economic Development and Innovation*



### Hendra virus

In late July and early August, three horses became sick and died at a property in Rockhampton Shire. The third horse to become sick was examined by a veterinarian and showed a high fever (40 °C), increased lung sounds, slight depression and no nasal discharge. The horse deteriorated rapidly; by the next day, it had a significant nasal discharge and difficulty walking, just before it collapsed and died. Nasal swabs and a serum sample were tested by PCR and were positive for Hendra virus. Sadly, the veterinarian was himself infected with Hendra virus and later died in hospital.

Other in-contact personnel were tested, but no evidence of infection with Hendra virus was detected.

In retrospect, the clinical signs shown by the first horse were consistent with Hendra virus infection. Samples from the second horse were available and were Hendra virus positive. This horse had had close

contact with body fluids from the first horse that died. There were several possible means of virus exposure for the third horse.

The infected property and a neighbouring property with direct nose-to-nose contact of horses were quarantined. The infected property, which was a horse breeding and rearing enterprise with 23 horses, had considerable movement of horses, both onto and off the property. Trace-forward and trace-back investigation of horse movements led to restrictions being placed on a further 16 properties, including one property in New South Wales. A health monitoring program and a sampling schedule for testing of horses on all properties were developed.

In late August, another horse on the infected property returned a positive virus neutralisation test (VNT) to Hendra virus after health monitoring indicated a problem. This horse was euthanased.

At the end of the quarter, only three properties remained in quarantine, including the infected property. Final serological testing of all horses on these properties was scheduled for early October to coincide with a 32-day period since the last risk exposure to Hendra virus. At the time of this report (late October), all quarantines had been lifted after the final VNTs were negative.

In an unconnected incident, in Bowen Shire in early September, a horse died following a short febrile illness. PCR testing of blood and nasal swabs was positive for Hendra virus. Management of the case was similar to that for the Rockhampton incident, but there were only two horses on the property and little contact with neighbours. Movement restrictions were placed on the infected property and on two in-contact properties. These remained in force at the end of the quarter. Again, at the time of this report, all restrictions had been lifted following negative VNTs of all horses.

Implications of these incidents for biosecurity during management of horse illnesses are addressed in the article 'Hendra virus update' in this issue.

## **VICTORIA**

*Contributed by Cameron Bell, Department of Primary Industries*



### **Equine herpesvirus 1 abortion on a thoroughbred horse stud**

Equine herpesvirus 1 (EHV-1) was associated with abortion in eight Thoroughbred mares from a mob of 13 in south-west Victoria in August 2009. The clinically normal mares aborted over a two-week period beginning three to four weeks after the introduction of a mare via commercial transport from another stud without clinical disease. Gross pathology was consistent with EHV-1, and the diagnosis was confirmed by PCR testing of pooled lung, liver, spleen and thymus of an aborted foetus at VDS Attwood laboratory. Following the first abortion, the mob was maintained in strict isolation with designated equipment and staff. These measures, along with disinfection and decontamination procedures, prevented spread of the infection to the remainder of the stud. Voluntary movement controls were in place until 30 days following the last abortion.

EHV-1 is endemic in the horse population of Australia and can cause abortion, stillbirth, neonatal death, respiratory disease and nervous disease in horses. Control strategies are aimed at minimising exposure and limiting spread.

## **SOUTH AUSTRALIA**

Nothing to report

## **TASMANIA**

Nothing to report

## **WESTERN AUSTRALIA**

Nothing to report

## **REPORT FOR THE FOURTH QUARTER 2009**

### **ARGENTINA**

#### **Rotavirus Foal Diarrhoea**

An outbreak commenced during the third quarter and was confirmed as being caused by equine rotavirus by Virology Institute INTA Castelar by ELISA. The outbreak was limited but clinically severe. Fecal samples were taken from 27 Thoroughbred foals with diarrhoea at six separate premises of which 11 tested positive for rotavirus.

