ABLV BAT STATS

Australian Bat Lyssavirus Report - June 2015

Cases of ABLV infection - January to June 2015

Eight cases of Australian bat lyssavirus (ABLV) infection were reported in bats in Australia between January and June 2015, from Queensland, New South Wales and Northern Territory (Table 1).

Queensland

Five black flying foxes (*Pteropus alecto*) from Queensland were found to be infected with ABLV. Two cases presented with neurological signs such as inability to hang, tremors, hypersensitivity to touch and abnormal vocalisation. Histopathology in both cases showed mild non-suppurative encephalitis with occasional Negri-like bodies. There was also a large number of Nycteribiid parasties ("bat flies") (*Cyclopodia albertisii)* found on one flying fox.

One black flying fox was found on the ground weak and uncoordinated. It was emaciated, showed respiratory distress and froth from the mouth. There were abrasions on the base of both thumbs consistent with crawling. Histopathology revealed non-suppurative meningo-encephalitis (inflammation of the brain/meninges) and lymphadenitis (lymph node inflammation) in the neck.

One aggressive flying fox was submitted due to potentially infectious contact with a person. Another flying fox (dead, decomposed) was submitted due to contact with a pet dog.

New South Wales

One grey-headed flying fox (*P. poliocephalus*) and one unidentified flying fox (*Pteropus* sp.) from NSW were found to be infected with ABLV. The grey-headed flying fox was found solitary and unwell, and was euthanased after it did not respond to treatment. No gross abnormalities were found on post mortem. Histopathology showed non-suppurative meningo-encephalitis, sialoadenitis (inflammation of salivary gland) and mild pneumonia. The other flying fox was injured and died unexpectedly overnight.

Grey-headed flying foxes Photo: Sarah Curran

Table 1: ABLV infection in Australian bats as confirmed by FAT, PCR, IHC and/or virus isolation^

YEAR	NSW	NT	QLD	VIC	WA	SA	Total
1995	0	0	1[#]	0	0	0	1
1996	1	0	9	1	0	0	11
1997	7	1	27[+]	0	0	0	35
1998	1	0	26[+]	0	0	0	27
1999	0	0	6	0	0	0	6
2000	1	0	14	0	0	0	15
2001	0	0	9	1	4	0	14
2002	4	0	10	2	1	0	17
2003	6	0	3	2	0	0	11
2004	5	0	6	1	0	0	12
2005	6	0	5	0	0	0	11
2006	2	0	4	0	0	0	6
2007	6	0	2	0	0	0	8
2008	0	0	0	0	0	0	0
2009	2	0	8[a]	0	0	0	10
2010	0	0	8	0	1	0	9
2011	0	0	4[a]	2	0	0	6
2012	1	0	3	0	0	1	5
2013	3[a]	0	11[a]	0	0	0	14
2014	5	1	14[a]	1	11[a]	0	32[a]
2015	2	1	5[a]	0	0	0	8
Total	52[a]	3	175[a]	10	17	1	258[a]

Source: see page 6, 'Australian Bat Lyssavirus Report'.

^ ACT and TAS have not recorded any cases of ABLV infection that satisfy this case definition.
[#] ABLV was first recognised in 1996. A black flying fox from Townsville, QLD that died in 1995 was subsequently diagnosed with ABLV.
[+] Higher numbers of ABLV infected bats were associated with peak years of testing in 1997-1998.
[a] For some bats, one equivocal and one negative result (FAT/PCR) was recorded. These bats are not included in these figures as they were not confirmed to be ABLV infected.

Northern Territory

One little red flying fox (*P. scapulatus*) from Darwin was found to be infected with ABLV after being in care. The flying fox died overnight after appearing quieter than usual and with a reduced appetite for a few days. Histopathology showed severe haemorrhagic non-suppurative encephalitis, which was consistent with ABLV infection, as well as fibrinoid vasculopathy which is not a typical finding. The flying fox also had unusual bilaterally symmetrical alopecia (hair loss). Culture and skin scrapes were negative, and it was considered likely that the alopecia was of endocrine (hormonal) origin.

Human contact

Potentially infectious contact with humans was reported for three ABLV infected flying foxes this period. In each case appropriate counselling and information were provided by an experienced public health official.

Bentwing bats Photo: (manda)/*Flickr* (CC)

Why are bats submitted for ABLV testing?

