ABLV BAT STATS

Australian Bat Lyssavirus Report - June 2019

Cases of ABLV infection - January to June 2019

Six cases of Australian bat lyssavirus (ABLV) infection were reported in bats in Australia between January and June 2019, all from New South Wales (Table 1). These cases are described below.

New South Wales

Six flying-foxes from various areas of NSW were found to be infected with ABLV.

A little red flying-fox (*P. scapulatus*) in north-eastern NSW was rescued after falling from a tree. In care it displayed lethargy, head tremor, salivation, inappetence and respiratory distress.

An adult female flying-fox (*Pteropus* sp.) was found in a backyard in north-eastern NSW. The bat was depressed, had unilateral hindlimb paresis/paralysis and involuntary face and body movements. It drank water but seemed unable to eat. Its condition declined rapidly and it was euthanased.

A sub-adult male little red flying-fox was part of a colony affected by a heat wave. It was found hanging in a tree close to the ground, was distressed and unable to fly.

(Continued overleaf)

Little red flying-foxes Photo: David King / Flickr (CC)

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	5	0	3	2	0	0	10
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	10	1	11[a]	0	0	0	22
2016	5	1	8[a]	1	0	0	15[a]
2017	4[a]	0	19[a]	3	2	0	28[a]
2018	5	0	5[a]	1	0	0	11[a]
2019 (to June)	6	0	0[a]	0	0	0	6[a]
Total	**79[a]**	**4**	**213[a]**	**15**	**19[a]**	**1**	**331[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.

A grey-headed flying-fox was euthanased after it was injured by a dog and subsequently developed ascending paralysis.

Two bats were submitted for testing due to potentially infectious contact with a human. One was a flying-fox from south-eastern NSW with unusual vocalisation but no other overt neurological signs. The other was a grey-headed flying-fox (*P. poliocephalus*) with no other history reported.

Human contact

Potentially infectious contact with humans was reported for four of the six ABLV infected flying-foxes reported for January to June 2019. In each case clinical advice was provided by an experienced public health official.

Little red flying-foxes Photo: Duncan McCaskill / 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

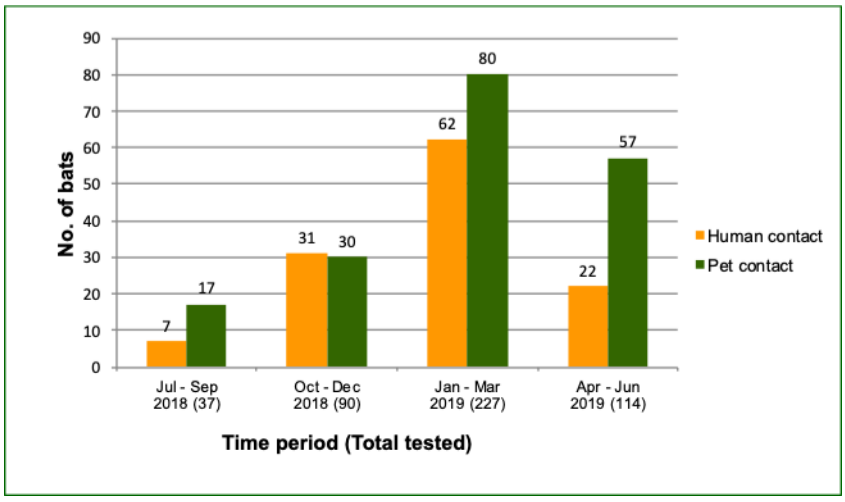

Figure 1 presents reported human-bat contacts which, based on Young & McCall 2010,[1] is an underestimate of the true contact frequency. Not all bat contact is reported, and for the majority of reports the bat is not available for testing. Some of the bats that had human contact also had contact with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

ABLV prevalence in bats and public health significance

There are no recent surveys on the prevalence of ABLV infection 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, the vaccination status of the person, and whether the person sought medical attention.