#### **EHV-1 Abortion**

An outbreak commenced on 10<sup>th</sup> October with the last case reported on 11<sup>th</sup> November. Diagnosis was confirmed by Virology Institute INTA Castelar by agent isolation and PCR. The outbreak was limited affecting several Thoroughbreds and non-Thoroughbreds at three different premises. At the first premises five cases of stillbirth from 48 vaccinated pregnant mares were reported with only one foal being sent for diagnosis. At the second, eight abortions from 50 unvaccinated mares were reported, with only one case being sent for diagnosis. At the third, one abortion from 20 unvaccinated mares was reported and submitted for diagnosis. In all cases submitted to the laboratory, EVH-1 was isolated and the variant EHV-1 was determined by discriminative real time PCR and all were of the non-neuropathogenic type.

### **AUSTRALIA**

As reported above, the fourth quarter 2009 report for Australia will be provided in arrears at the beginning of the first quarter report 2010.

### **CANADA**

Confirmed nothing to report.

### **CHILE**

Confirmed nothing to report

### **DENMARK**

Confirmed nothing to report.

### **FRANCE**

(Information supplied via RESPE, the French network for epidemiosurveillance of equine diseases)

**Strangles (*Streptococcus equi*)**

Thirty-one Strangles cases in non-Thoroughbred horses on nine premises have been reported in the departments of Oise, Ain, Seine-et-Marne, Loire-Atlantique, Calvados and Morbihan. On six premises, the animals displayed signs that included fever, nasal discharge, lymphadenopathy, dysphagia and cough. On the three other premises, the animals displayed moderate signs. None were vaccinated. The diagnoses were made using PCR.

**Contagious Equine Metritis (*Taylorella equigenitalis*)**

One case was confirmed using agent isolation in a Belgian Warmblood horse in Calvados.

**Piroplasmosis (*Babesia caballi* and *Theileria equi*)**

Remains endemic in France.

**EHV Abortion**

Two cases on two separate premises (two abortions) have been reported. One case was declared in a vaccinated French trotter located in Ain. No other cases were observed. The second case was in a vaccinated Thoroughbred horse in Orne. No other animals were affected on the premises.

**Equine Influenza**

EI was confirmed in non-Thoroughbred horses on five riding school premises. Horses on four premises were not vaccinated. Premise one was in Hérault involving nine horses with clinical signs that included fever, coughing and nasal discharge. Premise two was in Aude involving seven horses with clinical signs of coughing and nasal discharge. This outbreak could be linked via traders of horses with the affected premise in the department of Hérault located about 30 kms away. Premise three was in Lot and involved three horses with fever and coughing. Premise four was in Manche and involved five French saddle horses with signs that included fever, coughing and nasal discharge. Premise five was in Haute-Garonne involving seven horses. These animals were fully vaccinated and clinical signs included fever and coughing. Nasal swabs were confirmed using PCR and further results of strain typing are awaited.

**No cases of EVA, EIA and WNV have been reported.**

**GERMANY****Equine Infectious Anaemia (EIA)**

EIA was diagnosed in six horses on two premises in the administrative district of Kulmbach (Federal State of Bavaria) by Coggins Tests. The premises have been quarantined. One affected horse showed distinct clinical signs of dullness, pyrexia and severe ventral and distal oedema. As stipulated by law this horse was euthanased on 29<sup>th</sup> December 2009. Investigations on the other 61 horses residing on this premises, as well as three in-contact animals were initiated by the competent Veterinary Authority. The investigations on the in-contact premises remained negative for EIA. However, five more horses, in which EIA was officially confirmed, had to be euthanased. Epidemiological investigations on how the disease was introduced are still ongoing. All affected animals were recreational horses. No Thoroughbreds on Thoroughbred premises were affected.

A further case of EIA was diagnosed by Coggins Test in the administrative district of Zollernalbkreis (Federal State of Baden-Württemberg) in a pony used for recreational purposes. The horse of unknown origin came to the affected premises at the end of August. It was euthanased on 19<sup>th</sup> November 2009 after suffering from pyrexia of unknown origin for a period of more than two months and after the diagnosis of EIA was officially confirmed by the German reference laboratory, the Friedrich-Loeffler Institute in Greifswald (Insel Riems). The affected premises were quarantined and a protection zone established.

Investigations of in-contact animals were initiated and surveillance measures implemented. So far all test results involving more than 350 horses on 25 premises remain negative for EIA and the results of the final screening tests are awaited.

