

Australian Bat Lyssavirus

Only vaccinated and trained handlers should ever touch bats.

Australian bat lyssavirus (ABLV) is a virus closely related to the rabies (classical rabies) virus which causes serious and usually fatal disease in humans. Australia is free from classical rabies in land-dwelling animals. However, ABLV has been found in a number of bat species including flying foxes/fruit bats and microbats. Surveys of wild bat populations have indicated less than one percent of bats carry ABLV. In sick and injured bats, around 7% have been found to carry the virus. However, **it must be assumed that any bat (sick, injured or healthy) in Australia could be infectious with ABLV.**

Three cases of human infection of ABLV have been recorded in Australia. All occurred in Queensland. All were associated with being bitten or scratched by a bat and all were fatal. **Do not touch bats, even if they are injured. Instead, call a trained handler to attend the bat: RSPCA (1300 ANIMAL), Department of Environment and Science (1300 130 372), or local wildlife care groups.** Only trained and vaccinated handlers should touch bats.

Signs and Symptoms:

ABLV infection in humans causes a serious illness which results in paralysis, delirium, convulsions and death.

The time from exposure to the virus to the start of symptoms is variable. Of the 3 known human cases of ABLV infection in Australia: one became ill approximately 4.5 weeks after being bitten by a bat, one became ill approximately 8 weeks after a scratch from a bat and another became ill more than 2 years after a bat bite. Classical rabies virus also shows a wide range in time between exposure and illness, from weeks to years. Therefore, it is vital to seek medical advice even if some time has elapsed since the potential exposure.

Treatment:

There is no known effective treatment for ABLV disease once symptoms have started. However, prevention is the best way to avoid ABLV infection. If you are bitten or scratched by a bat, post-exposure management is effective at preventing ABLV disease before a person becomes unwell.

Management of potential exposure to ABLV

Post-exposure management comprises of wound care, administration of rabies vaccine, and if indicated, administration of human rabies immunoglobulin (HRIG). Post-exposure management is recommended for anyone who has had a potential exposure. Rabies vaccine and HRIG are safe in pregnancy and lactation.

Rabies vaccine and HRIG (if needed) are free after a potential exposure. Your local Public Health Unit will arrange for the injections to be delivered to your GP or hospital.

A tetanus injection may also be necessary after a bat bite or scratch.

Wound care

If bitten or scratched, immediately wash the wound thoroughly with soap and water for at least 15 minutes to reduce infection risk. If available, an antiseptic with anti-virus action such as povidone-iodine or alcohol (ethanol) should be applied after washing. If bat saliva contacts the eyes, nose or mouth, flush the area thoroughly with water for several minutes.

While bat faeces, urine and blood are not considered to pose a risk of ABLV infection, if you have any contact with bat fluids, wash your hands (or other affected area) thoroughly with soap and water or flush your eyes/nose/mouth thoroughly with water.

Rabies vaccine administration

Seek medical advice about whether vaccination (with or without HRIG) is required. When required, it is ideal if vaccination is commenced within 48 hours of potential exposure.

Rabies vaccine contains a killed virus that cannot cause the disease. The vaccine stimulates a person's immune system to develop antibodies that will recognise and kill the virus before it has time to cause illness. Even if a person has previously had a rabies vaccine, further rabies vaccinations may be required if they are potentially exposed to ABLV.

Your local doctor should consult the nearest [public health unit](https://www.health.qld.gov.au/system-governance/contact-us/contact/public-health-units) (<https://www.health.qld.gov.au/system-governance/contact-us/contact/public-health-units>) which will advise the number of rabies vaccines needed. A course of up to 5 rabies vaccine injections over a one-month period may be required.

Dosage

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Your local doctor will contact the nearest public health unit who will recommend the number of rabies vaccines needed. A course of up to 5 injections over 1 month may be required.

HRIG is usually given at the same time as the first dose of the rabies vaccine. The treating clinician will inject as much as possible of the HRIG dose in and around the site of the wound. If there's any HRIG left, it will usually be given into the deltoid muscle of the opposite arm to the vaccine.

When required, it's ideal if vaccination is started within 48 hours of potential exposure. Even if a person has previously had a rabies vaccine, further vaccinations may be required if they are potentially exposed to rabies again.

Side effects—rabies vaccine

All medications and vaccines have side effects. For the rabies vaccine, about 20% of people complain of redness at the injection site or a sore arm. Other side effects include:

- fever
- headache
- stomach upset
- muscle aches and pains
- rash

For mild side effects such as headache, muscle soreness or fever, paracetamol can be taken as directed by your doctor or the label directions. If the fever doesn't go away or you are concerned, call your doctor or 13 HEALTH (13 43 84) for further advice.

A small number of people (1 in 10,000 vaccinations) can have a severe allergic reaction that causes problems with breathing or swelling of the throat. Your doctor will ask you to stay in the clinic for 15 minutes after your injection to make sure you don't suffer an allergic reaction.

Human Rabies Immunoglobulin (HRIG) use

HRIG is made from blood donated by people who have been vaccinated against rabies. It is a concentrated form of antibodies against the rabies virus. HRIG may be recommended for people who are potentially exposed to ABLV and have never previously had rabies vaccinations. As much as possible of the HRIG dose is injected around the wound site, with any remainder given as an injection into a muscle such as the thigh.

Side effects—human rabies immunoglobulin (HRIG)

Side effects of HRIG can include pain and discomfort at the injection site, and fever and chills. Severe allergic reactions are rare.

Because HRIG is prepared from human blood, the risk of transmitted blood-borne infections cannot be ruled out. This risk also includes diseases we do not yet know about. The risk of spreading known diseases is reduced during the manufacture of HRIG by screening blood donors for HIV, hepatitis B and C before they donate, and by processing the blood and selecting the immunoglobins.

