

Michigan Department of Community Health Communicable Disease Division

Bites and Scratches from Zoo/Exotic Animals: Risk for Rabies?

Whenever a person is bitten by an animal, there should be an assessment made as to the risk of rabies infection.

- Rabies is a virus that can infect any mammal, including humans. It produces an infection of the nerves and brain, leading to death if timely treatment is not given.
- An infected animal sheds the virus in its saliva, and can transmit the virus to another animal or a person when it bites or when its saliva gets into an open wound or into the eyes, nose or mouth.
- Human rabies is rare in the United States, but some wildlife species such as bats and skunks maintain the virus in the wild. Unvaccinated animals occasionally become infected from contact with wildlife.
- Because rabies is a fatal disease, concerns for human health may outweigh concerns about animal health.

The following are some of the questions that should be asked whenever someone is bitten or scratched by a zoo or exotic animal, whether it is in a public or private exhibit.

What is the species of the biting/scratching animal?

- Only mammals are susceptible to infection with the rabies virus.
- Bites or scratches from species other than mammals do not pose a risk of rabies.
- If the biting/scratching animal is a primate, it is important to assess the risk of herpes B virus infection (macaque monkeys are a primate species of particular concern).

What is the health of the biting/scratching animal?

- Scientific studies have shown that rabies infected dogs, cats and ferrets have rabies virus present in their saliva and are contagious a few days before symptoms occur, and die within a few days once symptoms begin.
- Rabies infected animals may show signs of inflammation of the brain, including unusual behavior, aggression, incoordination, seizures, etc, or they may be lethargic and unable to move.
- Any biting animal that is showing signs of rabies should be immediately euthanized (humanely killed) and tested for rabies.

How is the animal housed? Does it have an opportunity to be exposed to animals that could be infected with rabies (bats, skunks, raccoons)?

- Mammals that are housed in such a way that they have no opportunity to be exposed to rabies infected wildlife (kept strictly indoors, no contact with any other animals) are at very low risk of being infected with rabies.

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- Any animal that is newly arrived to the zoo and that may have been exposed to other animals should be quarantined for a period of time before being placed on display, to preclude the spread of infectious diseases such as rabies.

How did the bite or scratch occur?

- Any wild or exotic animal has the potential to cause injury to humans.
- Unlike domesticated animals such as dogs, cats, horses, cows, etc., exotic and wild animals have not been bred to accept contact from human beings. Their natural tendency is to protect themselves when they feel threatened. Any situation in which a person strives for direct contact with an exotic or wild animal, or enters that animal's territory may **provoke** an attack. This behavior is not considered to be unusual for wild animals.

The biting/scratching animal has been vaccinated against rabies. Does that mean that it could not be infected with rabies?

- Rabies vaccines have been developed for use in several species of domestic animals, and these vaccines have been tested to assure that they are effective in preventing infection in the species of animal for which they were developed.
- There are no vaccines available that have been proven to be effective in exotic or wild animals.
- Many exhibits and zoos vaccinate their valuable animals with rabies vaccine approved for use in other species (off-label use). This is done for the animal's protection. It is not known if the vaccines are effective in preventing rabies infection in exotic or wild species of animals after a bite from a rabid animal.

How can you be sure that the biting/scratching animal is not infected with rabies?

- The only way to be certain that an animal is not infected with rabies is to test the brain. Therefore, testing the animal for rabies requires that the animal be euthanized (humanely killed).
- There is no reliable test that can be done on a live animal.

Can the biting/scratching animal be quarantined and observed for signs of rabies?

- There is significant scientific information that dogs, cats and ferrets only shed virus for 2-3 days prior to becoming sick, and they die within a few days of becoming ill. This is the basis of our 10 day quarantine for these species following a bite.
- Zoo and exotic species are wild animals, and there is little information on rabies virus shedding in these species. For that reason, the 10-day quarantine cannot be applied to bites involving zoo and exotic species.
- In certain low risk situations, the decision may be made to place the animal under quarantine for a minimum of 30 days. This should be sufficient time to be assured that virus was not present in the animal at the time of the bite, as rabies is a uniformly fatal disease when not treated.

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Is there a treatment to prevent rabies in a person who is potentially exposed to rabies?

- Rabies in humans is rare (about 1-2 cases per year in the U.S.), but the outcome is always fatal without treatment.
- The only way to prevent the disease from developing in a person bitten by a rabid animal is to administer treatment, called post-exposure prophylaxis (PEP).
- This treatment includes an initial injection of immune globulin (antibodies) and an injection of vaccine (in most cases given in the muscle of the upper arm) beginning shortly after the exposure, with additional doses of vaccine given on days 3, 7, and 14 after the first day of treatment (called day 0).
- This treatment is 100% effective against rabies when given according to protocols.
- Ideally PEP should start as soon as possible after the exposure. Rabies PEP is considered a medical urgency, not an emergency.
- If the animal that caused the bite or scratch is available and can be tested for rabies, then treatment can wait for testing to be completed.
- If testing determines that the animal was not infected with rabies, then no treatment is necessary.

What steps should be taken when a person is bitten or scratched by a zoo/exotic animal?

- The injury will be assessed and the need for emergency care will be determined.
- The bite victim will be asked to identify the animal that caused the injury.
- An incident report will be completed.
- The bite victim will be sent for medical care; the need for a tetanus booster and antibiotics will be evaluated.
- The incident will be reported to the local health department and local animal control agency.
- The animal will be removed from display.
- The local health department will make an assessment of the situation with regard to the risk of rabies for the person.
- Depending on the risk assessment, the animal may be euthanized and tested for rabies, or quarantined for an agreed upon period of time.
- Alternatively, the bite victim may decide to undergo rabies post-exposure treatment with the animal quarantined for an agreed upon period of time.