After clinical signs caused suspicion, on 16<sup>th</sup> October 2009 EIA was diagnosed by Coggins Test on one premises in the administrative district of Wunsiedel/Fichtelgebirge (Federal State of Bavaria). The outbreak was limited to recreational horses and no Thoroughbreds were affected. The premise was quarantined and the two affected two horses were euthanased. Diagnosis of EIA could not be reached in another horse on this premises because the animal had already died. The origin of the infection remains unknown. As there are no more equidae left on the premises and that all investigations into the onward spread of the infection resulted in negative EIA test results, the competent authorities consider the disease eradicated in the affected administrative district.

### **Results received from Labor Dr Boese GmbH – an HBLB CEMO registered laboratory**

#### **Piroplasmosis (*Babesia caballi* and *Theileria equi*)**

*Th. equi* – a total of 42 horses: ten from Portugal, nine from France, nine from Belgium, six from Germany, five from Spain, two from Netherlands and one from Belgium, confirmed by serology

*B. caballi* – a total of six horses: three from Portugal, two from France and one from Belgium, confirmed by serology

#### **Equine Viral Arteritis (EVA)**

Nine horses in total: five from Germany, three from Netherlands and one from Austria, confirmed by agent isolation.

#### **Leptospirosis**

A total of four horses from Germany, with diagnosis by PCR.

#### **Equine Herpesvirus-1**

One horse from Germany, with diagnosis by PCR.

#### **Equine Herpesvirus-4**

Five horses from Germany, with diagnosis by PCR.

#### **Equine Influenza**

Two horses from Germany, with diagnosis by PCR.

#### **Ehrlichia equi**

One horse from Germany, with diagnosis by serology.

#### **Strangles (*Streptococcus equi*)**

Two horses from Germany, with diagnosis by agent isolation and PCR.

#### **Contagious Equine Metritis (CEM)**

Two horses from Germany, with diagnosis by agent isolation.

#### **Klebsiella pneumoniae**

One horse from Germany, with diagnosis by agent isolation.

#### **Pseudomonas aeruginosa**

One horse from Germany, with diagnosis by agent isolation.

### **HONG KONG**

Confirmed nothing to report.

### **IRELAND (Republic of)**

Confirmed nothing to report

### **ITALY**

## **Rabies**

Rabies in horses is not common, although two cases were reported in dogs in the north east of Italy, plus 46 cases in wild animals at the beginning of autumn. After that, vaccination has become compulsory for dogs, cats and ferrets living in particular areas in the north east of the country and for all those animals who are visiting the same areas. It is assumed that the infection was brought in via wild animals, especially foxes, coming from Slovenia.

All dead animals susceptible to the virus, are monitored for infection at the Istituto Zooprofilattico delle Venezie.

No cases of rabies had been reported in Italy since 1995. The first case was in October 2008, followed by the other 47 during the 2009, in Veneto and Friuli Venezia Giulia.

## **West Nile Virus (WNV)**

The last case was reported on 14<sup>th</sup> October 2009. At that time, the number of outbreaks was 111, with 151 cases. Only 38 horses showed clinical signs and eight horses died. The mortality rate in 2009 was similar to the rate in 2008 (15.6% for 2008 and 21.05% for 2009). Vaccination has probably not yet been widely used.

## **JAPAN**

### **EHV-1 Abortion**

An outbreak was reported on 20<sup>th</sup> October 2009, and confirmed by Hokkaido Hidaka Livestock Hygiene Service Centre by serology. The outbreak was limited to one unvaccinated Thoroughbred breeding horse.

### **EHV-1 Neurological Disease**

An outbreak was reported on 2<sup>nd</sup> November 2009, and confirmed by Hokkaido Hidaka Livestock Hygiene Service Centre by serology. The outbreak was limited to one unvaccinated Thoroughbred breeding horse.

## **NEW ZEALAND**

Confirmed nothing to report.

## **SINGAPORE**

Confirmed nothing to report.

## **SOUTH AFRICA**

### **Piroplasmosis (*Babesia caballi* and *Theileria equi*)**

An outbreak commenced in September with the last case reported in December. Confirmation was by serology and microscopic examination of blood smears. The outbreak was limited and clinically mild affecting multiple performance horses, Thoroughbreds and non-Thoroughbreds. *Theileria equi* and *Babesia caballi* are endemic in South Africa and clinical cases are reported during spring, summer and autumn (September to May).

