

# Northern Territory Australian Bat Lyssavirus (ABLV)

Guidelines for veterinarians



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Acronyms	Full form
NT	Northern Territory
AAHL	Australian Animal Health Laboratory
ABLV	Australian bat lyssavirus
APVMA	Australian Pesticides and Veterinary Medicines Authority
BVL	Berrimah Veterinary Laboratories
CCEAD	Consultative Committee on Emergency Animal Diseases
CDC	Centre for Disease Control
CVO	Chief Veterinary Officer
DITT	Department of Industry, Tourism and Trade
PEP	Post exposure prophylaxis

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## 1. Purpose

These guidelines are for veterinarians to assist in the safe management of incidents involving contact between domestic animals (cats and dogs) and bats, with the resulting potential for these animals to acquire Australian Bat Lyssavirus (ABLV) infection.

## 2. Scope

These guidelines are intended for use by veterinarians to help them manage the situation when an owner presents a dog or cat with a clinical history of actual or suspected physical encounter with a bat. It provides information that relates to:

- Australian bat lyssavirus disease and epidemiology
- practical information for handling bats and submitting for laboratory testing
- options available to the pet owner if the bat is not available or is available for testing and tests either negative or positive for ABLV
- use of inactivated rabies vaccine to protect the pet, including the associated permit and Chief Veterinary Officer (CVO) authorisation.

In some instances an ABLV positive bat may be identified in a colony of bats. These cases will be considered by the CVO on a case by case basis.

## 3. Background information

ABLV was first identified in Australia in 1996 by researchers following isolation of the virus from a black flying fox which had been found sick. It has since been found in several species of Australian flying foxes and insectivorous bats over a wide geographic distribution. All Australian bat species are considered potentially infectious.

ABLV is a member of the genus *Lyssavirus*, family *Rhabdoviridae*. The *Lyssavirus* genus contains seven genotypes of which ABLV has been placed in a distinct group - Genotype 7. While closely related to classical rabies virus (Genotype 1), ABLV is distinct from it. Consequently Australia has a current international health status through the World Organisation for Animal Health (OIE) of 'rabies-free'. However, wherever specific information on the epidemiology of ABLV is lacking, classical rabies is used as a model.

ABLV is a zoonosis and human health is an overriding factor in all incidents involving potential ABLV infection of pet animals and their owners. For more information on the procedures relating to human contact with bats, visit the Centre for Disease Control website<sup>1</sup>. There have been three recorded deaths in people in Australia due to fatal encephalitis following ABLV infection. All three people had a history of exposure to bites or scratches from bats, and had not been previously vaccinated against rabies. The incubation period can vary from days to years and the disease is invariably fatal. Death is typically preceded by a relatively short period of illness with progressive neurological signs.

There have been no recorded cases of ABLV infection in domestic dogs or cats in Australia to date. However, in 2013 two horses which were euthanized due to neurological signs were subsequently found to be infected with ABLV. Overseas, closely related lyssaviruses cause illness in a wide range of domestic

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<sup>1</sup> <http://www.nt.gov.au/health>

and wild animals. The most commonly known lyssavirus which occurs overseas is rabies. Rabies vaccination is thought to provide cross protection against ABLV challenge.

### 3.1. National policy

National policy and approach to ABLV is presented in the AUSVETPLAN disease strategy for ABLV<sup>2</sup>. Comprehensive information is provided for the management of animals that have potentially been infected with ABLV. It is presumed that, if an animal of a non-bat species develops clinical disease due to ABLV infection, that animal has the potential to transmit ABLV to humans and other animals.

These guidelines provide information based on AUSVETPLAN for the management of ABLV bat/animal incidents in NT and are based on a nationally consistent approach to the disease.

### 3.2. Categories of risk

Bats can be categorised based on their potential to transmit ABLV to humans and other animals (i.e. potential for an infected bat to have infectious contact with a human or other animal). These categories are listed from highest to lowest urgency for action. Appendix 1 outlines the Flowchart of Guidelines for Veterinarians in assessing exposure of pets to potentially ABLV infected bats and actions.

