Australian Bat Lyssavirus (ABLV)

Information for Veterinarians

Australian Bat Lyssavirus Virus (ABLV) is a virus that has much in common with rabies virus. In rare cases it can cause fatal neurological disease in people and other animals. This information is intended to assist veterinarians and ensure safe management of incidents involving contact between domestic animals and suspect ABLV-infected bats.

# What is ABLV?

Australian Bat Lyssavirus, (ABLV) and rabies virus are closely related members of the genus *Lyssavirus,* family Rhabdoviridae. The Lyssavirus genus contains seven genotypes of which ABLV has been placed in a distinct group - Genotype 7. Whilst closely related to classical rabies virus (Genotype 1), ABLV is distinct from it. The disease caused by ABLV is clinically indistinguishable from that caused by other lyssaviruses including rabies virus (exotic to Australia).

Bats are the only known natural reservoir of ABLV in Australia and serological surveys have detected ABLV in both megabat (flying fox) and microbat species, therefore it is assumed that all bat species are likely to be capable of carrying and transmitting the virus. Testing to date has found a higher likelihood of ABLV in sick, injured or orphaned bats (5-10%) compared to the normal wild population (<1%). This increases up to 30% in those bats that are showing neurological signs. Domestic pets may come into contact with sick or injured bats which places them at a high risk of exposure to ABLV.

Transmission is usually through bites, scratches or exposure to open wounds. Contact with skin/fur or exposure to bat urine and faeces does not constitute a high-risk exposure to ABLV.

**ABLV is a serious zoonotic disease.**

There have been three human cases of ABLV infection reported in Australia. These were all from Queensland, (in 1996, 1998 and 2013). All patients had a history of bites or scratches from a bat and all died from their infections.

# How can i reduce the risk of exposure?

**All personnel handling bats or other potentially infected animals or materials MUST have a current rabies vaccination.**

Appropriate use of Personal Protective Equipment (PPE) is also a highly effective means of limiting the risk of contracting illness.

Practice good hygiene principles when wearing PPE;

* avoid touching your mouth, eyes and nose,
* cover any cuts or grazes with a water-resistant dressing under PPE (i.e. band-aid),
* do not eat or drink whilst wearing PPE,

PPE requirements will vary depending upon the level of risk associated with the task you are doing, e.g. necropsy requires a higher level of PPE than packaging a dead bat for transportation to a laboratory.

## When working with potentially infected animals or materials wear;

* puncture resistant gloves that meet relevant Australian Standards (e.g. AS 2161.3 *Occupational protective gloves. Protection against mechanical risks*)
* long sleeves and pants
* P2 facemask (minimum) or face shield
* protective eyewear
* consider the use of puncture resistant gauntlets to protect the forearms

# what are the clinical signs of ablv?

Clinical signs in animals are usually due to the effects of the disease on the animal’s nervous system. The clinical signs in animals may present with variable and intermittent changes as the disease progresses.

ABLV is associated with a range of non-specific clinical signs that may include one or more of the following:

• Overt aggression,

• Paresis and paralysis

• Seizures, tremors and weakness

• Respiratory difficulties, change of voice

• (Bats) On ground or low in a tree with an inability to take off or to fly in a normal manner

• (Bats) In unusual locations during the daytime. i.e. not in normal roosts

• (Bats) Entanglements and injuries (due to neurological signs)

# management of bat exposures

## Human-bat exposure

All situations where a person has been exposed to a bat must be managed through the Department Health and Human Services (DHHS). An infectious disease physician, (through DHHS) will liaise with exposed people and develop an appropriate health response in conjunction with medical specialists. DHHS can provide public health advice and arrange appropriate treatment for affected persons.

**Veterinarians should refer people to their local medical practitioner and/or the DHHS Communicable Diseases Unit on Ph 1300 651 160.**

Veterinarians should also provide the exposed person/s with a copy of the “ *Australian bat lyssavirus (ABLV)”* fact sheet available at <https://www.betterhealth.vic.gov.au/health/ConditionsAndTreatments/Australian-bat-lyssavirus>

There may be situations where a veterinarian is requested by DHHS or Agriculture Victoria (on-behalf of DHHS) to euthanase a bat that has bitten or scratched a person, and/or to assist with the packaging and submission of a bat carcass to the laboratory for ABLV-exclusion testing. See further sections for recommendations on euthanasia and sample submission. In such cases the name and contact details for the exposed person/s MUST be included on the laboratory submission form.

## Animal-bat exposure

Agriculture Victoria takes a precautionary approach to potential exposures to ABLV while scientific knowledge continues to be accumulated. This precautionary approach assumes that possible exposures between animals and bats may transmit ABLV to the in-contact animals.

Further, it is assumed that an animal infected with ABLV may progress to develop rabies-like clinical disease and may then pose a risk of transmitting ABLV to humans and other animals.