### **EHV-1 Abortion**

An outbreak was reported in June 2009 with the last case reported in October 2009. The confirming laboratory was University of Pretoria, Section of Pathology and Equine Research Centre by immunoperoxidase staining, histopathology and qPCR. The outbreak was limited affecting a mixture of 40 breeding stock, Thoroughbreds and non-Thoroughbreds at four premises. The outbreaks occurred in the Western and Northern Cape Provinces and in KwaZulu-Natal on Thoroughbred and Warmblood studs

**Strangles (*Streptococcus equi*)**

Strangles is endemic in South Africa. The disease is limited and clinically mild affecting Thoroughbreds and non-Thoroughbreds. Diagnosis is usually confirmed by agent isolation.

**SOUTH KOREA****Serological survey and investigation on respiratory diseases in 2009**

A serological survey was conducted from February to October 2009 against Equine Viral Arteritis, Equine Infectious Anaemia, African Horse Sickness, Vesicular Stomatitis, West Nile Fever, Japanese Encephalitis, Equine Herpesvirus-1 and Equine Influenza to investigate the serological evidence for the possible presence of the diseases listed above in Thoroughbred horses raised in South Korea. Serum samples of 1,100 Thoroughbred horses including stallions, broodmares, young horses and racehorses were subjected to this study. Clinical examinations and sample collections were performed by the Korean Racing Authority and laboratory test were conducted by the National Veterinary Research & Quarantine Service of South Korea. All tests were performed according to the OIE manual. The results were as follows:

**Equine Viral Arteritis (EVA)**

Seven samples (0.6%, stallions) that tested positive using VN test were due to previous vaccination.

**Equine Infectious Anaemia (EIA)**

All samples tested negative using AGID (Coggins) test.

**African Horse Sickness (AHS)**

All samples tested negative using commercially available ELISA kits.

**Vesicular Stomatitis**

All samples tested negative using commercially available ELISA test kits.

**West Nile Virus (WNV)**

All samples tested negative using commercially available ELISA test kits.

**Japanese Encephalitis**

Of the 1,091 samples, 706 samples (64.7%) tested positive using HI test, which were due to vaccination and/or infection.

**Equine Herpesvirus-1 (EHV-1)**

Of the 1,073 samples, 889 samples (82.9%) tested positive using VN test, which were due to vaccination and/or infection.

**Equine Influenza (subtype H3N8)**

Of the 1,073 samples, 254 samples (23.7%) tested positive using HI test, which were presumed to be due to vaccination.

***Investigation of respiratory samples***

Investigations of 66 nasopharyngeal swabs from racehorses with signs of respiratory disease were conducted from May to November of 2009 for the diagnosis of viral or bacterial diseases. The results were as follows:

**Equine Herpesvirus (EHV-1):** One case was confirmed by PCR. Clinical signs included serous discharge from both nostrils and occasional coughing. The animal was treated and recovered without complications. No other animals were affected on the premises.

**Equine Herpesvirus-4 (EHV-4):** One case was confirmed by PCR. Clinical signs included nasal discharge. The animal was treated and recovered without complications. No other animals were affected on the premises.

**Strangles (*Streptococcus equi*):** One case was confirmed by PCR. Clinical signs included anorexia and fever. The animal was treated and recovered without complications. No other animals on the premises were affected.

## SPAIN

### Piroplasmosis

Piroplasmosis remains endemic throughout Spain.

## SWEDEN

### Strangles (*Streptococcus equi*)

Strangles is endemic throughout the country affecting all types of horses, with about 20 premises affected although not all cases verified by a laboratory.

### Equine Influenza

An outbreak was confirmed by the SVA laboratory using PCR. The outbreak was limited affecting 10 Thoroughbreds on two premises. It was presumed there was poor vaccination status in these stables.

### Salmonellosis

A limited outbreak was confirmed on 4th November 2009, in one performance horse in a trotting stable. The stable is still isolated and samples have been collected. Decontamination of the stable and paddock has taken place.

