

Rabies Virus Prevalence and Prevention

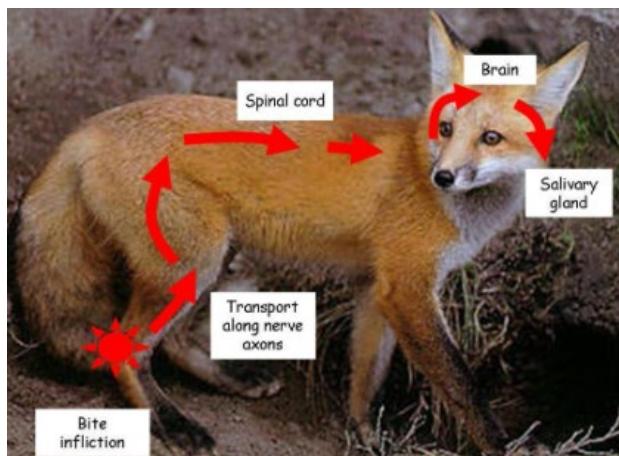
Rabies infection is a very serious and life-threatening disease that is found circulating in wild animals in almost every continent. While rabies virus exposures do happen abroad, ninety percent of reported American rabies cases occur from wild animals inside the United States. Bats, raccoons, and skunks are the main sources of wildlife exposure in America. Additionally domesticated animals like dogs and cats make up a small percentage of exposures in America but are far more prevalent in developing countries. While rabies is life threatening, proper treatment of those exposed can prevent the disease from progressing, making identification of potential exposures essential to prevent severe illness.

Did You Know?

- In 2025 there have been a total of 35 animals that have tested positive for rabies in Michigan as of September 22nd
- Every year roughly 1.4 million Americans receive healthcare for potential rabies exposures with 100,000 of those receiving post-exposure prophylaxis (PEP)
- Rabid bats have been found in all U.S. States except Hawaii, and all species of bats can carry the rabies virus
- There were 17 confirmed cases of human rabies in the United States from 2015-2024, with only two being contracted outside the United States.

What is Rabies and Why is it So Dangerous?

Rabies is caused by the Lyssavirus virus, which is an RNA virus that infects mammals and is spread by the bites or scratches of an infected animal. Once a person or animal shows symptoms of rabies infection, it is almost always fatal. To understand how rabies becomes so dangerous after symptoms onset we need to look at how the disease progresses throughout its host.



Sources: [Transmission and pathogenesis](#) |

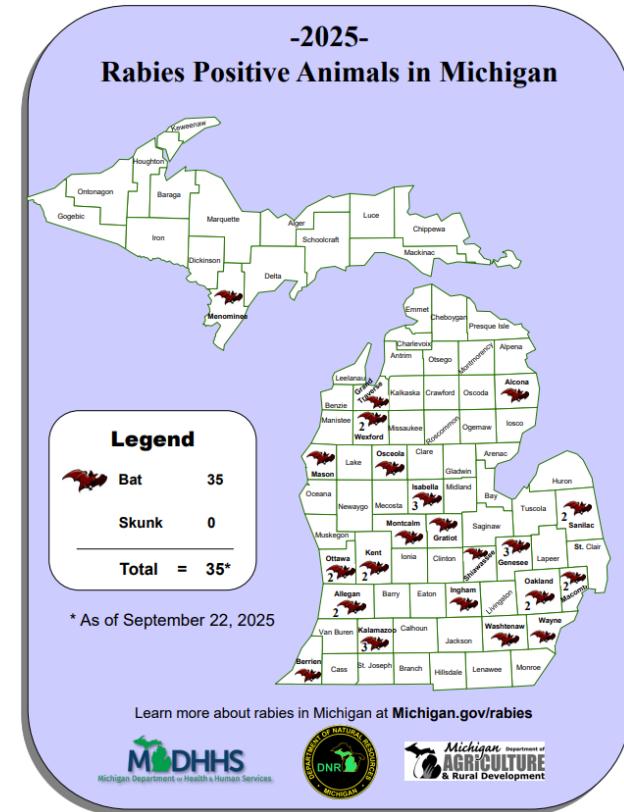
[Rabies - Bulletin - Europe](#)

[Rabies | Yellow Book | CDC](#)

Rabies Infection Pathway

- Rabies transmission starts with the virus entering the host, which happens when saliva of an infected animal comes in contact with an open wound, such as a **bite wound**
- Once inside the host, the virus attaches to **nerves in the muscle tissue** and can replicate and migrate along the peripheral nerves to reach the spinal cord
- Once the virus has reached the **spinal cord** it moves throughout the central nervous system and infects the **brain**, at this point viral replication increases significantly and symptoms begin appearing
- Once the virus reaches the brain it can then migrate to the **salivary glands**, making the host capable of spreading the virus by biting other animals

The critical point in the rabies transmission pathway is when the virus makes its way to the central nervous system (CNS). Once the virus has made it into the CNS, it is extremely difficult for the host to fight off the infection. There are currently no effective treatments for rabies once the disease has progressed this far, making the disease extremely dangerous.