Category	Risk	Transmission
3	High human health risk	Bat known or reasonably suspected to have had potentially infectious contact with a human (e.g. bitten or scratched a person). Bats with clinical signs suggestive of ABLV are of highest risk.
2	High animal health risk Medium human health risk	Bat that poses a potential risk of infection to humans or animals and disease investigation and exclusion testing is recommended. 2a - history or clinical signs suggestive of ABLV without a history of a potentially infectious contact with a human or animal. 2b - history of known or suspected contact with another animal (other animal potentially exposed to ABLV via bat).
1	Medium human health risk	Bat with no known history of or suspected contact with another animal or person and for which the index of suspicion for ABLV infection is low (e.g. no clinical signs consistent with ABLV).

### 3.3. Legal considerations

ABLV is an emergency animal disease (EAD) and is listed as a notifiable disease under the *Northern Territory Livestock Act*. It is also listed on the national notifiable disease list. Immediate reporting is required by a veterinarian if ABLV is reasonably suspected in any species or confirmed by laboratory results. A

<sup>2</sup> [http://www.rabies.tw/lyssavirus/lyssa\\_auvetplan.pdf](http://www.rabies.tw/lyssavirus/lyssa_auvetplan.pdf)

report must be made to the Chief Veterinary Officer on 08 89992130 or DITT Regional Veterinary Officer. The notifiable disease reporting form can be found on the NT Government website<sup>3</sup>.

The current APVMA (Australian Pesticides and Veterinary Medicines Authority) permit, PER14236 outlines the permitted use of rabies vaccine in Australia.

### 3.4. Prevalence of ABLV

The natural reservoir of ABLV in Australia is bats. Serological evidence in bats suggests a wide geographical distribution of the virus in Australia. ABLV has been found in both the megabat species (flying foxes) and the microbat (insect-eating) species in Australia. Antibodies to ABLV have been found in five of the six families of bats, however surveillance of the sixth family was limited. All individual bats should be regarded as capable of being infected and infectious.

Research indicates that ABLV is a rare disease, estimated to be present in less than 1% of the wild bat population. However, the prevalence of ABLV in sick, injured or orphaned bats is much higher (5 - 10%). Of bats that are sick or can't fly, ABLV may be found in up to 30% of those showing central nervous system signs.

### 3.5. Clinical signs in bats

Bats showing clinical disease caused by ABLV can present 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
- on the ground or low in a tree with inability to take off or to fly in a normal manner
- bats in unusual locations during the daytime i.e not in normal roost.

It should be noted that clinical presentation may be unreliable, and a previous case in the NT was found caught in a wire fence with none of the above signs.

### 3.6. ABLV infection in humans and animals

ABLV is a zoonotic disease and has caused the death of three people in Australia. People are at risk of contracting ABLV if they handle bats without taking precautions. Rabies and other lyssaviruses are usually transmitted to human via bites or scratches. This provides direct access of the virus in saliva to exposed tissue and nerve endings. Exposure to virus in bat saliva via mucous membranes (eyes, nose, mouth) and open wounds (sores or bites) can also occur.

There have been no reported cases of ABLV in dogs or cats in Australia. A preliminary study conducted at the Australian Centre for Disease Preparedness (ACDP) in which dogs and cats were experimentally infected with ABLV was inconclusive. The animals sero-converted but did not demonstrate overt clinical disease during the (short) duration of the study. It is not clear how far these results can be extrapolated to

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<sup>3</sup> <https://nt.gov.au/environment/animals/wildlife-in-nt/flying-fox/australian-bat-lyssavirus-and-your-pet>



natural infection of animals (AUSVETPLAN ABLV Disease Strategy Manual, Section 1). ABLV has however infected horses in Australia on one occasion.

It is unknown if an ABLV infected animal other than a bat can transfer infection to humans or other animals. There is no effective treatment for ABLV once clinical signs are observed. Prevention of development of clinical disease is the preferred option through pre-exposure vaccination or post exposure prophylaxis. Both these approaches revolve around the use of the rabies vaccine.

On occasions, reports are received by DITT of domestic pets, particularly dogs or cats, coming into close physical contact with bats, for example, through chasing and catching bats and/or ingestion of dead bats. This close contact forms a theoretical risk of transmission of ABLV to dogs and cats and, in turn, to their owners. Currently this chain of transmission is rated as remote, but possible.

## 4. Actions following an animal bat exposure

### 4.1. Notify Department of Industry, Tourism and Trade (DITT)

There is a legal requirement to notify Northern Territory DITT of all suspected ABLV incidents.

