



Newsletter

Veterinary Board of the Northern Territory

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APRIL 2017

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PROVIDING CASE RECORDS

The Vet Board has recently received a number of calls regarding the provision of case records directly to owners. Please be reminded that the Code of Conduct states:

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PROVISION OF RECORDS

*A registered veterinarian who has previously treated an animal must, when requested to do so, and with the consent of the person responsible for the care of the animal, provide copies or originals of the case history records **directly to another registered veterinarian who has taken over the treatment of the animal.***





EAD WORKSHOP HIGHLIGHTS OF ABLV CASE BY DR ED ANNAND

The Northern Territory Department of Primary Industries together with the Department of Agriculture and Water Resources held a very successful Emergency Animal Disease workshop for veterinarians at the Arid Research Station in Alice Springs in April. This one day workshop was similar to the event held in Darwin in November 2016 and provided the opportunity for the 14 veterinarians that attended to enhance their knowledge and skills in emergency disease recognition and investigation.

Guest speakers included Dr Ed Annand from Sydney University presenting an interesting case of Australian Bat Lyssavirus (ABLV) in two horses that progressed to death in 54 hours following initial Hendra virus (HeV) negative results. These two diseases are believed to represent a significant risk in the NT and are of particular interest to both large and small animal practitioners.

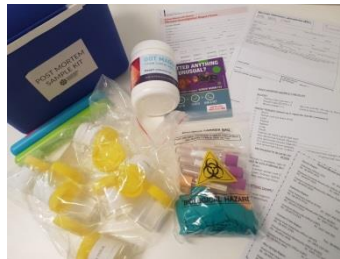
The take home messages from this presentation included:

- We are surrounded by flying fox and micro bats in the NT. There are 65 species of micro bat in Australia – it is just a matter of time before further ABLV cases are seen.
- Horses may present with a wide range of clinical signs that may be vague and non-specific for a neurological case such as lameness, mild hyperaesthesia, mild colic, ataxia, and intermittent behavioural changes.
- The importance of establishing a detailed differential diagnosis list and the need to consider ABLV as an alternative diagnosis for HeV negative animals with progressive symptoms.
- The value of taking some samples (minimum of EDTA blood, nasal swabs) early in a case, especially in remote areas, for future diagnosis and post exposure prophylaxis.
- In a dead horse, neck skin biopsies of hair follicles and their associated cutaneous nerves can be examined using immunofluorescence.
- The importance of good communication with government veterinarians, health officials, and laboratories.
- For all veterinarians to use appropriate PPE and to consider pre-exposure rabies vaccination for all veterinary staff.

To date there have been 3 fatal ABLV human cases in Australia, all of which have involved direct contact with a bat. ABLV should be considered as a differential diagnosis in all domestic animals displaying progressive neurological signs in Australia. There is an ongoing need to generate awareness in the horse owning public on the necessity to adopt good personal hygiene and wear PPE.

NORTHERN AUSTRALIAN BIOSECURITY SURVEILLANCE PROJECT

The Northern Australian Biosecurity Surveillance project has been funded under the Developing Northern Australia and the Agricultural Competitiveness White Papers to manage new and growing biosecurity risks in Northern Australia. Under this project, post-mortem sampling consumables kits are being distributed to major cattle properties in the NT. The kits are designed to be kept on-hand by properties, to assist vets and others performing disease investigations in remote areas. There are specific containers for screw worm fly maggots as well as a full range of containers and FLOQ swabs.



AUSTRALIAN BAT LYSSA VIRUS (ABLV) DIAGNOSED IN A FLYING FOX

In December 2016, ABLV was confirmed in a little red flying fox from the Darwin rural area. This is only the fourth reported case of ABLV in a bat in the NT. In this case, a dog which may have been scratched by the bat received post-exposure prophylaxis, as well as in contact with people and dogs.

ABLV has an incubation period of potentially many years. The major disease risk period (60 days) for disease incubation has now passed but the extreme end-point might be 10 years away. It is hoped that future risk of disease developing is minimal. Berrimah Veterinary Laboratory will accept any undiagnosed neurological cases for post mortem in the interests of public health. DPIR holds stocks of Nobivac Rabies vaccine, available on request.