Chocolate wattled bat
Photo: Michael Pennay / Flickr (CC)

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 341 bats were tested for ABLV in Australia between January and June 2019 (Table 2). This includes 76 insectivorous bats submitted by bat carers as part of an ongoing surveillance project conducted by the Queensland Department of Agriculture and Fisheries. Six cases of ABLV infection were reported in bats (2.6% 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 2019)

Species	No. tested	No. ABLV infected
Flying-foxes, blossom & tube-nosed bats		
Pteropus alecto/Black flying-fox	62	0
Pteropus poliocephalus/Grey-headed flying-fox	62	2
Pteropus scapulatus/Little red flying-fox	17	2
Pteropus conspicillatus/Spectacled flying-fox	2	0
Pteropus sp.	78	2
Nyctimene robinsoni/Eastern tube-nosed bat	4	0
Macroglossus minimus/Northern blossom bat	2	0
Insectivorous bats (microbats)		
Nyctophilus sp.	18	0
Scotorepens sp.	12	0
Nyctophilus geoffroyi/Lesser long-eared bat	9	0
Chalinolobus gouldii/Gould's wattled bat	6	0
Ozimops lumsdenae/Northern free-tailed bat	6	0
Miniopterus schreibersii/Common bent-wing bat	5	0
Vespadelus sp.	5	0
Nyctophilus arnhemensis/Arnhem long-eared bat	4	0
Rhinolophus megaphyllus/Eastern horseshoe bat	4	0
Miniopterus australis/Little bent-wing bat	3	0
Nyctophilus gouldi/Gould's long-eared bat	3	0
Vespadelus vulturnus/Little forest bat	3	0
Hipposideros stenotis/Northern leaf-nosed bat	2	0
Nyctophilus walkeri/Pygmy long-eared bat	2	0
Pipistrellus westralis/Northern pipistrelle	2	0
Vespertilionidae sp.	2	0
Macroderma gigas/Ghost bat	1	0
Ozimops ridei/Ride's Free-tailed bat	1	0
Vespadelus regulus/Southern forest bat	1	0
Ozimops sp.	1	0
Molossidae sp.	1	0
Microbat; species not identified	23	0
TOTAL	**341**	**6**

Black flying-fox Photo: Andrew Mercer / *Wikimedia* (CC)

Eastern tube-nosed bat Photo: Alan Wynn / Flickr (CC)

Table 3: ABLV infection (%) in bats submitted for testing (Jan-Jun 2019)

	No. tested	No. infected[+]	% infected*
Flying-foxes, blossom & tube-nosed bats	227	6	2.6%
Microbats	114	0	0%
TOTAL	**341**	**6**	**1.8%**

* 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 five bats there was an equivocal FAT or PCR result. 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

Lesser long-eared bat Photo: Matt Clancy / Wikimedia (CC)

Recent news and publications

Avoid infection: Don't handle bats

14/01/2019 NSW Health - Hunter New England
http://www.hnehealth.nsw.gov.au/News/Pages/M19-002.aspx

"Hunter New England Health is warning the community about the dangers of handling bats after seven people in the region have been already treated for a bat bite or scratch this year. Recent high temperatures have affected the health of bats, prompting people to pick them up from the ground or attempt to rescue them…"

NSW Zoonoses Annual Report 2018 - ABLV (published June 2019)

NSW Health: "A zoonosis is any disease or infection that is naturally transmissible from vertebrate animals to humans… This report focuses on notifications of selected zoonoses in humans to NSW public health authorities, animal health events investigated in collaboration with the NSW Department of Primary Industries, and post-exposure treatments delivered for the prevention of Australian Bat Lyssavirus."
https://www.health.nsw.gov.au/Infectious/reports/Pages/zoonoses-reports.aspx

"Rabies and other lyssaviruses (including Australian Bat Lyssavirus)": p9-10

ABLV in "Animal health events notified to NSW Health": p12

Insights into Australian Bat lyssavirus in insectivorous bats of Western Australia

Prada D et al (2019). Insights into Australian Bat lyssavirus in insectivorous bats of Western Australia. *Tropical Medicine and Infectious Disease,* 4(1), 46
https://www.mdpi.com/2414-6366/4/1/46/htm

Abstract: "Australian bat lyssavirus (ABLV) is a known causative agent of neurological disease in bats, humans and horses. It has been isolated from four species of pteropid bats and a single microbat species (*Saccolaimus flaviventris*)… To better inform the local public health risks associated with human-bat interactions, this study describes the lyssavirus prevalence in microbat communities in the South West Botanical Province of Western Australia… Active lyssavirus infection was not detected in any of the samples. Lyssavirus antibodies were detected in 19 individuals across six species, with a crude prevalence of 2.9% (95% CI: 1.8–4.5%) over the two years. In addition, we present the first records of lyssavirus exposure in two *Nyctophilus* species, and *Falsistrellus mackenziei*."

Disturbed flying-fox roost Photo: Ecosure

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

Grey-headed flying-fox Photo: TheB@t / *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 for medical professionals, 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: https://www.animalhealthaustralia.com.au/

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 & wildlife 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
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