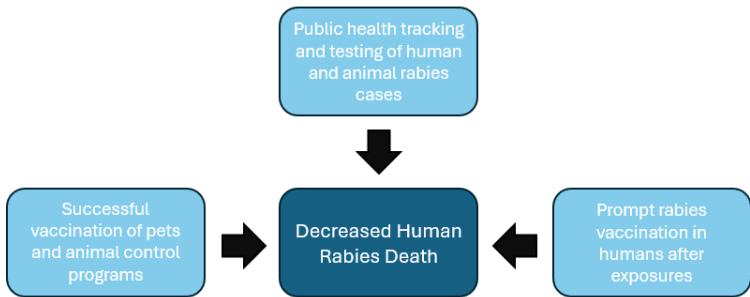
[Protecting Public Health | Rabies | CDC](#)
[2025 Rabies Positive Animals in](#)

The Impact of Rabies Vaccination

Since it's almost impossible to stop the spread of rabies once it reaches the CNS, it's extremely important to intervene before the virus has the chance to reach it. Vaccination is the only option to prevent rabies disease progression. If administered before the virus reaches the CNS the body's response to the vaccine can stop the virus from progressing.

"Before 1960, several hundred people died of rabies each year. Thanks to the coordinated efforts of human and animal health experts, fewer than 10 human deaths are reported each year in the U.S."

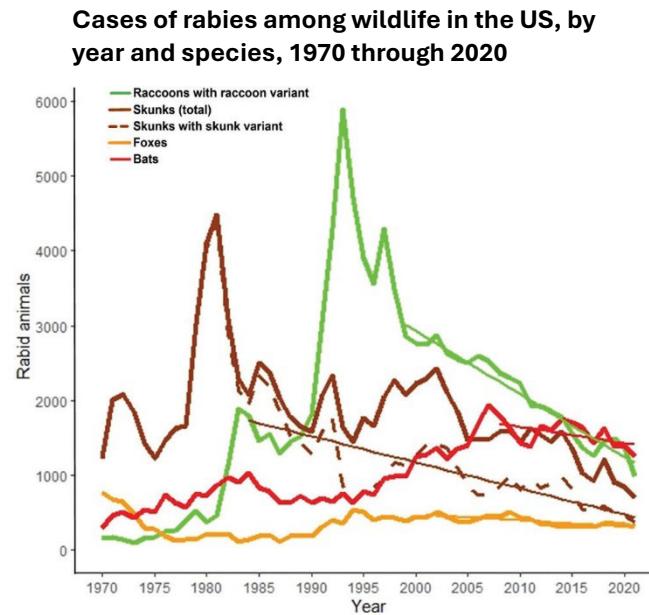
-CDC



Source: [Rabies in the United States: Protecting Public Health | Rabies | CDC](#)

This dramatic decrease in the number of human deaths can be directly attributed to the benefits from vaccinating humans and animals. However, it remains paramount that rabies exposures be treated as soon as possible. Public health tracking and testing play a critical role in identifying rabies exposures quickly so that vaccination can be implemented in a timely fashion.

Case Study: Human Rabies, Wisconsin, 2010



Sources: [Human Rabies --- Wisconsin, 2010](#)

[Rabies in the United States: Protecting Public Health | Rabies | CDC](#)

Background

Bats are the most common source of exposure to rabies for humans in the United States making up thirty-five percent of all rabies exposures. While most animals saw a decline in rabies detections from 1970-2020, bats saw a general increase. Additionally, many potential rabies exposures from bats go undetected due to how small bat bites can be. Bat bites can be so small that you may not even know you were bitten.

Timeline

December 2010: A Wisconsin resident started experiencing shoulder pain after mixing cookie dough. Two days later they started having difficulty swallowing with tremors and sought medical evaluation at an emergency department.

Hospital Day 1: The patient underwent several diagnostic tests and was initially diagnosed with severe alcohol withdrawal syndrome.

Hospital Day 9: Due to new neurologic and worsening symptoms, hospital staff suspect the patient could have rabies. Public health officials interviewed the patient's family and discovered the patient had bat exposures while selling firewood.