For further information, please contact Elizabeth Stedman Veterinary Officer DPIR on 8999 2035.

All veterinarians should be familiar with the [NT ABLV Guidelines for Veterinarians](#).

Further resources for veterinarians and pet owners are available at:

www.nt.gov.au/environment/animals/australian-bat-lyssavirus-and-your-pet

ABLV is a notifiable disease, and any suspicion of ABLV must be immediately reported to the Chief Veterinary Officer on 8999 2130.

ASCITES AND LIVER FAILURE IN YOUNG DOGS IN THE DARWIN AREA- UPDATE

A number of cases of unexplained ascites and liver disease in young dogs in the Darwin rural area were reported in late 2016. No cases have been reported since November 2016. If you suspect you have seen a case of unexplained ascites or liver disease in young dogs, please contact the Elizabeth Stedman Veterinary Officer on 8999 2035. Laboratory investigation for relevant cases may be performed by the Berrimah Veterinary Laboratories free of charge.



LEPTOSPIROSIS WARNING

Infection with *Leptospira pomona* has recently been confirmed in stock workers who handled cattle on top end flood plains during the wet season. A number of workers have been severely ill and fortunately all have recovered. Animal cases of leptospirosis are not commonly reported in the NT. In this case, 30 cattle sampled demonstrated high sero-conversion rates primarily to *L. Pomona* but no clinical leptospirosis was seen.

Differential diagnoses for leptospirosis in people in northern Australia may include a number of shared diseases which vets should be aware of, such as;

- *Brucellosis (B. suis)*
- *Influenza*
- *Mycoplasma*
- *Q fever*
- *Legionella*
- *Melioidosis (environmental mostly)*
- *Rickettsia*
- *Psittacosis*
- *Arboviruses, including Ross River Virus and Barmah Forest virus*

If you have been sick or know someone who has been; then convalescent serology is required to diagnose the cause. Melioidosis is an important exclusion requiring further treatment. Contact your general practice doctor.



BRUCELLOSIS TESTING OF DOGS IN THE NORTHERN TERRITORY

Brucella suis (B. suis) is a zoonotic disease widespread in feral pig populations throughout Queensland and northern New South Wales. *B. suis* has not been detected in the Northern Territory feral pig population but it is suspected to be present. *B. suis* is transmitted to dogs during pig hunting activities and by feeding raw feral pig meat and by-products. It is suspected that young dogs with no history of pig hunting may contract *B. suis* at the time of birth from an infected bitch. Infection may also be passed between dogs during mating and close contact.

Brucellosis presents a major zoonotic risk for people and veterinarians in contact with infected dogs. The Northern Territory Department of Primary Industry and Resources (DPIR) and the Berrimah Veterinary Laboratory (BVL) are seeking to establish if *B. suis* is present in the Northern Territory dog and pig population.

Private veterinarians who are presented with dogs or pigs with suspected clinical signs and a history of associated risk factors are asked to submit samples to the BVL for *B. suis* exclusion testing. The Rose Bengal test will be performed as an initial rapid screening test.

For further information see below link: <https://dpiir.nt.gov.au/primary-industry/committees-and-boards/veterinary-board-of-the-NT/information-for-veterinarians>

HORSES AS SENTINELS FOR EMERGING INFECTIOUS DISEASES – A STUDY IN IMPROVED DIAGNOSIS OF HORSE ILLNESS

Significant numbers of horses in Australia are clinically affected each year from respiratory and/or encephalitis related disease and the cause of their illnesses/death remains undiagnosed. There is a direct parallel to similar undiagnosed syndromes in human medicine.

Many of these equine cases display signs consistent with Hendra virus (HeV) infection. Although the transmission of HeV to horses from flying foxes is not fully understood, the same transmission pathway could be resulting in spillover of other viruses from flying foxes and/or insectivorous bats. As horses act as amplifying hosts for HeV they could also act as sentinels for other potentially zoonotic virus spillovers. Australian Bat Lyssavirus (ABLV) is notable in this category.

The project will provide much needed additional knowledge for practitioners to clarify the potential human health risk associated with these illnesses and improve treatment and outcome for horses which may be compromised by uncertainty surrounding these presentations.