## SWITZERLAND

### Equine Atypical Myopathy (EAM) (*Clostridium sordellii*)

A limited, clinically severe outbreak affecting non-Thoroughbreds was reported in October 2009, which was diagnosed by clinical signs and post-mortem examination. Fifteen premises were affected. Thirty horses died with very few surviving. At least one case occurred on a previously affected premises (see 4Q Report 2007). The following information is taken from a research project by Lucia Unger and colleagues:

#### **Research project on Equine Atypical Myopathy (Lucia Unger et al.)**

This reports regards the proposed investigation of a toxic molecular trigger in equine fatal myodystrophy. Preliminary results indicate that the enzymatic N-terminal region of the lethal toxin (TcsL) of *Clostridium sordellii* is associated with Equine Atypical Myopathy (EAM) due to its cytopathic and cyto-toxic effects on mammalian cell lines. The project investigated whether the ultra-structural damage of myofibers observed in muscle samples of EAM-affected horses could be due to TcsL-induced structural damage in the cytoskeleton. To test this possibility, Unger et al. will express the N-terminal part of TcsL in mam-malian cell lines and determine its effects on the cytoskeleton.

### Equine Grass Sickness (EGS)

One case was reported in October, in a non-Thoroughbred horse. The case was confirmed by clinical diagnosis and post-mortem.

### Salmonellosis (*Salmonella enteritidis*)

An outbreak was reported in November affecting three non-Thoroughbred horses on one premises. The outbreak was limited and clinically severe and confirmed by agent isolation and clinical diagnosis. At the same time (22<sup>nd</sup> to 26<sup>th</sup> November) three horses were seen in clinic with colic (two obstipations and 1 torsio coli). The obstipated horses (12 and 13 years of age) had to be euthanized due to colitis; in one horse *Clostridium perfringens* was also involved. The operated horse (torsio coli, 12 year old warmblood mare) survived with no further complications.

The attached scientific summaries have also been supplied and may also be of interest:

#### **Seroprevalence study on equine Piroplasmosis in the Swiss horse population**

*Doctoral thesis of Liv Ursula Sigg (Vetsuisse Faculty University Berne 2009)*

In Switzerland, incidence and prevalence of equine piroplasmosis (EP) caused by *Theileria equi* and *Babesia caballi* are unknown. In order to obtain a first descriptive insight into the prevalence, a representative sample of 689 sera from horses kept in Switzerland was serologically investigated for antibodies against *T. equi* and *B. caballi* using the Indirect Fluorescence Antibody Test (IFAT).

A total of 50 (7.3%) horses were seropositive for equine piroplasmosis: 30 horses (4.4%) for *T. equi*, 10 (1.5%) for *B. caballi* and 10 (1.5%) had antibodies against both parasite species. Overall, the seroprevalence of *T. equi* was significantly higher than that of *B. caballi* (p=0.002).

In domestic horses (animals bred and raised in Switzerland), seropositivity rate was 4.8% (11/230). Four (1.7%) of these horses were positive for *T. equi*, six (2.6%) were positive for *B. caballi* and one (0.4%) had antibodies against both species.

In imported horses, the EP-infection rate was 8.5% (39/459) and the prevalences were 5.7% (26/459) for *T. equi*, 0.9% (4/459) for *B. caballi* and 2.0% (9/459) had antibodies against both parasite species. Unlike in domestic horses, where no significant difference in seroprevalences could be observed between the species, the seroprevalence of *T. equi* was significantly higher (p<0.001) than that of *B. caballi* in imported horses.

More than half of the imported horses that tested positive for EP originated from France. Horses imported from France, Spain and Portugal had a significantly higher and horses imported from Germany a significantly lower seroprevalence of EP compared to domestic horses.

There were no associations between sex, age, weight loss, pasture time, surgery or blood transfusions with *T. equi* and *B. caballi* seroprevalences.

The overall seroprevalence of 7.3% shows that equine piroplasmosis is a threat to the health of the horses kept in Switzerland. With the presumed expansion of permissive tick vectors, EP has the potential to further increase in importance. Therefore, continuous monitoring is indicated.

### ***Culicoides* activity surveillance in Switzerland and Liechtenstein**

#### **Synopsis for winter 2009/10; situation on December 17<sup>th</sup>**

Winter surveillance activity restarted during mid-October 2009 (week 43), to determine the vector-free period. Thirteen traps are placed by the Federal Veterinary Office on farms throughout Switzerland. Most of the sites had already been part of the surveillance during winter 2008/09; in two cantons and in Liechtenstein, new farms are involved in the trapping. Additionally, six traps run all year round, in the framework of a research programme on *Culicoides* population dynamics. Hence, a total of 19 traps being operated once a week, yielding data on *Culicoides* activity.

