

## Key aspects briefly summarized

- Rabies is mainly transmitted by dogs (and bats), but any mammal can be infectious.
- It is invariably fatal at the time when symptoms occur.
- Rabies is best prevented by a **pre-travel** vaccination and appropriate behavior towards mammals.
- Pre-travel vaccination is also recommended because vaccines and immunoglobulins are often not available in many travel countries. **Vaccination before travel is highly recommended** in particular for
  - long-term stay in endemic countries,
  - short journeys with high individual risk such as travellers on 'two wheels' or treks in remote areas or travel with toddlers and children up to 8 years,
  - professional work with animals or cave explorers (bats!).
- **Attention:** a bite or scratch wound as well as contact with mammal saliva is an emergency! Find out about the necessary actions below!

## 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, cats and (rarely) monkeys and other mammals can transmit rabies as well. The highest risk areas are Asia, 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

Saliva from infected animals enters the human body through injured skin, either via bites and scratches or by licking already wounded skin. Once it has entered the body through the skin lesion, the rabies virus migrates along nerve pathways towards the brain. In most cases, this migration takes several weeks to months and proceeds without accompanying symptoms.

## Symptoms

Symptoms usually only appear when the virus has reached the brain. In most cases, this is the case after 2-12 weeks (range: 4 days - several years!) and manifests itself as encephalitis (inflammation of the brain), which in 99.99% of cases is fatal within a few weeks. As soon as symptoms of encephalitis appear, a fatal course can no longer be prevented.

## Treatment

No treatment against 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)