There have been no reports in Australia of any blood-borne disease in people who have received HRIG.

Adverse effects—human rabies immunoglobulin (HRIG)

Administration of immunoglobulin may interfere with the effectiveness of some vaccines, for example, measles, mumps, rubella and chickenpox vaccines. Tell your doctor if you've had any of these vaccinations in the 3 weeks before the HRIG injection as you may need to be re-vaccinated 4 months after the dose.

You should wait 4 months after the immunoglobulin before having certain vaccines, otherwise, they may not work.

Transmission:

The virus can be transmitted from bats to humans when infected bat saliva enters the human body, usually by a bite or scratch, but also by getting bat saliva in the eyes, nose or mouth (mucous membrane exposure) or onto a pre-existing break in the skin.

The virus is also found in the nervous system of affected bats. Therefore, needlesticks or cuts from a sharp item that has been used on a bat and had contact with bat brain tissue, are possible routes of ABLV transmission.

ABLV does not survive outside a bat or in a dead bat for very long especially in dry environments or after exposure to sunlight.

Contact with bat faeces, urine or blood does not pose a risk of exposure to ABLV, nor does living, playing or walking near bat roosting areas. There is no evidence to suggest ABLV could be contracted by eating fruit partially eaten by a bat. However, any fruit that has been partially eaten by any animal should be discarded as it could be contaminated by a variety of germs.

Prevention:

Do not handle bats

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The best protection against being exposed to ABLV is to avoid handling any bat in Australia or overseas. **Do not touch bats, even if they are injured. Ensure children understand they should not touch bats.** Only vaccinated people who have been trained in the care of bats should ever handle them.

People who come across an injured bat should contact the RSPCA (1300 ANIMAL), Department of Environment and Science (1300 130 372), or local wildlife care groups/rescuers/carers for assistance. Do not touch the bat.

Remove pets and children from the area around the bat. If needed, place a box or washing basket over a bat that is on the ground to prevent contact with others while awaiting a trained and vaccinated handler.

Contact your local veterinarian if you suspect that your pet might have been bitten or scratched by a bat.

If you find a dead bat, do not touch it with your hands. Instead, use a shovel or other tool to help appropriately dispose of it.

Pre-exposure vaccination (PreP)

Pre-exposure vaccination is recommended for anyone who plans to care for bats, or who will come into contact with bats during the course of their work. A course of 3 rabies vaccine injections is given over one month (days zero, 7 and 28). **The vaccine does not offer protection until after the third dose is given and people should not handle bats until 2 weeks after the course is complete.**

People at ongoing risk of exposure should have a blood test to check their immunity and receive a booster vaccination if not immune.

Laboratory staff at risk of exposure should have a blood test every 6 months.

Veterinary workers and people who handle bats, or may need to handle bats, should have a rabies vaccine booster dose one year after their primary course followed by a blood test every 3 years.

There may be other requirements for anyone who has a weakened immune system.

Bat testing

Never try to capture, restrain, or euthanise a bat following potential exposure. Contact the RSPCA (1300 ANIMAL), your local wildlife care group/rescue organisation or the Department of Environment and Science (1300 130 372) for assistance.

Testing a bat for ABLV involves euthanising it to enable examination of the brain. Euthanasia should only be carried out by an authorised wildlife organisation, state agricultural department or veterinarian.

If the bat is available to be tested for ABLV, the commencement of post-exposure vaccination (and HRIG) can be postponed for up to 48 hours while waiting for results. There is no need for rabies vaccination or HRIG if the bat did not have ABLV. If more than 48 hours pass before results are available, the rabies vaccination course can be commenced, but later stopped if the bat did not have ABLV.

Other resources:

[Kids and Bats](https://www.health.qld.gov.au/__data/assets/pdf_file/0021/437700/kidsandbats-poster.pdf) (https://www.health.qld.gov.au/__data/assets/pdf_file/0021/437700/kidsandbats-poster.pdf)

[Queensland Government: Bats](https://www.qld.gov.au/environment/plants-animals/animals/living-with/bats) (<https://www.qld.gov.au/environment/plants-animals/animals/living-with/bats>)

[Biosecurity Queensland: Australian Bat Lyssavirus](https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/livestock/animal-welfare/pests-diseases-disorders/australian-bat-lyssavirus)

(<https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/livestock/animal-welfare/pests-diseases-disorders/australian-bat-lyssavirus>)

(<http://www.ehp.qld.gov.au/wildlife/livingwith/flyingfoxes/>)

Related content

[Bats and human health fact sheet](http://conditions.health.qld.gov.au/HealthCondition/condition/14/217/14/Bats-human-health) (<http://conditions.health.qld.gov.au/HealthCondition/condition/14/217/14/Bats-human-health>)

Help and assistance:

If you think you have been potentially exposed, or for further information, please contact your local doctor or nearest [public health unit](https://www.health.qld.gov.au/system-governance/contact-us/contact/public-health-units) (<https://www.health.qld.gov.au/system-governance/contact-us/contact/public-health-units>) or the 13HEALTH information line (13 432584).

Resources

Animal Health Australia (2021). Response strategy: Lyssaviruses (version 5.0). Australian Veterinary Emergency Plan (AUSVETPLAN), edition 5, Canberra, ACT.

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Australian Technical Advisory Group on Immunisation (ATAGI). (2022). Australian Immunisation Handbook, Australian Government Department of Health, Canberra, immunisationhandbook.health.gov.au.

Heymann, D.L. (2015). Control of Communicable Diseases Manual, 20th edition. Washington, DC: American Public Health Association.