During the second half of October (weeks 43-44), trappings revealed 'null' to 'low' activity for 23 of 29 night trappings; the 6 remaining showing 'medium' activity. During that period, the overall mean activity was 'low' (71 midges per trap/night). In November, the activity remained at 'low' level, but the number of trapped midges decreased, as indicated by the absence of 'mean' activity and the overall midge numbers (8 and 21 midges per trap/night for weeks 45-46 and 47-48 respectively). Notably, a large part of these midges were parous, blood fed or gravid, indicating that they could act as vectors.

During the first three weeks of December (weeks 49-51), the trappings were all scored negative, with only sites VD02 (Western part of the country) and LU01 (central Switzerland) yielding <5 midges and in total only 3 parous ones. However, not all samples have been received so far, and in particular the situation in Ticino could not be assessed (last data from week 48).

During the two last years of surveillance, midge activity was considered to end during weeks 47 and 48. This season, activity remained at low level until the end of November (week 48), and the end of midges activity should be set at weeks 49/50.

For more detailed information please contact: Francis Schaffner (Institute of Parasitology, University of Zurich) francis.schaffner@access.uzh.ch

## **TURKEY**

### **Leptospirosis (bratislava Jez Bratislava)**

An outbreak commenced on 12<sup>th</sup> August 2009 with the last reported case on 24<sup>th</sup> September 2009. The confirming laboratory was Etlik VCRI by serology and MAT. The outbreak affected two breeding stock horses on one premises. There were no clinical signs.

### **Equine Herpesvirus EHV-1 & EHV-4**

An outbreak commenced on 2<sup>nd</sup> November 2009 with the last reported case on 20<sup>th</sup> December 2009. The confirming laboratory was Veterinary Faculty of Istanbul and Ankara by PCR and RT-PCR. The outbreak of EHV-1 and EHV-4 was limited to 41 breeding stock and Thoroughbred horses on one premises with severity of clinical signs ranging from mild to severe.

## **UNITED ARAB EMIRATES**

### **Contagious Equine Metritis (*Taylorella equigenitalis*)**

One case in a Thoroughbred was reported on 14<sup>th</sup> October 2009. This was confirmed by VLA Weybridge by agent isolation and PCR. Further to the interim report submitted in November 2009, all in contact horses tested negative for CEM, The affected horse was treated with local and systemic antibiotics and then tested negative for CEM by culture on three occasions. The horse was subsequently exported. The source of the infection remains unknown but is thought to have occurred prior to import into the UAE.

### **Piroplasmosis (*Babesia caballi* and *Theileria equi*)**

Piroplasmosis is endemic amongst non-Thoroughbreds in the UAE. Diagnosis is confirmed by the Central Ventral Research Laboratory Dubai using serology and agent isolation.

### **Strangles (*Streptococcus equi*)**

On 1<sup>st</sup> October 2009, 14 horses were imported from Italy and released from quarantine to an Arabian stud on 7<sup>th</sup> October. On 20<sup>th</sup> October the first of several horses at the stud was noted with abscessed submandibular lymph nodes that subsequently cultured positive for *Streptococcus equi*. Subsequent enquiries revealed that there had been an outbreak of strangles on the farm from which the horses were imported in Italy in July and September 2009. The Arabian stud was quarantined and a total of 14 horses identified with strangles. Suspected horses had their guttural pouches examined under endoscopy, cultured and sampled for PCR, then infused with penicillin. The entire herd was screened using cELISA. All clinically suspect (fever), positive to PCR or positive culture horses were isolated until three negative results were obtained from two weekly sampling. At the time of writing there were only two horses awaiting final confirmation before the outbreak could be declared resolved.

## **UNITED KINGDOM**

### **EHV-1 Abortion**

One case of EHV-1 abortion in a Thoroughbred mare was diagnosed by virus isolation in fetal tissues. The mare was current for vaccinations against EHV-1/4.

### **EHV-1 Paralytic disease**

The neurological EHV-1 outbreak in southern England which started on 4<sup>th</sup> January 2010 is ongoing. At the moment virological screening of nasopharyngeal (NP) swabs and heparinised blood samples from the horses in this yard has given rise to a number of further positive EHV-1 isolations which have been confirmed by PCR. Apart from the previous 2 positive NP swabs among the 3 animals that were in close in-contact with the neurological case, EHV-1 has been isolated in 10 NP swabs and 3 heparinised blood samples giving in total 15 EHV-1 isolates from 12 horses in the yard.