For a more complete differential diagnosis list of acute severe illness in horses – see the list and table at the end of this article.

Aim: To explore the possibility of novel virus spillover to horses that have displayed neurological and or respiratory symptoms including those suggestive of HeV infection, but where HeV has been excluded, and there is a lack of a more likely differential diagnosis.

Plan: To investigate clinical cases of undifferentiated equine neurological and or respiratory disease with further testing for known (e.g. ABLV, Flaviviruses, Bunyaviruses, Orbiviruses and Paramyxoviruses) and unknown viruses using serology, PCR and next generation sequencing.

The project will run for five years and is a collaboration between the Sydney Equine Infectious Disease Group, University of Sydney; CSIRO Australian Animal Health Laboratory (AAHL); QDAFF Biosecurity Sciences Laboratory Coopers Plains; Berrimah Veterinary Laboratory (BVL), Northern Territory DPI&R, Elizabeth Macarthur Agricultural Institute Menangle; VIC DEPI Arbovirus Disease Control Program Melbourne and the Centre for Equine Infectious Disease, University of Melbourne.





How can you help?

We invite you to submit samples to BVL from cases of undifferentiated equine neurological and or respiratory disease. Interested veterinarians should register their interest with Ed Annand (contact details below). He will then forward you case history forms and sample submission instructions. Submissions also need the BVL Specimen Advice Note (SAN).

Early safe, sample collection is recommended. This is important for the less pathogenic agents that may already be in decline when clinical signs are shown and for the highly pathogenic agents that may cause rapid death of a horse.

Veterinarians should be cautious in a safe sampling approach for undiagnosed progressive equine illness or equine death – it is recommended **not** to open the carcass.

Samples in cases where HeV exclusion has not been carried out (e.g. HeV vaccinated horse or case not markedly progressive or not notifiable):

- Nasal and oral swabs in viral transport medium (or saline).
- EDTA blood
- Paired serum 10 to 14 days apart.
- CNS fluid
- Post mortem samples including neck skin biopsies of hair follicles and their associated cutaneous nerves for ABLV immuno-fluorescence testing.

Samples for ABLV exclusion testing (PCR tests) may be forwarded from BVL to CSIRO AAHL following HeV exclusion, for example:

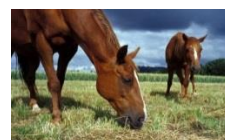
- EDTA and clotted blood
- Nasal, oral / saliva and rectal swabs (placed into viral transport media or sterile saline).

Don't forget PPE: *The recent delayed onset case of Hendra in a NSW horse reinforces the extremely important need for strict adherence to PPE and good biosecurity even in those cases where HeV has been excluded. Hendra is a notifiable disease in the NT. Also, your Hendra negative case could be ABLV! See also the Alice Springs workshop report on page two.*

NT website link: <https://nt.gov.au/industry/agriculture/livestock/animal-health-and-diseases>

The study is particularly relevant to the NT and I encourage you to participate when possible. For further information contact your local government veterinarian or:

Ed Annand BVSc (Hons), MANZCVS(Equine Surgery), Cert AVP (ESM), MRCVS.
 Sydney Equine Infectious Disease Group
 University of Sydney, Camden Equine Centre
 Ph: 0439572329 email: ed.annand@sydney.edu.au



Differential diagnoses for acute severe illness in horses

Infectious: Bacterial meningitis / abscessation; Bacterial pneumonia; Anthrax; Viral infection (encephalitis / meningitis, vasculitis, severe respiratory)###; Mycotic infection - particularly Cryptococcus (pneumonia / encephalitis); Equine protozoal myeloencephalitis*/ Amoebic encephalitis*; Trypanosomiasis* #

* Not known to occur in Australia.

Surra (*Trypanosoma evansi*) is not found in Australia but is endemic in our close neighbours. Native trypanosome species are of unknown presence or clinical significance in horses.

See tables for viruses potentially involved in acute equine illness.

Colic due to acute abdomen conditions

Toxicity: Snake envenomation – brown, tiger, taipan; Tick paralysis – *Ixodes holocyclus*; Tetanus; Botulism; Metaldehyde; Ergot alkaloidosis

Plant toxicities: Avocado; Pyrrolizidine alkaloids (in the NT *Crotalaria spp.* especially *C. crispata*); Hepatotoxic encephalopathy; Cardiac Glycosides Eg. Indigofera.