Bats are submitted for ABLV testing for a variety of reasons. A common reason is contact between the bat and a person with the potential for ABLV transmission (e.g. a bite or scratch). Bats are also regularly submitted following contact with a pet dog or cat (Figure 1). Bats displaying unusual or aggressive behaviour or other neurological signs may be tested; these signs can occur with ABLV infection but can also be due to a number of other diseases. Bats that show other clinical signs e.g. respiratory signs, bats that die or are euthanased due to trauma, and bats that are found dead may also be submitted for testing.

Figure 1: ABLV tested bats – Contact with people and pets

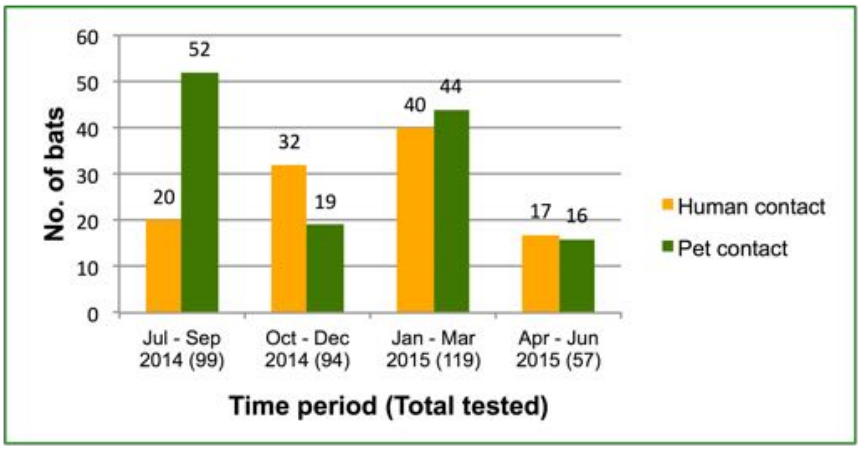
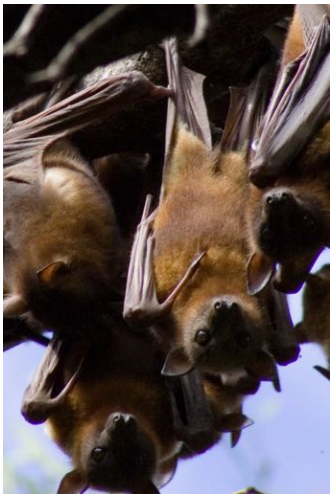


Figure 1 presents reported human-bat contacts which, based on Young & McCall 2010,[1] is an underestimate of the true contact frequency. Not all bat contact is reported, and for the majority of reports the bat is not available for testing. Some of the bats that had human contact also had contact with a pet (not shown in the graph).

ABLV prevalence in bats and public health significance



Little red flying foxes
Photo: Rex Walters/*Flickr* (CC)

There are no recent surveys on the prevalence of ABLV in wild bats. Surveys of wild-caught bats in the early 2000s indicated an ABLV prevalence in the wild bat population of less than 1%.[2] ABLV infection is more common in sick, injured and orphaned bats, especially those with neurological signs.[3] People are more likely to have contact with bats that are unwell or debilitated, as these bats may be found on or near the ground.[4]

ABLV infection causes a range of clinical signs in bats, which can include abnormal behaviour such as uncharacteristic aggression, paralysis or paresis, and seizures. The behavioural changes may increase the likelihood of a person or pet being bitten or scratched when coming in contact with the bat.[5] The likelihood of a person developing ABLV disease from contact with a bat is influenced by a number of factors including whether the bat was ABLV-infected, the type of contact e.g. bite or scratch, and the vaccination status of the person.

ABLV prevalence in bats submitted for testing

Some of the bats that come into contact with people or pets are tested for ABLV. The percentage of ABLV infection in bats submitted for testing is of interest as an indicator of public exposure, however it is also heavily influenced by factors affecting which bats are submitted for testing.

A total of 176 bats were tested for ABLV in Australia between January and June 2015 (Table 2).

Eight cases of ABLV infection were reported in bats (4.5% of the bats submitted for testing) (Table 3). As described above, testing of unwell bats is not representative of the whole bat population; consequently these results over-estimate the level of ABLV infection in the wider bat population.

