



Are bats in Australia hosts for potentially 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 of viruses, and they typically have immunity to disease caused by 'their own' 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.

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

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

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



Bats and diseases

In Australia, bats are natural hosts for Australian bat lyssavirus (ABLV) and Hendra virus, both of which can cause life-threatening disease in humans. Bats may also be infected with bacteria and parasites, but these are of less concern for human health.

Australian bat lyssavirus (ABLV)

- ABLV infects both flying-foxes (fruit bats) and smaller bats in Australia. ABLV causes neurological signs in bats, including abnormal behaviour such as aggression, paralysis, inability to fly, and seizures; however, an apparently normal bat can still be infected with ABLV.
- ABLV is transmitted through an infected bat's saliva. Humans become exposed when they are bitten or scratched by an infected bat, or if a wound or mucous membrane is contaminated by infected saliva. It is not transmitted through droppings or urine, so if you do not handle bats there is no risk of ABLV.
- While a very small proportion of bats may be infected with ABLV, people are more likely to encounter sick or injured bats, and such individuals are more likely to be infected with the virus. Thus, bats handled by wildlife rescuers typically pose a greater ABLV risk.
- There have been three cases of ABLV in humans in Australia; all fatal. Two from a flying-fox (*Pteropus* spp.), the other from a Yellow-bellied Sheath-tailed Bat (*Saccolaimus flaviventris*).
- Rabies vaccine provides protection against ABLV, and is available for people occupationally exposed to bats.
- Treatment that is given after exposure to ABLV, but before a person becomes unwell and starts showing symptoms, can still prevent the disease. But once a person develops the disease there is no effective treatment.
- Urgent medical attention is essential for all people that have been bitten or scratched, including those who are already vaccinated.
- Members of the public should not handle bats. If you find an injured or sick bat, contact a wildlife care organisation or local veterinarian. Only people who are experienced in handling bats, wearing protective equipment, and with a current rabies vaccination should handle bats.



Hendra virus

- Hendra virus can infect individuals of all four species of flying-fox in Australia, but the Black Flying-fox (*P. alecto*) and Spectacled Flying-fox (*P. conspicillatus*) appear to be the primary reservoir species. Hendra has not been detected in any other Australian bats.
- Although flying-foxes are hosts for Hendra virus, it does not make them sick.
- Hendra virus can spread from flying-foxes to horses, most likely via contact with flying-fox urine, either indirectly on pasture or feed, or directly on mucous membranes (e.g., eyes, mouth).
- 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 were fatal.
- There is no evidence that Hendra virus can be transmitted directly from flying-foxes to humans.
- There is a vaccine available for horses.

To reduce the risk of Hendra virus to humans, vaccinate horses and prevent them from accessing pasture/water sources under flying-fox roosting and foraging trees. Isolate sick horses from other horses, people, and animals while waiting for a veterinarian.



- If bitten or scratched by a bat, immediately wash the wound thoroughly for five minutes with soap and running water, and apply a virucidal antiseptic. Seek urgent medical attention regarding post-exposure treatment.

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

Flying-foxes provide key pollination and seed dispersal services to our natural environment, but are impacted by landscape changes and habitat loss and are becoming more common in agricultural and urban areas. By understanding the ecology of flying-foxes and the factors that cause viruses to spread to humans, we can manage the risk of emerging diseases, while also maintaining the health of our domesticated animals and our natural environment.

Looking for more information about bats? See our fact sheets at:

<http://ausbats.org.au/bat-fact-sheets>

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