No further clinical cases have been reported to date, although one horse which tested positive for EHV-1 on both NP swab and heparinised blood has had filled legs and has been off colour. Serological and virological testing will continue until they provide the all clear prior to current restrictions being lifted.

### **EHV-2**

EHV-2 infection was diagnosed by virus isolation from nasopharyngeal swabs in two colts (16 and 4 months old respectively).

### **EHV-3**

One horse showed a seroconversion to EHV-3 on the virus neutralization (VN) test. No further information could be obtained regarding this case.

### **EHV-4 Respiratory infection**

EHV-4 was isolated from nasopharyngeal swab from an 18 month-old gelding which showed mild pyrexia, cough, serous nasal discharge and swollen lymph nodes.

### **Equine Influenza**

Seven outbreaks of equine influenza were reported in this quarter.

*Outbreak descriptions*

In Monmouthshire, Wales two ponies (28 and 19 years old respectively) and a horse (unknown age), which showed pyrexia, mucopurulent nasal discharge, frequent coughing at rest and anorexia, tested positive for equine influenza by nucleoprotein (NP) ELISA on a nasopharyngeal swab. The virus was isolated and sequenced from only one horse. Serology by haemagglutination inhibition (HI) was consistent with recent equine influenza viral activity. The outbreak occurred in a livery yard with 47 animals of which 30 unvaccinated horses showed clinical signs whereas 12 previously vaccinated horses were not clinically affected.

In Lanarkshire, Scotland a 10 year old unvaccinated horse was positive for equine influenza by NP ELISA on a nasopharyngeal swab. The horse had been in contact with a horse which came back from a show several days previously and subsequently developed respiratory signs.

In Nottinghamshire, England an unvaccinated mare which had been out hunting with other horses from different premises showed respiratory signs and pyrexia and tested positive for equine influenza by NP ELISA on a nasopharyngeal swab. No further cases were reported from the hunt.

In Dorset, England two ponies showing clinical signs tested positive for equine influenza by NP ELISA on a nasopharyngeal swab. Two weeks before this two other ponies had been shipped over from different locations in Ireland. Five ponies were involved in the outbreak, 3 of them un-vaccinated and all were affected. Virus was isolated and sequenced from one animal and paired serology by HI in 4 of the 5 ponies showed seroconversion.

In a livery yard in Perthshire, Scotland a mare which had been to a show jumping yard the previous week tested positive for equine influenza by NP ELISA on a nasopharyngeal swab. Another 5 year old horse which showed more severe signs was negative for equine influenza at the time of sampling.

After attending a hunt event in Yorkshire, England 12 un-vaccinated horses from 3 different yards showed respiratory signs. Four of them were swabbed and 3 of them tested positive for equine influenza by NP ELISA. Paired serology by HI was performed in 9 of the 12 horses and results showed seroconversion to H3N8 equine influenza virus consistent with infection in 6 horses and titres consistent with infection prior to the time of the first sample in the other 3 animals.

Two horses among a group of 30 in Bridgend, Wales tested positive for equine influenza by NP ELISA on a nasopharyngeal swab. Cases showed classical signs of influenza with 20 unvaccinated horses in the group being affected. None of the animals had apparently left the premises in the previous few months and it was believed that the virus could have been introduced indirectly by human contact.

*Equine influenza virus characterisation*

Genetic characterisation of the isolates obtained from the outbreaks in Monmouthshire, Lanarkshire, Nottinghamshire, Dorset and Bridgend showed that they belonged to the Florida sublineage clade 1 of the American lineage of H3N8 equine influenza virus. In contrast the isolates from the outbreaks in Yorkshire and probably Perthshire (for which only partial HA sequence was available) belonged to Florida sublineage clade 2 of the American lineage of H3N8 equine influenza virus. This suggests that clade 1 viruses are becoming more numerous and widespread within the United Kingdom compared to previous years since 2003 when the Florida sublineage first appeared in the UK. The virus responsible for the outbreak in Dorset may have been introduced with ponies imported from the Republic of Ireland.