### Notification

ABLV is listed as a notifiable exotic disease under the Livestock Disease Control Act (1994) and Livestock Disease Control Regulations (2017) and suspicion of ABLV must be reported to Agriculture Victoria immediately.

Please contact;

* **Emergency Animal Disease Watch Hotline on 1800 675 888**
* Your local Agriculture Victoria Animal Health and Welfare staff

### Risk Assessment

In circumstances where an animal such as a pet dog or cat is believed to have been exposed to a potentially infected bat, the course of action and the urgency is dependent upon a number of factors used to assess the risk of possible ABLV transmission.

These include;

* Level of exposure to the bat – close contact such as bites/scratches from the bat or active chewing/mouthing are higher risk.
* Bat mortality – was the bat alive or dead when the animal came into contact with it? Bat bites and scratches are more likely if the bat was alive.
* Bat availability – is the bat alive or dead and available for testing?
* Clinical signs in the animal or bat – if either the animal or bat is exhibiting clinical signs of ABLV the case should be treated as a priority and urgently investigated.

In many cases the level of risk is difficult to ascertain because the history is uncertain, therefore the course of action and urgency of testing should take a precautionary approach.

The Australian Immunisation Handbook defines exposures into three categories for the purposes of bat-human interactions – these can also be adopted for bat-animal interactions.

Category I

* Touching or feeding animals, licks on intact skin

Outcome: No prophylaxis needed if contact history is reliable

Category II & III

* Nibbling of uncovered skin
* Any scratches or abrasions with/without bleeding
* Single or multiple transdermal bites or scratches
* Contamination of mucous membranes or broken skin with saliva from licks

Outcome: rabies vaccination recommended.

### History and clinical investigation

Collate a thorough history about the exposure and any clinical signs/behaviours exhibited by the bat or exposed animal.

A Record of Disease Event (RODE) form is available at <http://agriculture.vic.gov.au/agriculture/pests-diseases-and-weeds/animal-diseases/disease-surveillance-programs/significant-disease-investigation-sdi-program>

Confirm any potential human exposures and refer to DHHS. Examine the exposed animal but if possible, avoid directly handling the potentially infected bat, (if it is available).

**Only staff with current rabies vaccination should handle bats.**

### Options for managing exposed domestic animals

* + - 1. **Isolate and treat** any symptoms in the domestic animal until laboratory results confirm or exclude ABLV in the bat. (For injured or sick animals)
      2. **Vaccinate** animal with a registered rabies vaccine – this option also must include limiting contact with vaccinated animal until 28 days post vaccination, monitoring for 60 days post vaccination and reporting of any illness or behavioural changes immediately to their veterinarian.
      3. **Euthanase the animal**. (For animals showing clinical signs suggestive of ABLV or other issues affecting welfare or if the owner prefer this option)
      4. **Observation only** – ensure that the owner is aware that taking no action **does not** lower the potential risk of ABLV infection and any signs of illness must be presented to a veterinarian for assessment and reported to Agriculture Victoria. The incubation period of ABLV could be prolonged and close observation of the animal for at least 2 years is recommended.

Note: the option selected will need to consider if the animal (or bat) is displaying clinical signs suggestive of ABLV, the level of exposure to the bat, the welfare of the animal and the safety/wishes of the owner. Any decision should aim to prioritise the safety of the owner/s and welfare of the pet animal.

### Acquiring and use of rabies vaccine

Nobivac® inactivated rabies vaccine is not registered for general use in Victoria but is approved for use against Australian Bat Lyssavirus under APVMA permit PER14236. Under this permit, an authorisation from the State’s Chief Veterinary Officer is required before this vaccine can be used to treat animals that have been exposed to bats.

Veterinarians need to contact Agriculture Victoria to obtain and submit a copy of the “*Application to Victorian Chief Veterinary Officer for authorisation to use Nobivac® rabies inactivated rabies vaccine”.*

The authorisation requires several conditions to be met to comply with the APVMA permit for use.

Conditions of Authorisation are as follows;

* Only the veterinarian(s) authorised by the Chief Veterinary Officer can administer the inactivated rabies vaccine in accordance with APVMA permit PER14236.
* The vaccination protocol must be followed (2 doses, 5 – 7 days apart).
* Paired blood samples must be taken - the first at the time of first vaccination and the second 28 – 35 days later. Serology on the paired samples is required to assess the response to vaccination.
* Each animal vaccinated must be microchipped.
* The owner is responsible for the cost of the vaccine and veterinary consultations; Agriculture Victoria is responsible for the laboratory testing costs of the paired blood samples.
* According to current government protocols, the details provided will be shared with the Victorian Department of Health and Human Services (DHHS).
* One animal per application form

Following authorisation from the CVO, vaccine is available from MSD Animal Health/Intervet Australia Pty Ltd, Bendigo, or through your usual veterinary drugs wholesaler. The rabies vaccine will be sent directly to the veterinary practice ordering it.