Hospital Day 11: Rabies infection was confirmed by diagnostic evaluation at the CDC. The rabies variant was that of a silver-haired bat. Shortly after rabies diagnosis, the patient passed away.

Conclusion

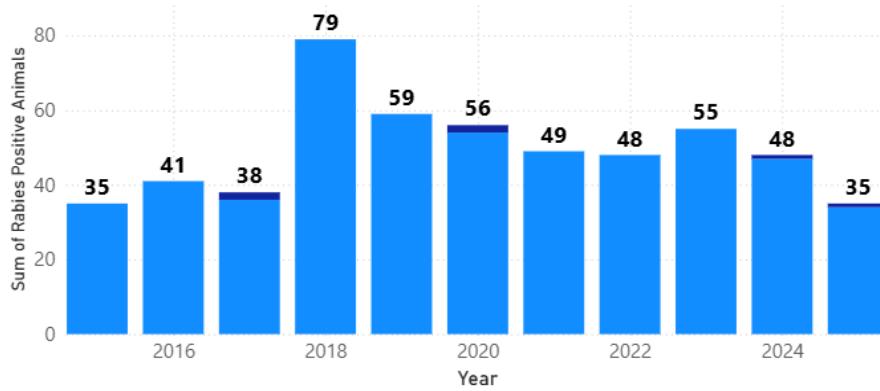
This case highlights how dangerous and how difficult it can be to identify rabies in a clinical setting. Without notifying the health care team of potential rabies exposures it is very challenging to identify rabies infection quickly. The patient never reported any animal bites, and this shows how difficult it can be to recognize a bat bite. Reporting bat exposures when you could have been bitten is essential to preventing rabies associated death.

Grand Traverse County Health Department's Role in Rabies Prevention

While rabies isn't detected every year in tested animals from Grand Traverse County, it has been continually detected with the last detection from a bat in September of 2025. From 2020-2024 the Grand Traverse County Health Department has conducted over 1,100 evaluations for animal bites and bat exposures to ensure rabies vaccination is recommended if needed. When conducting these evaluations, the health department performs interviews to determine risk of rabies transmission and follows the CDC's strict guidelines for when the vaccination should be recommended. When rabies vaccination is recommended after a potential exposure, clients are advised on where to go to receive the post exposure vaccination series.

Michigan and Grand Traverse County Rabies Positive Animals 2015-2025

Location • Grand Traverse County • State of Michigan



Rabies is a life-threatening disease that when treated early can be prevented. Awareness of what animals commonly carry rabies and notifying the local health department when you are potentially exposed is key to preventing rabies associated death.

Sources: [MiTracking - Michigan Environmental Public Health Tracking](#)

FAQ

Q: What should I do if I find a bat in my home?

A: If you find a bat in your home and it was in or could have potentially been in a room with a sleeping person, unattended child, someone mentally impaired, or an intoxicated individual **do not release the bat**. In those circumstances the bat will need to be captured and sent for rabies testing. Contact your local health department or animal control to arrange rabies testing. The video and flyer below have helpful information on how to safely capture a bat inside your home.

[Rabies-Bat-magnet.jpg \(675x675\)](#)

[How to Safely Catch a Bat](#)

Q: Is it possible to get rabies from the rabies vaccine?

A: No, both approved rabies vaccines are made from inactivated, or killed virus and are both equally safe and effective.

Human rabies vaccines go through a series of quality control tests to ensure the safety and effectiveness of the vaccine. The common side effects of the rabies vaccine are similar to all vaccines such as soreness and swelling at the injection site, head and muscle aches, and fever. Currently there are no contraindications for rabies vaccination and more information on the rabies vaccine can be found below.

[Vaccine Information Statement: Rabies Vaccine - what you need to know](#)

[Rabies: Questions and Answers Information About the Disease and Vaccines](#)

Q: Is rabies frequently found in domesticated animals like cats, dogs, and ferrets?

A: Rabies is not frequently found in cats, dogs, and ferrets in the United States, mainly due to widespread vaccination of household pets for rabies. That being said, since rabies is almost always fatal, reporting all animal bites to your local health department is essential to prevent rabies associated death. When the pet can undergo a 10-day observational period, post exposure prophylaxis (PEP) can be delayed and in most circumstances determined not necessary. Recommendations for PEP are not always straight forward making it very important to contact your local health department for guidance after an animal bite or bat exposure.

[Rabies Post-Exposure Prophylaxis \(PEP\)](#)

[Rabies: Questions and Answers Information About the Disease and Vaccines](#)