Table 2: ABLV testing by bat species (Jan - Jun 2015)

Species	No. tested	No. ABLV infected
Flying foxes & blossom bats		
Black flying fox (*Pteropus alecto*)	63	5
Grey-headed flying fox (*Pteropus poliocephalus*)	41	1
Little red flying fox (*Pteropus scapulatus*)	6	1
Flying fox (*Pteropus* sp.); species not identified	11	1
Eastern tube-nosed bat (*Nyctimene robinsoni*)	1	0
Insectivorous bats (microbats)		
Gould's wattled bat (*Chalinolobus gouldii*)	4	0
Mormopterus sp.	3	0
Miniopterus sp.	3	0
Little bent-wing bat (*Miniopterus australis*)	2	0
Lesser long-eared bat (*Nyctophilus geoffroyi*)	2	0
Little forest bat (*Vespadelus vulturnus)*	2	0
Nyctophilus sp.	2	0
Vespertilionidae	2	0
Greater northern free-tailed bat (*Chaerephon jobensis*)	1	0
Eastern long-eared bat (*Nyctophilus bifax*)	1	0
Northern free-tailed bat (*Mormopterus lumsdenae*)	1	0
Orange leaf-nosed bat (*Rhinonicteris aurantia*)	1	0
Large forest bat (*Vespadelus darlingtoni)*	1	0
Common sheath-tailed bat (*Taphozous georgianus*)	1	0
Gould's long-eared bat (*Nyctophilus gouldi*)	1	0
Southern bent-winged bat (*Miniopterus orianae bassani*)	1	0
Scotorepens sp.	1	0
Hipposideridae (leaf-nosed bats)	1	0
Microbat; species not identified	19	0
Bat - unidentified	5	0
TOTAL	176	8

Gould's long-eared bats
Photo: Jan Tilden/*Flickr* (CC)

Grey-headed flying foxes
Photo: Pascal Vuylsteker/*Flickr* (CC)

Table 3: ABLV infection (%) in bats submitted for testing (Jan - Jun 2015)

	No. tested	No. infected+	% infected*
Flying foxes & blossom bats	122	8	6.6%
Microbats	49	0	0%
Bats - unidentified	5	0	0%
TOTAL	**176**	**8**	**4.5%**

* This figure represents the percentage of ABLV infection in the bats tested. The level of ABLV infection in the wider bat population is estimated to be significantly lower.

+ In two bats there was one equivocal and one negative result (FAT/PCR). These bats are not included in these figures as they were not confirmed to be ABLV infected.

Bat facts

- **ABLV is a virus** that infects Australian flying foxes and insectivorous bats.
- **ABLV is closely related to**, but distinct from rabies virus.
- **ABLV can infect people and other mammals with a fatal outcome.** ABLV infection has led to the deaths of three people, two horses and many bats in Australia.
- **Community members should not handle bats.** If you find an injured or sick bat, contact a wildlife care organisation or your local veterinarian.
- People trained in the care of bats **should be vaccinated and always use appropriate protection** when interacting with bats.
- **ABLV is transmitted** by the saliva of an infected animal introduced via a bite or scratch, or by contamination of mucous membranes or broken skin. In the event of a bat bite, scratch or other significant contact, **seek medical attention URGENTLY**. **Bite or scratch wounds** should immediately be washed thoroughly with soap and copious water for approximately 5 minutes and a virucidal antiseptic applied.[+] Bat saliva in the eyes or mouth should be rinsed out immediately and thoroughly with water.
- **For more information** contact your local Public Health agency for advice.
- **ABLV can also be transmitted to other mammals.** Prevent pets and other animals from coming into contact with bats. If an animal might have been bitten or scratched by a bat, **seek urgent veterinary advice.**
- **If you suspect a bat is infected** with ABLV contact your biosecurity authority (department of agriculture or primary industries) for advice about testing.
- **Where to find more information:** See page 5 & 6.

[+] Department of Health. Rabies Virus and Other Lyssavirus (Including Australian Bat Lyssavirus) Exposures and Infections. CDNA National Guidelines for Public Health Units. Canberra. 2014. Available from www.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-abvl-rabies.htm

Clinical signs of ABLV

An ABLV infected bat may display any of these clinical signs:

- Abnormal behaviour such as excitation / agitation / aggression
- Paralysis or paresis
- Unprovoked attacks
- Unusual vocalisation
- Inability to fly
- Convulsions / seizures / tremors

APPARENTLY HEALTHY BATS WITH NORMAL BEHAVIOURS MAY STILL BE INFECTED WITH ABLV

DO NOT ATTEMPT TO HANDLE AN INJURED, UNWELL OR AGGRESSIVE BAT —

REPORT IT TO YOUR LOCAL WILDLIFE SERVICE, VET OR BAT CARER GROUP

Grey-headed flying foxes
Photo: Paul Holloway/*Wikimedia* (CC)

