

## Key aspects briefly summarized

- Rabies is mainly transmitted by dogs (and bats), but any mammal can be infectious.
- Rabies is invariably fatal once symptoms occur. The only way to prevent death is pre-travel vaccination or immediate wound cleaning and immunizing after exposure in countries where vaccines and immunoglobulins are often unavailable.
- Rabies is best prevented by pre-exposure vaccination that is highly recommended for
  - long-term stay in endemic countries,
  - short journeys with high individual risk such as travellers on 'two wheels' or treks in remote areas, toddlers and children up to 8 years of age, professionals working with animals, or cave explorers (bats!).

### Disease

Rabies disease is invariably fatal, transmitted through the saliva or other body fluids of infected warm-blooded animals (i.e. mammals).

### Occurrence / Risk areas

Dogs are responsible for more than 95% of human cases. Bats (Latin America), cats, and (rarely) monkeys, predators, and other mammals can transmit rabies. The highest risk areas are Asia, Sub-Saharan Africa, and some Latin American countries (e.g. Bolivia). Rabies may occur anywhere in the world, except in countries where successful eradication has been achieved.

### Transmission

Bleeding scratch injuries, licks over injured skin, bites by infected animals: when saliva or other body fluids of infected animals enter the human body (e.g. bleeding wounds, even a small scratch), the rabies virus multiplies at the site of entry and later spreads to the peripheral nerves and eventually moves to the central nervous system. Once it has reached the brain, the infection is invariably fatal.

### Symptoms

When symptoms such as abnormal skin sensation, paralysis, or hydrophobia (fear of water) appear at 2-12 weeks after contact (range: 4 days-4 years!), the point of no return is reached, and the disease is fatal. Therefore, vaccination before exposure and immediate action after contact are crucial.

### Treatment

No reliable treatment of rabies disease exists.

Post-exposure measures: Immediate cleaning of the wound with plenty of water and soap for 10-15 minutes, followed by disinfection (e.g. Betadine, Merfen) and emergency post-exposure vaccination at the nearest large health institution within 24 hours. Tetanus booster vaccination is also warranted. For those having received full pre-exposure rabies vaccination before travel, two additional vaccine shots (any available brand) at an interval of 3 days suffice. If full pre-exposure vaccination has not been given, in addition to vaccination, passive immunization is required with immunoglobulins. It should be noted that immunoglobins (and sometimes vaccines) are often unavailable in low-resource settings, causing stress and uncertainty.

### Prevention

Stroking cute pets is not a good idea; refrain from touching wild or unfamiliar or dead animals.

All travellers to places where rabies may occur and who are likely to take repeated trips to areas where rabies occurs should have a pre-exposure vaccination. In addition, pre-exposure vaccination is highly recommended for travellers at particular risk:

- long-term stay in endemic countries,
- short journeys with high individual risk such as travellers on 'two wheels' or treks in remote areas, toddlers and children up to 8 years of age, professionals working with animals, or cave explorers (bats!).

The shortened vaccination schedule can be proposed to most travellers: 2 shots, the first one at one month before departure if possible (minimum: 8 days before departure). A single third rabies booster vaccination is recommended before the next trip, at least after one year.

## Of note

- Obtain information about prevention of rabies in time before travelling.
- In case of trips planned for longer than a few weeks, schedule a visit at the travel clinic 4 weeks before departure at the latest.
- After possible exposition (bite, scratch injury) wound treatment and additional vaccinations are necessary even for those with a completed series of basic vaccinations.
- This information leaflet should be printed and kept handy during the trip!

## Further Information

FOPH Switzerland (German):

[https://www.bag.admin.ch/dam/bag/de/dokumente/mt/infektionskrankheiten/tollwut/bag-bulletin-15-2021-tollwut-prep-und-pep.pdf.download.pdf/210412\\_BAG\\_Bulletin\\_15\\_2021\\_Tollwut%20PrEP%20und%20PEP\\_d.pdf](https://www.bag.admin.ch/dam/bag/de/dokumente/mt/infektionskrankheiten/tollwut/bag-bulletin-15-2021-tollwut-prep-und-pep.pdf.download.pdf/210412_BAG_Bulletin_15_2021_Tollwut%20PrEP%20und%20PEP_d.pdf)

FOPH Switzerland (French):

[https://www.bundespublikationen.admin.ch/cshop\\_mimes\\_bbl/14/1402EC7524F81EDBA5D6C3EBC18BA9FB.pdf](https://www.bundespublikationen.admin.ch/cshop_mimes_bbl/14/1402EC7524F81EDBA5D6C3EBC18BA9FB.pdf)