Poisons: 1080; Paraquat; Monensin; Lead

Trauma: traumatic encephalopathy

Other: Cardiac – ruptured chordae tendinae; Metabolic derangement (Hypocalcemia; Hyponatremia; Hypoglycemia); Hypo-/hyperosmolality disorders; Hyperammonemia

Neoplastic: Cholesterol granuloma; Adenocarcinoma; Lymphoma; Pituitary adenoma

Iatrogenic: Air embolism; Intra-carotid injection; Drug overdoses (Moxidectin, Metronidazole, Trimethoprim sulphonamide, Lignocaine)

Case features / Symptoms that may increase the suspicion of infectious cause include pyrexia, respiratory and or neurological signs as well as multiple cases occurring in apparent epidemiological relationship. In such cases, and where HeV testing is negative the following viruses already detected in Australia could be involved many of which would pose direct or indirect (arthropod vector) human health threats.

Virus	Genus / Family	Reservoir/vector	Confirmed in:	
			Horses	Humans
Australian bat lyssavirus ABLV	Lyssavirus / Rhabdoviridae	all bats	Yes	Yes
Menangle MePV	Rubulavirus/ Paramyxoviridae	flying foxes	No#	Yes
Elsley ELSV (PHSV)	Orbivirus / Reoviridae	mosquito / culicoides	Yes	No
Bluetongue virus BTV			No	Yes
Murray valley encephalitis virus MVEV	Flavivirus/ Flaviviridae	Birds / mosquitoes	Yes	Yes
West Nile virus WNV (Kunjin) KUNV			Yes	Yes
Japanese Encephalitis JEV			Yes	Yes
Ross River Virus RRV	Alphavirus/ Togaviridae	mosquitoes	Yes	Yes
Equine Herpes viruses1 EHV – 1	Varicellovirus/ Alphaherpesvirus	Horse	Yes	No

Equine seropositivity for this or a very closely related virus has recently been identified as part of this research. Further testing is currently underway.



The following viruses are known to cause similar disease in horses internationally.

Virus	Genus / family	Reservoir/vector	Confirmed in:	
			Horses	Humans
Nipah NiPV	Henipavirus/ Paramyxoviridae	Flying foxes	No*	Yes
Rabies virus RABV	Lyssavirus/ Rhabdoviridae	Terrestrial carnivores and bats	Yes	Yes
African horse sickness virus AHS	Orbivirus/ Reoviridae	culicoides, mosquitoes and ticks	Yes	No
Equine Encephalosis virus EEV		culicoides	Yes	No
Peruvian horse sickness PHSV**		mosquitoes	Yes	Yes
Eastern equine encephalitis virus EEEV	Alphavirus/ Togaviridae		Yes	Yes
Getah virus GETV			Yes	Yes
Shuni virus SHUV	Orthobunyavirus/ Bunyaviridae	culicoides, mosquitoes	Yes	No
Borna disease virus BDV	Bornavirus/ Bornaviridae	Rodents suspected	Yes	Yes
St. Louise encephalitis virus SLEV	Flavivirus/ Flaviviridae	Birds / Mosquitoes	Yes	Yes

*A henipavirus outbreak occurred in 2014 in the Philippines that caused fatalities in horses, humans, dogs and a cat and featured human to human transmission – it is thought to have been very closely related to HeV and NiV⁹

**This virus is considered practically identical to ELSV.

In addition to the viruses mentioned above the following viruses have been recently identified in Australian bats¹⁰ and potentially may follow the same spill over pathway to horses as HeV with unknown clinical significance.¹¹

Virus	Genus / family	Reservoir/vector	Confirmed in:	
			Horses	Humans
Cedar CedPV	Henipavirus/ Paramyxoviridae	Flying foxes	no#	no
Hervey HerPV	Rubulavirus / Paramyxoviridae		no	no
Grove GroPV			no	no
Teviot TevPV			no#	no
Yepoon YepPV			no	no

Equine sero-positivity for this or a very closely related virus has recently been identified as part of this research. Further testing is currently underway.