Recent news and publications

Australian bat lyssavirus risk management 2013-2014 audit report – Workplace Health and Safety Queensland

"…During 2013-2014, Workplace Health and Safety Queensland (WHSQ) conducted a small, statewide audit program of workplaces where PCBUs, workers and other persons were exposed to ABLV risks from contact with bats….. The program aimed to achieve the following objectives: obtain information about how ABVL risks are being managed by at-risk businesses; provide practical information and advice about ABLV risk management to assist at-risk businesses to meet their health and safety duties; identify barriers to effective ABLV risk management and work with at-risk industries to identify possible solutions; promote engagement and collaboration with at-risk businesses and industry associations; promote compliance with regulatory requirements; and increase the capacity of inspectors to respond to zoonotic disease issues….." Download a copy of the audit report [PDF; 400kb]. Other WHSQ resources include a fact sheet on ABLV and handling bats and a short video on safe bat handling.

Australian bat lyssavirus - Guidelines for bat carers [Updates to the Queensland DAF website]

Information on ABLV has recently been updated on the Queensland Department of Agriculture and Fisheries ABLV Overview page. Please view information under 'Control' for specific updates to the guidelines for bat carers.

Why bats and pets don't mix

Australian Veterinary Association http://www.ava.com.au/node/58711

"Australian bat lyssavirus (ABLV) is a rabies-like virus found in Australian bats that is both a risk to humans and also our pets. Dr Janine Barrett, Biosecurity Queensland, will discuss how to prevent ABLV in animals, at the Pan Pacific Veterinary Conference, 24-29 May. "Fatal spill over infections of ABLV to humans and animals is rare and can normally be minimised by avoiding contact with bats. Research indicates that less than one per cent of free-living bats are infected with ABLV but it is more common in the sick, injured or orphaned bats that pets, veterinarians and bat carers are likely to interact with. Up to one third of bats that have signs of neurological disease may be ABLV-infected…. According to Dr Barrett pets should be prevented having contact with bats…. "If pets may have been exposed to ABLV through an interaction with bats, there is a very low likelihood that they could develop the disease and transmit it to others. But owners have various options if they suspect their pet has been scratched or bitten by a bat."…."

Public health order helps protect the public from Australian Bat Lyssavirus

Spencer S et al (2015) Public health order helps protect the public from Australian Bat Lyssavirus. Australian and New Zealand Journal of Public Health, doi:10.1111/1753-6405.12353 http://onlinelibrary.wiley.com/doi/10.1111/1753-6405.12353/abstract

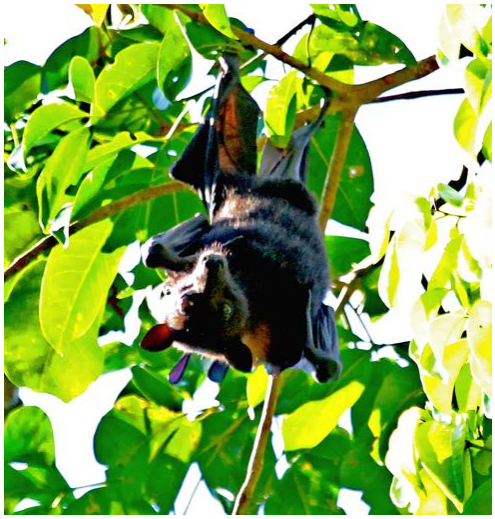
Deadly bat lyssavirus detected in NT

11/03/2015 Sky News http://www.skynews.com.au/news/eco/2015/03/11/deadly-bat-lyssavirus-detected-in-nt.html

"Northern Territory residents and visitors are being warned not to handle bats after a flying fox tested positive to the deadly Australian bat lyssavirus. This is the second bat to test positive in a matter of months and only the third case for the Northern Territory since the first was detected in 1997…."

Are you interested in bat health?