Contact	Phone
Regional veterinary officers	Darwin - 08 8999 2123 or 0407 498 003 Katherine/Tennant Creek - 08 8973 9716 or 0437 527 372 Alice Springs - 08 8951 8181 or 0401 118 181
Chief veterinary officer	08 8999 2130 or 0429 121 464
Emergency animal disease watch hotline	1800 675 888

DITT takes a precautionary approach to potential exposures to ABLV while scientific knowledge continues to be accumulated. This precautionary approach assumes that exposures between an ABLV infected bat and any animal may result in transmission of ABLV to the animal.

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.

It is also currently assumed that rabies vaccination of ABLV exposed dogs or cats will be fully protective in a short period following exposure.

### 4.2. Obtain the history

It is important to note the following details about the incident when contacted by the owner. Application to use rabies vaccine for Australian Bat Lyssavirus (ABLV) post-exposure prophylaxis<sup>4</sup> provides a template for the collection of the history.

- When did the animal come into contact with the bat?
- Is it likely that the animal was scratched or bitten by the bat? This may influence the owner's decision to vaccinate.

<sup>4</sup> <https://nt.gov.au/environment/animals/wildlife-in-nt/flying-fox/australian-bat-lyssavirus-and-your-pet>



- Is there evidence of a puncture wound? If so, provide advice on washing the wound with soap and water or antiseptic.
- Is the bat dead or still alive? If alive, it becomes a priority to provide advice on isolating the pet and humans and personal protection.
- Where is the bat located? Arrangements should be made through DPIF for collection of the bat. Only Rabies vaccinated persons should collect live bats.
- Was the bat sick or injured and what clinical signs did it display when in-contact with the animal? If the bat appeared ill at the time of the incident it is more likely to be infected with ABLV.
- Was the owner or anyone else scratched or bitten by the bat? The Northern Territory Centre for Disease Control (CDC) must be informed of this potential exposure to ABLV immediately (see Reporting potential human exposure to Northern Territory CDC contacts).

### 4.3. Reporting potential human exposure to Northern Territory CDC

When a human/bat interaction has occurred, the people involved should be advised to contact the local CDC immediately (see Appendix 2 for medical contacts). If the bat is available it should be safely kept for testing as outlined below.

### 4.4. Retrieval and euthanasia of the bat

The advantage of testing the bat for ABLV is that a negative result will exclude the risk of ABLV transmission to other animals or humans and potentially reduce the post-exposure prophylaxis treatment for human contact. It also provides reassurance to the owner of not having been exposed to potential ABLV infection.

Definitive lyssavirus exclusion testing must be performed on fresh brain samples, so it is extremely important to retrieve the bat, including the head, intact, and refrigerate as soon as possible. Other nervous tissue such as the spinal cord should be submitted if the head is not available, although a negative test on such a sample cannot be viewed as definitive.

People are at risk of contracting ABLV if they handle bats without due precautions. Rabies virus and other lyssaviruses are usually transmitted to humans via bites or scratches which provide direct access of the virus in saliva to exposed tissue and nerve endings. Exposure to virus in bat saliva via mucous membranes (eyes, nose, and mouth) and open wounds (bites, sores) can also occur.

### 4.5. Personal Protective Equipment (PPE)

It is recommended that only those people vaccinated for rabies handle bats, however the following PPE should be worn by anyone handling bats to minimise the risk of exposure to ABLV. All open wounds should be covered with a water-resistant dressing.

- Puncture resistant gloves (e.g nitrile (double), kevlar or welding gloves).
- Puncture resistant gauntlets to protect forearms.
- Long sleeve shirts and pants.
- Safety eyewear or face shield.
- Towel to hold the bat.

Hands should be washed with soap and water after handling bats following removal of PPE.

## 4.6. Disinfection

The virus is short lived outside the host, being rapidly inactivated by heat, direct sunlight and lipid solvents including soap. The virus can last for up to 24 hours in saliva but less time when exposed to the elements.

## 4.7. Handling a dead bat

If the bat is dead, it should be removed from the area and placed inside a secure, waterproof container out of reach of other animals and children.

Exposure of skin or mucous membranes to the secretions or excretions of the bat must be avoided. Handling the carcass remotely (e.g. using a garden fork, spade or other implement), inverting a thick plastic bag over the carcass, and wearing PPE are recommended methods of preventing direct exposure.

## 4.8. Handling a live bat

Live bats should only be handled by people who have received rabies vaccination.

Animal owners should remove the animal from the area where the live bat is located and ensure people, especially children, do not access the area.