RE-EMERGENCE OF FELINE PANLEUKOPENIA IN CATS

Feline pan leukopenia has re-emerged in Australia, with several large outbreaks recorded since 2014 in Melbourne and Mildura. This is the first time an outbreak of FPV has been confirmed in Sydney for many years.

There have been two new outbreaks of feline pan leukopenia in Melbourne and Sydney. In November 2016 twelve unvaccinated kittens found near Deakin in Melbourne were distributed to different carers through a private shelter. Clinical signs in affected cats were fever, lethargy, anorexia then vomiting and diarrhoea.



Several kittens were tested with in-house faecal antigen canine parvovirus (CPV) tests and were positive.

Sequencing of isolates at Professor Vanessa Barrs' laboratory at the University of Sydney has confirmed that disease was caused by a strain of feline pan leukopenia virus (FPV) almost identical to that detected in an FPV outbreak in shelter-housed cats in Mildura and Melbourne in 2015.

Feline pan leukopenia has now struck in Sydney resulting in severe morbidity and deaths of shelter-housed and owned cats in Sydney. Like the Melbourne outbreaks disease occurred in unvaccinated or incompletely vaccinated cats, mostly in kittens less than 6 months, and especially in kittens 6 to 12 weeks old. Clinical signs were similar to the Melbourne outbreak. In addition blood tests identified severe leukopenia due to neutropenia and lymphopenia in a number of cats. DNA sequencing confirmed the outbreak is also due to FPV.

The DNA sequences of the FPV strains detected in Australia indicate that current FPV vaccines are protective. FPV vaccines also confer cross-protection against CPV2a-c variants.

Modified live vaccines can be safely administered from the age of four weeks, and are recommended to be administered in the face of an FPV outbreak every two to three weeks until 16 weeks of age. Kittens not in a shelter environment should be vaccinated from 6 to 8 weeks of age every three to four weeks until 16 weeks of age or older, as per the [WSAVA](#) vaccination guidelines.

NATIONAL SIGNIFICANT DISEASE INVESTIGATION PROGRAM (NSDIP)

The National Significant Disease Investigation Program (NSDIP) aims to enhance Australia's capacity for the early detection of livestock and wildlife diseases through increasing the participation of private veterinarians in the investigation of disease events.

What is a significant disease event?

An eligible disease event includes the following:

- atypical morbidity, mortality and/or rate of disease spread;
- clinical signs consistent with an exotic disease without a clear alternative diagnosis;
- Incidents where an initial investigation fails to establish a diagnosis however findings suggest the potential for significant trade or market access, farm productivity, public health, or wildlife biodiversity conservation impacts.

Subsidies available for veterinarians

This program subsidises the cost of a disease investigation conducted by a private veterinarian. Subsidies are available for:

- initial field investigation \$225 (local) - \$335 (remote)
- laboratory testing \$155



- follow-up investigation. \$225 (local) - \$335 (remote).



Investigating disease events

When a veterinarian becomes aware of a case which is consistent with the disease event criteria, the vet should contact the Northern Territory NSDIP Co-ordinator Elizabeth Stedman on 8999 2035 to confirm the availability of an investigation subsidy and discuss arrangements for the investigation.

Further information about NSDIP: [Animal Health Australia](#) - National Significant Disease Investigation Program.

Your contribution to the national animal health surveillance system is important.

Submissions and reports welcomed.

AVBC INTRODUCES A NEW SEARCH PORTAL

The AVBC has produced a new search engine for registered veterinarians in Australia, which is available to the public at <http://avbc.asn.au/search-for-registered-vet/> The below link will take you to the search engine. The Vet Board of the NT still holds and produces a current database of all registered veterinarians in the NT which is accessible on the website:

<https://dpir.nt.gov.au/primary-industry/committees-and-boards/veterinary-board-of-the-NT>

The AVBC link is: <https://avbc.asn.au/search-for-registered-vet/>

TGA DECISION ON RESCHEDULING OF PENTOBARBITAL INJECTION

The Therapeutic Goods Administration (TGA) has released its interim decision that injectable pentobarbitone will remain as an S4 (restricted drug) rather than a proposed S8 (controlled drug).

