

# Rabies & Australian Bat Lyssavirus (ABLV)

*Rabies and Australian bat lyssavirus (ABLV) are viral diseases of the central nervous system. Rabies virus and ABLV are closely related members of the genus Lyssavirus. Australia is currently rabies-free. ABLV is an emerging infectious disease that has much in common with rabies.*

## WHAT IS RABIES AND ABLV?

Rabies virus and ABLV are closely related members of the genus *Lyssavirus*. The disease caused by classical rabies virus is clinically indistinguishable from that caused by other lyssaviruses including ABLV.

### Rabies

**Australia is currently rabies-free.** Rabies is endemic in Asia, India, Africa, North and South America, and parts of Europe. High rates of rabies are reported from the Philippines, Thailand and Indonesia.

Rabies can occur as a very rare infection of travellers to endemic areas.

### Australian Bat Lyssavirus

ABLV is an emerging infectious disease in Australia that has much in common with rabies. Three human fatalities caused by ABLV infection have been reported in Queensland and were associated with bites or scratches from bats.

## HOW IS THE VIRUS SPREAD?

Rabies virus and ABLV are usually transmitted to humans via bites or scratches; the viruses cannot penetrate healthy skin. Virus in the saliva of diseased animals infects healthy animals via exposed tissue and nerve endings through open skin wounds, bites or scratches. Transmission can also occur from the exposure of infected saliva to the eyes and/or mucous membranes in the nose or mouth.

In the case of rabies infected animals such as dogs; cats; wild carnivorous species such as foxes, and likely dingoes; bats may shed the virus for up to 10 days before exhibiting clinical signs. Cattle, horses, deer and other herbivores can become infected with rabies virus but rarely transmit the virus to other animals, however they are capable of transmitting disease to people.

The period of preclinical shedding in ABLV infected animals is currently not fully understood and requires further research.

All of the body of an infected animal carcass is considered to be contaminated and a potential risk for ongoing spread of the virus.

Any meat, meat products, non-pasteurised milk and milk products from an animal confirmed or suspected to be infected with a lyssavirus should be regarded as potentially infectious.

## WHAT SPECIES ARE AFFECTED?

Lyssaviruses can infect most (if not all) warm blooded mammals, including people.

It is assumed that all bat species are capable of carrying and transmitting lyssaviruses. Several different bat species have been implicated in overseas outbreaks of rabies and a number of microbat and megabat species in Australia have been found to be infected with ABLV.

### Rabies

Most domesticated and wild dog species (including foxes, coyotes, wolves and possibly dingoes) are susceptible to rabies infection. Infected dogs remain the highest risk source for human transmission.

In developed countries, rabies is mainly found in wild animal hosts. Disease is spread from wild hosts to domestic animals and humans. In contrast, domestic dogs continue to be the main hosts in most developing countries, such as in Africa and Asia, and are responsible for most of the rabies deaths that occur worldwide.

### ABLV

Spillover infection of ABLV from bats to other animals is rare with only one incident reported in horses in Queensland.

## CAN THE VIRUS SPREAD TO HUMANS?

**Rabies virus and ABLV can infect humans and cause serious fatal disease.**

### Rabies

In Australia, rabies is a very rare infection of travelers to overseas endemic areas.

Only two human cases have been reported in 1987 and 1990 and both were linked to overseas travel.

### ABLV

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 died from their infections.

## WHAT ARE THE HUMAN SYMPTOMS OF RABIES/ABLV?

### Rabies

Initial symptoms are flu-like and include fever, headache and fatigue. They may include pain (sometimes itching) and numbness at the wound. The first symptoms of rabies usually appear in 3 – 8 weeks but may occur in a few days or after as long as 7 years.

### ABLV

Symptoms of ABLV can appear within days, or up to several years after exposure. Early symptoms of ABLV infection are flu-like and can include headache, fever, weakness and fatigue. The illness progresses rapidly to paralysis, delirium, convulsions and death, usually within a week or two of symptom onset.

## WHAT IS THE RISK OF CONTRACTING THE VIRUS?

People at increased risk of contracting lyssaviruses are those whose occupational, volunteering, or recreational activities put them at increased risk of exposure. In Australia, the risk is greatest in those people who holiday or work in countries in which rabies is present, or people who come into close contact with bat species. This includes wildlife carers, wildlife officers, and veterinarians.