Members of the public are strongly advised not to attempt to handle an injured, unwell or aggressive bat. Arrangements should be made through DITT for collection of the bat. Rabies vaccinated DITT Officers, Parks and Wildlife Officers or wildlife carers can collect and transport the bat to a rabies vaccinated veterinarian and clinical assessment of the bat made.

The following precautions should be taken when handling bats:

- only vaccinated people with titres >0.5IU/ml should handle bats
- wear appropriate PPE
- take all reasonable steps to avoid being bitten or scratched
- prevent mucous membrane exposure (eyes/mouth)
- where possible have a vaccinated, experienced bat handler hold the bat when conducting a clinical examination or euthanasia

Subject to veterinary assessment of possible ABLV, the bat should then be euthanased and submitted to the Berrimah Veterinary Laboratories (BVL) for testing.

## 4.9. Emergency measure if person or vet bitten or scratched by a bat

If bitten or scratched, proper cleansing of the wound is the single most effective measure for reducing transmission:

- do not scrub the wound
- the wound should be immediately washed with soap and water for at least 5 minutes
- an antiseptic with anti-viral action, such as povidine-iodine, iodine tincture, aqueous iodine solution or alcohol (ethanol) should be applied after washing
- if saliva enters the eyes, nose or mouth, the area should be flushed thoroughly with water.

- contact your doctor or Northern Territory CDC immediately (see Appendix 2 for contact details) for advice on human exposure.

## 4.10. Euthanasia of a bat

Bats can be euthanased using pentobarbitone solution injected intra-peritoneally. The bat can be placed in a bag and gassed with anaesthetic to reduce the risk of being bitten or scratched during euthanasia. This should only be done by a rabies vaccinated person.

## 4.11. Storage or disposal of a bat carcass

Bat carcasses should be submitted to the laboratory as soon as practicable to minimise post-mortem decomposition. The carcass should be refrigerated (but not frozen) until submission. Carcasses should be packaged with ice bricks for transport.

If a client elects not to submit a dead bat for testing, the carcass must be disposed of by:

- routine clinic biological waste
- deep burial where dogs cannot dig the carcass up
- contacting the local council to determine a suitable service that may be available.

## 4.12. Submission of the bat for testing

A bat should be submitted to BVL by the veterinarian for ABLV testing where:

- there is known or probable exposure of an animal to a bat (Category 2b bat) or
- a bat shows clinical signs suggestive of ABLV (Category 2a bat) or
- there has been known, possible or probable human exposure to ABLV from the bat (Category 3 bat). If the bat is not submitted for cases of human exposure, a full post-exposure prophylaxis (PEP) course may be necessary.

**Please note:** ABLV Exclusion testing is performed by BVL free of charge.

The bat can be delivered to the Berrimah Veterinary Laboratories Specimen Reception at Berrimah Farm between 8am and 4.20pm on weekdays. The delivery address is:

Makagon Rd, Berrimah

Phone: 08 8999 2249

[bvl@nt.gov.au](mailto:bvl@nt.gov.au)

If the incident occurs out of hours, the following contacts are available:

Contact	Phone
Regional veterinary officers	Darwin - 08 8999 2123 or 0407 498 003 Katherine/Tennant Creek - 08 8973 9716 or 0437 527 372 Alice Springs - 08 8951 8181 or 0401 118 181
Chief veterinary officer	08 8999 2130 or 0429 121 464
Emergency animal disease watch hotline	1800 675 888

The specimen advice note (SAN) should include the case history. Application to use rabies vaccine for Australian Bat Lyssavirus (ABLV) post-exposure prophylaxis<sup>5</sup> can be completed and attached to the SAN.

See the BVL Submitters Handbook on the NT Government website<sup>6</sup> for further information.

### 4.13. Packaging diagnostic specimens

Packaging and transport of dead bats must meet the International Air Transport Association (IATA) packaging and transport guidelines.

- Ensure safety of all personnel involved.
- Samples must be double-bagged.
- The bat must be in a secure primary container such as a strong polythene bag. Then place in a secondary container, a screw top plastic container or a zip lock bag.
- Use absorbent material in the secondary container to soak up any leaked fluid.
- Place the secondary container in a polystyrene box with cold ice bricks, and then place in a cardboard outer box.
- Complete a specimen advice notice (SAN). Place the SAN in a plastic specimen bag taped to the outside of the polystyrene box so it can be read before the samples are opened.