Wildlife Health Australia collates recent media articles and publications relating to bat health into a monthly **'Bat News'** email. If you would like to receive the monthly email, please contact WHA: admin@wildlifehealthaustralia.com.au



Black flying fox Photo: Jerry Oldenettel/*flickr* (CC)

Where to find information

Wildlife Health Australia (WHA)

www.wildlifehealthaustralia.com.au

- Wildlife disease fact sheets, including *ABLV* and *Zoonoses (Australian Bats)*
- Resources: News and information on specific diseases and hosts
- Links: Useful links to wildlife and animal health organisations and agencies in Australia and overseas

State/Territory departments of agriculture, health and environment

Visit the agency websites, or see WHA Resources for a summary of available information & links:
Queensland >>
New South Wales & ACT >>
Victoria >>
South Australia, Western Australia & Northern Territory >>

Commonwealth Department of Health

- For current Department of Health information regarding ABLV, see the Series of National Guidelines on Rabies & ABLV: www.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-abvl-rabies.htm
- For vaccination information contact your local or regional Public Health Unit, or see the immunisation handbook: http://www.health.gov.au/internet/immunise/publishing.nsf/Content/Handbook10-home

AUSVETPLAN

For current policy on surveillance and management consult AUSVETPLAN:
www.animalhealthaustralia.com.au/wp-content/uploads/2011/04/ABL-07EDIT20Jan10.pdf

ABLV BAT STATS

WHA Bat Health Focus Group

This document has been approved by the Wildlife Health Australia (WHA) Bat Health Focus Group. Using a collaborative One Health approach, the Bat Health Focus Group considers bat health issues in relation to the broader context of biosecurity, public health, livestock health and environmental impacts in Australia. Members come from organisations including Australian and State Government departments of agriculture, public health and environment; CSIRO Australian Animal Health Laboratory, universities, the Australasian Bat Society and the Australian Speleological Federation. Members include veterinarians, biologists, ecologists, virologists, epidemiologists and wildlife/bat carers.

For further information please contact WHA on admin@wildlifehealthaustralia.com.au

Australian Bat Lyssavirus Report

This report presents the latest information on Australian bat lyssavirus (ABLV) testing across Australia. Information has been made available by CSIRO Australian Animal Health Laboratory, Janine Barrett PhD thesis 2004 (with permission), QLD Health, Wildlife Health Australia subscribers, zoo veterinarians, and State/Territory WHA coordinators (representatives of Chief Veterinary Officers), and is collated by Wildlife Health Australia. More detailed information is available in the electronic Wildlife Health Information System (eWHIS): www.wildlifehealthaustralia.com.au

References

[1] Young MK & McCall BJ (2010). Potential exposure to Australian bat lyssavirus in South East Queensland: What has changed in 12 years? *Communicable Diseases Intelligence,* 34(3), 334-8

[2] Field HE (2005). "The Ecology of Hendra virus and Australian bat lyssavirus", PhD thesis, The University of Queensland

[3] Barrett J (2004). “Australian Bat Lyssavirus”, PhD thesis, The University of Queensland

[4] McCall B, Field HE, Smith GA, Storie GJ, Harrower BJ (2005). Defining the risk of human exposure to Australian bat lyssavirus through potential non-bat animal infection. *Communicable Diseases Intelligence,* 29(2), 200-203

[5] Animal Health Australia (2009). Disease strategy: Australian bat lyssavirus (Version 3.0). Australian Veterinary Emergency Plan (AUSVETPLAN), Edition 3, Primary Industries Ministerial Council, Canberra, ACT

State/Territory WHA Coordinators

If you would like information on ABLV testing or wish to report a suspected ABLV infected bat please contact your State/Territory Department of Primary Industries/Agriculture or local WHA Coordinator (below).

STATE	CONTACT	PHONE	EMAIL
ACT	Wendy Townsend	(02) 6205 3737	wendy.townsend@act.gov.au
NSW	Greg Curran	(08) 8088 9336	greg.curran@dpi.nsw.gov.au
NT	Cathy Shilton	(08) 8999 2122	cathy.shilton@nt.gov.au
QLD	Anita Gordon	(07) 3276 6056	anita.gordon@daf.qld.gov.au
SA	Celia Dickason	(08) 8389 8840	celia.dickason@sa.gov.au
TAS	Annie Philips	(03) 6165 4301	annie.philips@dpipwe.tas.gov.au
VIC	Mark Hawes	(03) 9032 7275	mark.hawes@ecodev.vic.gov.au
WA	Tom Hollingsworth	(08) 9780 6280	tom.hollingsworth@agric.wa.gov.au

Wildlife Health Australia

Wildlife Health Australia
Suite E, 34 Suakin Drive, Mosman NSW 2088
Phone: (02) 9960 6333 Fax: (02) 9960 3386
email: admin@wildlifehealthaustralia.com.au
www.wildlifehealthaustralia.com.au