This recommendation is in line with the [AVA's submission](#) provided to the TGA in November 2016, which was based on responses from over 2000 members.

The TGA has also recommended that the state and territory governments consider standardisation of the controls under their legislation.

You can [read more about the TGA decision here.](#)

In the AVA submission, it was stated that the AVA supported greater regulation of pentobarbital injection including increased storage requirements, a view that members

widely agreed with. The AVA will be working with all state authorities to establish consistent, workable and effective legislation to support this.

You should also be aware of your state or territory legislation in relation to how injectable pentobarbitone should be currently stored and recorded.

SURVEY - PARVOVIRUS

Veterinarians across Australia are being asked to fill in a short survey on Canine Parvovirus. Even veterinarians who do not see the disease are asked to please fill in the survey.

It should take less than 10 minutes to complete.



The survey is only open for a limited time so please follow the link to fill in the survey as soon as you can.

The research is being run through the University of Sydney and is attempting to gauge the true national prevalence of the disease which is currently unknown.

Veterinarians in areas that see Canine Parvovirus outbreaks will also be able to answer Part Two of the survey which will help gather important information on bringing the disease under control.

With your help, it is hoped that this research will lead to a strategy that will enable Canine Parvovirus case numbers to be drastically reduced across Australia, and in the future that the disease could even potentially be eradicated. If you have any questions, please feel free to contact me via email or on my mobile 0417 906 771.

Dr Mark Kelman: kelmanscientific@gmail.com

More information, including contact details of the researchers are included when you click the link below.

<https://docs.google.com/forms/d/1ANp4F2Tz5fkz3i3DbbZwkvWtrNXwQUiAwLPFKM8G4gl>

SURVEY - ANAESTHESIA AND PAIN MANAGEMENT FOR DOGS AND CATS

Over the past 10 to 15 years a number of new anaesthetic and analgesic drugs and techniques have been introduced into small animal veterinary practice. It is the aim of this survey to assess how widely these new methods have been accepted by veterinarians throughout Australia. Therefore we are asking for your support in responding to this request for your input into this survey.

It is estimated that it take up about 20 minutes of your time and as an inducement we are offering a reward of an Apple iPad Air or equivalent to one lucky random participant.



This survey is being conducted through the School of Animal and Veterinary Sciences (SAVS) at the University of Adelaide. It has approval from the University of Adelaide Human Research Ethics Committee, approval number H-2016-186. If you have questions regarding this survey please contact: Dr Anthony Nicholson at the SAVS - anthony.nicholson@adelaide.edu.au.

To participate, please follow this web link: [Survey on Anaesthesia & Analgesia](https://www.surveymonkey.com/r/Anaesthesia_Survey) (Or go to [https://www.surveymonkey.com/r/Anaesthesia Survey](https://www.surveymonkey.com/r/Anaesthesia_Survey)) where full details are available.

RESEARCH SURVEY - MENTAL HEALTH RISK AND HOW VETS RELATE TO CLIENTS AND COLLEAGUES

Various workplace factors are known to affect the mental health and wellbeing of vets. This study seeks to investigate how vets relate to their colleagues and clients, and aspects of these relationships that protect or harm vets' mental health.

It is anticipated this research will provide important practical contributions for vet practices which include:

1. Informing vets on suicide risk.
2. Guidance on structuring suicide early prevention strategies for practitioners.
3. Developing training to facilitate colleague and client interactions that improve staff relationships and increase client satisfaction.
4. Wider application of findings to professions involving a caring role by practitioners e.g., veterinary nurses, doctors, nurses, dentists.

Participation involves completing an anonymous online questionnaire which should take no longer than 30 minutes. This study is confidential and you cannot be identified from your responses.

Upon completing the survey you can enter a draw for 1 of 10 Coles Group and Myer Gift Cards valued at \$100 each.

All veterinarians registered in Australia, who interact with clients, are encouraged to participate. The survey closes on 15 July 2017.

You can read further about this research from Murdoch University at www.practitionermentalhealth.com. The primary contact is:

Karen Connell: Email: k.connell@murdoch.edu.au Ph.: 0417 988 991