**Only appropriately vaccinated and trained people should handle bats.** Community members should not handle bats and should contact the nearest registered vaccinated wildlife carer (through a wildlife service or carer group), wildlife officer or veterinarian for assistance if a bat requires rescuing. If bats must be handled, safety precautions, such as wearing protective gloves and clothing, should be observed. Every effort should be made to avoid being bitten or scratched.

## I HAVE BEEN BITTEN/SCRATCHED BY A BAT (OR OTHER INFECTED ANIMAL) - WHAT SHOULD I DO?

Medical advice should be sought **immediately** if you have been bitten, scratched or come into contact with saliva from a bat or an animal believed to be infected with rabies or ABLV.

Immediately wash the affected area with soap and water (minimum 5 minutes). Then apply a virucidal antiseptic such as iodine-based solutions or alcohol (ethanol).

If mucous membranes (eyes, nose or mouth) have been exposed, the area should be flushed thoroughly with water.

Immediate medical advice should be sought regardless of any previous rabies vaccination, the severity of the wound,

the bat species involved or whether or not the bat appears sick.

Rabies/ABLV are Notifiable Diseases to the Department of Health, Communicable Diseases Branch.

## WHAT ARE THE CLINICAL SIGNS OF RABIES/ABLV IN ANIMALS?

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

In animals, rabies presents with clinical signs of:

- Significant behavioural changes
- Unexplained progressive paralysis
- Increased sensitivity at the wound site
- Temporary rise in temperature
- Drop in production
- Restlessness
- Muscle tremors
- Changes in appetite
- Vomiting, diarrhoea
- Hyperreactivity to stimuli
- Sexual excitement
- Pupil dilation
- Increased salivation
- Difficulty swallowing
- Unusual vocalization
- Loss of normal shyness and fear of people (wild animals)

In carnivores (including canids e.g. dogs):

- Dumb or paralytic rabies;
  - Quiet and lethargic
  - Hiding
  - Biting only when provoked
- Furious or encephalitic rabies;
  - Aggression
  - Restlessness

As the disease progresses ataxia, paralysis and coma typically precede death.

## WHAT TO DO IF I SUSPECT RABIES/ABLV?

Rabies/ABLV are notifiable diseases and any suspected or confirmed cases in animals must be reported to Agriculture Victoria on the **Emergency Animal Disease Watch Hotline 1800 675 888** (24/7) or to your local Agriculture Victoria Animal Health and Welfare staff.

If you suspect you have been bitten, scratched and/or exposed to the saliva of an infected dog, bat, fox, cat or monkey you should clean the wound and immediately seek medical advice. Health agencies must be notified.

## 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 a highly effective means against 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,
- Thoroughly wash hands and face after removing PPE.

**When working with potentially infected animals or materials;**

- 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
- May consider the use of puncture resistant gauntlets to protect the forearms

*Note: these PPE recommendations would need to be enhanced for performing necropsies or laboratory diagnostics. Seek further guidance from Agriculture Victoria as necessary.*

## HOW CAN I REDUCE THE RISK OF SPREAD?

Good hygiene, appropriate use of PPE, decontamination of PPE and thoroughly washing yourself and any materials before leaving an infected site/property will protect you from spreading the virus to other people or animals.

Lyssaviruses do not survive very well outside of the animal and are destroyed by a disinfectant and detergent e.g. warm, soapy water.

It is recommended to shower and launder all clothing worn before engaging with other people or handling your own animals.

## WHAT IS THE GOVERNMENT'S RESPONSE TO RABIES?

The government's response to disease in animals will aim to quickly control the disease to prevent spread to domestic and wild animals, and humans through a combination of strategies which may include;

- Quarantine and movement controls
- Vaccination
- Euthanasia of infected animals

Control strategies will largely depend upon the extent of the outbreak and the type of lyssavirus. For example the eradication of rabies virus may be possible if it is detected in a domestic pet however eradication of ABLV in wild bat populations is not feasible and would result in unfavourable environmental consequences.

## FURTHER INFORMATION

- AUSVETPLAN – Lyssavirus response strategy <https://animalhealthaustralia.com.au/ausvetplan/>
- Department of Health, Victoria <https://www.health.vic.gov.au/infectious-diseases/rabies-and-australian-bat-lyssavirus>
- Agriculture Victoria – Rabies and Australian bat lyssavirus <https://agriculture.vic.gov.au/biosecurity/animal-diseases/general-livestock-diseases/rabies-and-australian-bat-lyssavirus>

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