



Grey-headed Flying-fox
(*Pteropus poliocephalus*).
Photo: Nick Edards

Do bats in Australia carry deadly viruses, and are humans at risk? New human diseases are increasing, and many of them have originated from wildlife, including bats. However, there are simple precautions people can take to minimize any risk.

How do diseases jump from wild animals to humans?

1. Many species of wildlife are natural hosts (or carriers) of viruses, and they typically have immunity to disease caused by 'their' viruses.
2. When wildlife populations come under pressure (for example, due to habitat loss or other disruptions of their ecosystem), this can result in more virus circulation and transmission.
3. As humans encroach on wildlife habitats and populations, people are more likely to come into contact with new viruses for which they have no immunity (for example, from animal body fluids that contain viruses).
4. Domesticated animals and livestock can also play a role in the spread of viruses from wildlife to humans by acting as an intermediate host or 'bridge' for the virus.
5. Emerging diseases from animals are a threat to human health because some can spread quickly among human populations. Recent examples include swine flu and SARS.

Globally, bats are the natural hosts of a number of viruses that can cause fatal disease in people:

- Rabies viruses (Rabies, Australian bat lyssavirus and other lyssaviruses)
- Hendra virus and Nipah virus
- Japanese encephalitis virus
- SARS coronaviruses
- Ebola viruses



Thick leather gloves worn over puncture-resistant nitrile gloves are required for handling flying-foxes.

Photo: Department of Sustainability and Environment

What diseases do Australian bats carry?

Many people associate bats with rabies, but rabies virus has not been found in any Australian bat species. In Australia, bats are natural hosts for a number of viruses. The two most significant, because they can cause life-threatening disease in humans, are Australian bat lyssavirus (ABLV) and Hendra virus.

Australian bat lyssavirus (ABLV)

- ABLV is in the same virus family as rabies, and occurs in both flying-foxes (fruit bats) and insect-eating bats in Australia.
- While less than 1% of free-living bats may be infected with ABLV, sick or injured bats are much more likely to be infected with the virus. Thus, bats handled by wildlife rescuers and members of the public typically have a higher rate of ABLV infection.
- While the risk of getting ABLV is low, the consequences are high, as infection is fatal if post-exposure treatment is not obtained very quickly.
- There have been two cases of ABLV in humans in Australia; both were fatal. One person was infected from a Black Flying-fox (*Pteropus alecto*), the other from a Yellow-bellied Sheath-tail Bat (*Saccolaimus flaviventris*).
- ABLV is transmitted through an infected bat's saliva. Humans become infected when they are bitten by a bat carrying the virus, or if a scratch or wound is contaminated by infected saliva.
- ABLV is not transmitted through droppings or urine, and so if you do not handle a bat there is no risk.
- All people handling bats should have a current rabies vaccination (which protects against infection with ABLV), should wear protective gloves, and should be experienced. If an unvaccinated person is bitten or scratched by a bat whose ABLV status can't be established, they should immediately wash the wound for 10 minutes with soapy water. They then need to immediately visit their doctor to get the post-exposure rabies vaccinations. This needs to be done straight away. Post-exposure treatment is ineffective once the virus enters the nervous system.



Grey-headed Flying-fox.

Photo: Nick Edards

Hendra virus

- All four species of flying-fox in Australia are natural hosts of the Hendra virus. Hendra virus has not been detected in any insectivorous bat species in Australia, although a Hendra-like virus has been detected in an insectivorous bat species in China.
- Although flying-foxes carry Hendra virus, it does not make them sick.
- Hendra virus can spread from flying-foxes to horses, most likely via ingestion of pasture or feed contaminated with infected flying-fox body fluids.
- Humans can become infected with Hendra virus through close contact with infected horses. Seven people have been infected in Australia, and four of these cases have been fatal.
- Direct transmission of Hendra virus from flying-foxes to humans has not been recorded, but indirect bat-human transmission of the related Nipah virus (via fruit juice contaminated by bat urine or faeces) has been recorded in Bangladesh.
- There is currently no vaccine or effective treatment for Hendra virus. Trials of a protective vaccine for horses, and trials of a human treatment therapy are currently underway.

To reduce the risk of Hendra virus to humans, ensure that any horses that have or may have Hendra virus are isolated both from humans and from other horses.

To reduce the risk of ABLV to humans, ensure that only experienced, vaccinated people handle bats.

Fine leather gloves worn over puncture-resistant nitrile gloves prevent the risk of being bitten by a microbat. Photo: Micaela Jemison



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Flying-fox populations are under stress from landscape changes and habitat loss, and are becoming more common in agricultural and urban areas where additional food trees are often available. By understanding the ecology of flying-foxes and the factors that cause viruses to spread to humans, we can manage the risk of these emerging diseases to humans, while also maintaining the health of our livestock, wild animals and our environment.

Looking for more information about bats? Please see our fact sheets on a range of issues, available for download from:
www.ausbats.org.au