### 4.14. Laboratory testing

The definitive test for ABLV in a bat submitted after an animal/bat incident is the immunofluorescent antibody test (IFAT) conducted on fresh brain tissue. If fresh brain tissue is unavailable, other tissue can be examined with PCR, virus isolation and histopathology methods, but it should be noted that a negative result on these samples does not definitively rule out ABLV.

The Veterinary Pathologist will source suitable samples from the bat carcass for exclusion testing. The testing is performed at Australian Centre for Disease Preparedness (ACDP) in Geelong, Victoria. Tests results take approximately 24 to 48 hours after the specimens are received by BVL.

## 5. Actions if the bat tests negative for ABLV

When the bat tests negative for ABLV (via IFAT testing), there is no risk to the in-contact animal and the case is closed.

Situations have occurred where the animal may have been bitten by more than one bat. Therefore the risk of exposure may not be resolved by the testing of only one bat. In this situation the veterinarian should proceed according to actions if bat is not available for testing.

## 6. Actions if the bat tests positive for ABLV or is not available for testing

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<sup>5</sup> <https://nt.gov.au/environment/animals/wildlife-in-nt/flying-fox/australian-bat-lyssavirus-and-your-pet>

<sup>6</sup> <https://industry.nt.gov.au/industries/primary-industry/laboratory-services/berrimah-veterinary-laboratory>

If the bat tests positive, there is a potential risk the pet owners or other in-contact humans may contract ABLV infection from the pet. To date, transmission from an affected pet to a human has never been reported. Public health guidance is that the risk of transmission of ABLV from a dog or a cat to a person is very low but the risk exists. If such transmission was to occur, the potential outcomes are extremely serious, therefore there are three options available to owners in this situation. The same options apply in cases where the bat is not available for testing, as there is an unknown but potential risk of the owners or other in-contact humans contracting ABLV infection from the pet. The owner's decision may be influenced by the history of contact and whether the bat was observed alive, whether the bat was showing clinical signs consistent with ABLV and whether the pet was observed or had visible evidence of being bitten or scratched by the bat.

## 6.1. Monitor the animal for up to 2 years

The pet owner can keep the animal at home but should be advised to observe their pet closely for one to two years for any changes in behaviour or signs of ill-health (due to the possible long incubation period). These should be immediately reported to DITT. The owner needs to understand that taking no action does nothing to lower the potential risk of ABLV infection and that, if clinical signs suggesting ABLV disease are reported, it is likely to be recommended that the animal be euthanased and samples taken for examination.

## 6.2. Vaccination

DITT strongly recommends animals exposed to ABLV test positive bats undergo vaccination. This option should also be considered when the bat is unavailable for testing or when the pet has been bitten or scratched by the bat and ABLV test results for the bat are pending. Vaccination of the affected pet with inactivated rabies vaccine as soon as possible after the contact with the bat reduces the risks of clinical ABLV infection. This mirrors the current public health recommendation for post-exposure treatment of people against ABLV infection through the use of rabies vaccine. It should be noted that this recommendation is based on limited animal data and clinical experience supporting its use.

## 6.3. Euthanasia

To avoid any further potential risk of humans contracting ABLV infection from the pet, the owner may choose to authorise euthanasia of the pet, especially in those cases where it can be established that physical contact between the animal and the bat definitely occurred.

# 7. Vaccination of the animal with rabies vaccine

## 7.1. General advice

When a positive ABLV test result is received, or when a bat is not available for testing, the owner is offered the option of vaccinating the exposed animal/s with rabies vaccine. This is conditional on the understanding that DITT will determine further action required should the animal/s develop clinical signs of ABLV infection at any time.

It should be emphasised to the owner that the vaccination program should be commenced as soon as possible after the animal/bat interaction. The incubation period for ABLV is thought to be of the order of 28 – 60 days but can be shorter or much longer.

The primary objective of the Post-Exposure Prophylaxis (PEP) vaccination schedule is to address the immediate risk of exposure to ABLV. The PEP protocol specified below will not avert expression of clinical

disease if the animal is incubating prior to vaccination. It is therefore recommended that owners monitor the animal closely for a minimum of 60 days post-vaccination.

The earlier the vaccine is given to the animal after potential exposure to ABLV via the bat, the less likely the dog or cat is to develop the disease before the PEP protocol can take effect, and the lower the risk to both dog or cat and the humans associated with the animal.