# Handling bats

## Dead bats

If the bat is dead, it should be collected and placed inside a secure and leak-proof container.

Avoid direct handling of the bat carcass by using implements such as a garden fork or spade, an inverted thick plastic bag and/or thick rubber gloves. Exposure of skin or mucous membranes to the secretions or excretions of the bat must be avoided.

## Bats that are still alive

Members of the public are strongly advised not to attempt to handle an injured, unwell or aggressive bat. Local wildlife carers experienced in bat handling, DELWP wildlife officers, Melbourne Zoo/Healesville sanctuary veterinarians or Agriculture Victoria AHW staff can be contacted for advice and/or assistance.

Living bats must only be handled by trained personnel who have a current rabies vaccination and are using appropriate PPE to prevent scratches or bites from the bat. Puncture resistant gloves, P2 facemask/face shield, eye protection, long sleeves/pants and/or gauntlets to protect your arms from scratches are recommended.

Microbats are generally easier to handle due to their small size; larger macrobats/flying foxes can become quite distressed and difficult to handle due to their size and strength. Regardless, care should be taken when handling all bats.

# Euthanasia of bats

**All personnel handling bats or other potentially infected animals or materials MUST have a current rabies vaccination and wear appropriate PPE.**

Subject to the veterinarian’s assessment of possible ABLV, a bat must be euthanased before being submitted to a veterinary laboratory for testing.

In some cases of Category II or III human exposures, DHHS- Communicable Diseases Unit will recommend euthanasia of the bat for testing; however, there may be cases where a request to avoid euthanasia is made (e.g. if the bat species is listed as threatened in Victoria). If a request is made to avoid euthanasia, the DJPR veterinarian, Melbourne Zoo/Healesville Sanctuary or the private veterinarian making the request will need to consider the likelihood of the bat carrying ABLV and liaise with DHHS-CDS Officer. The final decision will rest with DHHS-CDS based on human health risk.

Bats can be sedated using gaseous anaesthesia. Many clinics have small purpose-built boxes where anaesthetic gases can be piped in safely without the need to handle the animal.

Bats can be euthanased using pentobarbitone solution injected intra-peritoneally.

# Laboratory submission of bats for ablv testing

**It is recommended to submit the whole bat body for testing – necropsy is not advised due to the risk of possible ABLV-exposure to personnel.**

The standard test for ABLV in a bat submitted after an animal or human-bat exposure incident is the fluorescent antibody test (FAT). This is ideally conducted on fresh brain impressions; however other nervous tissue can be used if the head of the bat is not available.

Packaging instructions for sending bats include:

* Wear appropriate PPE when packaging bats
* Samples must be packaged in a primary and secondary container, e.g. double-bagged
* Use absorbent material (e.g. children’s nappies) in the secondary container to soak up any leaked fluid
* Place the secondary container in a polystyrene box/esky with cold bricks and affix the laboratory submission form to the outside of the esky so that it can be read prior to opening the samples
* Laboratory submission forms are available at <http://agriculture.vic.gov.au/agriculture/pests-diseases-and-weeds/animal-diseases/vetsource>
* An outer cardboard box can hold the polystyrene esky and the consignment note for the transport company can be affixed to this packaging.

Contact Agriculture Victoria for sample submission requirements and notification.

Samples for ABLV-exclusion testing are submitted to:

Agribio Veterinary Diagnostic Services

Specimen Reception Main Loading Dock

5 Ring Road, La Trobe University Campus

Bundoora, VIC 3083

Ph 03 9032 7515 Email:[vet.diagnostics@agriculture.vic.gov.au](mailto:vet.diagnostics@agriculture.vic.gov.au)

Note: in some circumstances samples can be sent direct to Australian Centre Disease Preparedness, (former Australian Animal Health Laboratories, AAHL), however AgVic and AgriBio must be notified first.

# What do I do if I’ve been bitten or scratched?

Any person who has been scratched or bitten by a bat should **immediately wash the wound** thoroughly with soap and water for at least five minutes. If available, apply an antiseptic such as iodine or alcohol (ethanol) If bat saliva or neural tissue (brain, spinal cord) comes into contact with the eyes, nose, mouth or broken skin, flush the area thoroughly with water.

**Seek urgent medical advice** as post-exposure rabies immunisations and other treatment may be necessary. This is important regardless of previous rabies vaccination, how long ago the exposure occurred, the severity of the wound, the bat species involved or whether or not the bat appears sick.

**Veterinarians should refer people to their local medical practitioner and/or the DHHS Communicable Diseases Unit on Ph 1300 651 160.**