**Equine Infectious Anaemia (EIA)**

The EIA outbreak confirmed on 19th January 2010 by the Department for Environment, Food and Rural Affairs (Defra) is continuing and no further cases have been reported. According to expert entomological opinion, mechanical transmissions by vectors (tabanids) seem not applicable as vectors are only present in Great Britain as a larvae stage at this time of year. A detailed epidemiological investigation is currently being carried out.

## **UNITED STATES OF AMERICA**

### **Contagious Equine Metritis (*Taylorella equigenitalis*)**

The total number of stallions and mares confirmed positive for *Taylorella equigenitalis* in connection with the 2008/09 occurrence of the disease remains at 22 stallions and five mares. No further carrier animals were detected in the fourth quarter of 2009. Studies conducted at the USDA's National Veterinary Services Laboratory have confirmed all the stallion and mare isolates had the same banding pattern on pulse field gel electrophoresis. This differed from that of previous strains of the bacterium isolated in the United States as well as strains provided by several European laboratories.

### **Eastern Equine Encephalomyelitis (EEE)**

The annual total of cases of EEE is 296, an increase of 47 cases over the number reported up to the end of September 2009. The vast majority of cases were in the Southern States, with Florida (73), Georgia (43) Mississippi (43), Louisiana (28), Alabama (23) and North Carolina (23), having the highest totals. The annual number of 296 cases considerably exceeds the national total of 185 cases confirmed in 2008.

### **West Nile Virus encephalitis (WNV)**

A total of 77 cases of WNV in horses were recorded in the fourth quarter, bringing the annual number of cases for 2009 to 241. States with the largest number of cases were Washington (72), Colorado (21) and California (18) and Texas (18). The total number of equine cases is significantly less than the corresponding figure of 663 cases of neuroinvasive disease reported in humans.

### **Piroplasmosis (*Babesia caballi* and *Theileria equi*)**

In early October, the USDA reported finding EP in 357 horses (all seropositive for *Theileria equi*), located in 12 states of which 289 were on the index ranch in Texas. The 62 positive horses detected in 11 other states were all epidemiologically linked to the index premises. Only one clinical case of EP was reported on the index premises. Follow-up testing of cohorts of the *T. equi* positive animals in these states failed to find any evidence of transmission of infection. All known positive horses are being held under official quarantine. *Amblyomma cajennense* ticks collected on the index premises have been shown capable of experimental transmission of *T. equi*.

In late December, three additional cases of *T. equi* infection were detected in conjunction with a racetrack screening program in New Mexico, none of which displayed any clinical evidence of EP. There was no epidemiological connection between this group of positive horses and the ongoing investigation of widespread *T. equi* infection on the index premises in Southern Texas.

### **Equine Influenza**

The final three months of 2009 has seen little evidence of equine influenza virus activity, with only sporadic cases of infection confirmed in Kentucky and Texas.

### **Strangles (*Streptococcus equi*)**

Aside from rumoured reports of outbreaks of Strangles from a number of states, the disease was confirmed at a racetrack in Indiana and at five locations in Kentucky.

**Equine Herpesviral Diseases**

Respiratory disease associated with equine herpesvirus 4 was recorded on several premises in Kentucky, and with equine herpesvirus 1, on one premises in Maryland. A total of five abortions due to non-neuropathogenic strains of equine herpesvirus 1 have been confirmed in Kentucky. Two outbreaks of equine herpesvirus myeloencephalopathy, each involving a single case of the disease, were reported at racetracks in Florida and Louisiana. The latter occurrence was associated with a non-neuropathogenic strain of equine herpesvirus 1. One of these cases had to be euthanized.

**Equine Infectious Anemia (EIA)**

A single case of equine infectious anemia was reported from a premises in New Jersey. The infected animal, a pony, had recently been obtained by an equine rescue group from a sale in Pennsylvania.

**Leptospirosis**

A total of 18 cases of leptospiral abortion due to *L. interrogans* serovar pomona were confirmed in the last quarter of 2009, the vast majority representing sporadic abortions on individual premises.

***Lawsonia intracellularis***

A total of 21 cases of proliferative enteropathy due to infection with *Lawsonia intracellularis* were reported in Kentucky and 2 in Ohio.

**Venezuela**

No report received

**REGARDS  
INTERNATIONAL COLLATING CENTRE**

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