If the private veterinarian suspects ABLV infection of the animal/s at any time, DITT should be urgently contacted for advice on the appropriate course of action.

The owner is responsible for:

- presenting the animal to their private veterinarian at the required times to meet all the requirements of the vaccination program
- costs associated with the vaccination program including all veterinary consultations for rabies vaccination and microchipping or euthanasia of the animal if the owner elects that course of action
- observing the dog or cat closely for any changes in behaviour occurring for 60 days following vaccination, and returning the animal to the veterinarian for examination should there be any concerns

## 7.2. Rabies vaccine

Vaccination with an inactivated rabies vaccine is used to protect both people and animals against ABLV. From the AUSVETPLAN Australian Bat Lyssavirus Disease Strategy Section 1.5, information to date supports that cross protection occurs against ABLV from rabies vaccination. Both people and animals exposed or potentially exposed to ABLV should undergo PEP, which centres on the use of rabies vaccine. The Northern Territory CDC is responsible for PEP in people; DITT in conjunction with private veterinarians is responsible for PEP in animals.

Please note that a limited number of doses of Rabies vaccine are held in the Darwin and Katherine DITT Biosecurity offices which can be provided to the private veterinarian to enable PEP vaccination of exposed pets to be initiated quickly. These vaccines will need to be replaced later to DITT by the veterinary clinic. An application form to use the vaccine must be signed by the Chief Veterinary Officer and a copy provided to the veterinary supplier when ordering replacement vaccines to have on hand for use by other clinics as required.

## 7.3. Permit PER14236

Veterinarians should be aware that Nobivac Rabies Inactivated Rabies Vaccine is an unregistered veterinary chemical product. Its use in ABLV incidents is covered by an Emergency Use Permit, PER14236, issued by the Australian Pesticides and Veterinary Medicines Authority (APVMA) and held by the Australian Chief Veterinary Officer, Commonwealth Department of Agriculture. PER14236 also covers emergency use of this inactivated rabies vaccine to vaccinate 'animals held in Australia in the event of a rabies outbreak'. A condition of the permit is that persons using the product must read the permit, particularly the information included in DETAILS OF PERMIT and CONDITIONS OF PERMIT' sections. The animal must be microchipped and the number recorded when applying for a permit. A copy of PER14236 can be obtained from the APVMA website<sup>7</sup>.

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<sup>7</sup> <http://permits.apvma.gov.au/PER14236.PDF>

## 7.4. Application by veterinarian to obtain and use rabies vaccine

The vaccination program must be administered by a private veterinarian registered in the Northern Territory. Under PER14236, veterinarians must be authorised in writing by the state/territory Chief Veterinary Officer (CVO) for permission to use the vaccine. Authorisation should be requested by completing an application to the Chief Veterinary Officer for use of Nobivac rabies inactivated rabies vaccine (available on the NT Government website<sup>8</sup>).

Once authorisation has been received the veterinarian should forward the signed authorisation to a veterinary wholesaler who holds an account with the Australian supplier of the unregistered Nobivac Rabies Inactivated Rabies Vaccine, Intervet (Australia) Pty Ltd.

## 7.5. Procuring the inactivated rabies vaccine

The unregistered Nobivac Rabies Inactivated Rabies Vaccine is available from the Australian supplier following presentation of the Chief Veterinary Officer authorisation.

Intervet (Australia) Pty Ltd  
91-105 Harpin St  
Bendigo Victoria 355  
Phone: 1800 033 461  
Fax: 1800 817 414

The order should be placed through the veterinarian's usual veterinary wholesaler and the inactivated rabies vaccine will still be sent directly to the veterinary practice ordering it.

The inactivated rabies vaccine will only be dispatched from Monday to Wednesday to ensure that the vaccine arrives at the destination practice in good condition by avoiding possible problems encountered during transport leading up to the weekend. It must be ordered before 1:00 pm Monday to Wednesday to ensure that it can be dispatched that evening.

An overnight courier service is engaged but Intervet does not have control over the transportation and so is unable to guarantee next day delivery.

## 7.6. Safety when administering the vaccine

The private veterinarian engaged to administer the inactivated rabies vaccine to the pet as well as any assistants are advised to wear suitable long-sleeved protective clothing and to use restraint measures as appropriate to avoid being bitten or scratched by the pet animal. Caution should be exercised to avoid contamination of unhealed cuts or abraded skin.

## 7.7. Vaccination protocol for dogs and cats - Post-Exposure Prophylaxis (PEP)

At the first PEP consultation, the first dose of rabies vaccine is given to the animal/s. A repeat vaccination with rabies vaccine is given to the animal/s at day 5-7.

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<sup>8</sup> <https://nt.gov.au/environment/animals/wildlife-in-nt/flying-fox/australian-bat-lyssavirus-and-your-pet>



Visit	Day	Action
First PEP consultation	0	<ul style="list-style-type: none"> <li>• Vaccination with 1ml dose of Nobivac Rabies Inactivated Rabies Vaccine (intramuscular or subcutaneous injection).</li> <li>• Microchip animal (if not already microchipped)</li> <li>• Record the vaccine details and microchip number on the vaccination certificate</li> <li>• The vaccine sticker with batch number and expiry date should be placed on the vaccine certificate.</li> <li>• Advise owner to monitor animal closely and report any signs of illness or death.</li> </ul>
Second PEP consultation	5-7	<ul style="list-style-type: none"> <li>• Repeat vaccination with 1ml dose of Nobivac Rabies Inactivated Rabies Vaccine (intramuscular or subcutaneous injection).</li> <li>• Advise owner to monitor the animal closely for 60 days.</li> </ul>

A copy of the vaccine certificate following administration of the two doses of Rabies Vaccine should be provided to DITT.

Once a period of 60 days has elapsed post vaccination, it is expected that vaccine induced protection will prevent disease occurring from that exposure.

Vaccination of other animals is considered on a case by case basis by the CVO.

## 8. Animals showing clinical signs consistent with ABLV

DITT will be responsible for the investigation of animals exhibiting clinical signs consistent with ABLV infection. Animals exhibiting classical rabies like signs, particularly if the animal is aggressive or unmanageable, will usually be euthanased. A post mortem examination will be conducted to determine the cause of the signs. Manageable animals may be kept in a secure quarantine facility to allow safe monitoring of clinical signs and any testing required.

## 9. Appendices

### 9.1. Appendix 1 - flowchart of guidelines for veterinarians



Category	Risk	Transmission
3	High human health risk	Bat known or reasonably suspected to have had potentially infectious contact with a human (e.g. bitten or scratched a person). Bats with clinical signs suggestive of ABLV are of highest risk.
2	High animal health risk Medium human health risk	Bat that poses a potential risk of infection to humans or animals and disease investigation and exclusion testing is recommended. 2a - history or clinical signs suggestive of ABLV without a history of a potentially infectious contact with a human or animal. 2b - history of known or suspected contact with another animal (other animal potentially exposed to ABLV via bat).
1	Medium human health risk	Bat with no known history of or suspected contact with another animal or person and for which the index of suspicion for ABLV infection is low (e.g. no clinical signs consistent with ABLV).

## 9.2. Appendix 2 - NT CDC contacts

Region	Address	Contact
Darwin	Ground Floor, Building 4, Royal Darwin Hospital Rocklands Drive Tiwi NT 0810	P: 08 8922 8044 F: 08 8922 8310
Katherine	O'Keefe House, Katherine Hospital Gorge Road Katherine NT 0850	P: 08 8973 9049 F: 08 8973 9048
Tennant Creek	Schmidt Street Tennant Creek NT 0860	P: 08 8962 4259 F: 08 8962 4420
Alice Springs	Disease Control Unit Gap Road Alice Springs NT 0870	P: 08 8951 7540 F: 08 8951 7900
Nhulunbuy	Corner of Mathew Flinders Way and Chesterfield Court Nhulunbuy NT 0880	P: 08 8987 0357 F: 08 8987 0355

## 9.3. Appendix 3 – further public health information

- ABLV fact sheet for vets, pet owners and waiting for test results <sup>9</sup>
- ABLV Post Exposure Prophylaxis (PEP) protocol<sup>10</sup>
- National Guidelines for Public Health Units<sup>11</sup>

<sup>9</sup> <https://nt.gov.au/environment/animals/wildlife-in-nt/flying-fox/australian-bat-lyssavirus-and-your-pet>

<sup>10</sup> <https://nt.gov.au/wellbeing/health-conditions-treatments/viral/bat-lyssavirus>

<sup>11</sup> <https://www.health.gov.au/resources/publications/rabies-and-other-lyssavirus-cdna-national-guidelines-for-public-health-units>