Don't Let This Happen to You: Know What to Do About Rabies

Unable to afford the $2,000 quarantine, this family was forced to euthanize their pup after a rabid skunk bit him. But researchers have found those measures to be extreme and unnecessary. What you should REALLY do if your pet is accidentally exposed to rabies.

Reviewed by Dr. Becker

STORY AT-A-GLANCE

- The story of the unnecessary killing of a 10-year-old family dog prompted veterinary researchers to study the current practice of long-term quarantine or euthanasia for certain pets exposed to rabid animals
- The researchers concluded that dogs and cats with lapsed rabies vaccinations who are exposed to the virus can safely receive an immediate rabies booster followed by 45 days of observation at home
- The study results also point to the long-term immunity achieved in most animals who receive an initial rabies vaccination

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There's some encouraging news to share about rabies vaccines, or more specifically, how pets with out-of-date vaccinations that are exposed to a rabid animal should be handled.

Currently, if a pet with a lapsed rabies vaccination is exposed to a rabid animal, the law in many states requires the pet to be quarantined for several months at the owner's expense, or euthanized.

Family Dog Euthanized After Being Bitten by Rabid Skunk

In October 2014, a Brockton, Massachusetts woman was forced to euthanize her 10-year-old Schnauzer mix, Clyde, after he was bitten by a rabid skunk. The dog's rabies vaccine (technically his rabies tag, not the vaccine) had lapsed just 10 days prior to his encounter with the skunk.

The owner's options, as dictated by a Brockton animal inspector, were to either put Clyde down or quarantine him for three months in a kennel at a cost of $2,000 (which she couldn't afford), followed by three months of "strict confinement" at home.

Clyde's brokenhearted owner posted this to her Facebook page the day of the execution:

> *"So there wasn't a miracle in the wings for Clyde. I had to put him down this afternoon. He was my buddy, I loved him and I'll miss him."*[1]

The story of the 10-year-old Schnauzer mix, which ran in the online Patriot Ledger, drew an angry response from readers across the US, including this comment from veterinarian Dr. Richard Simmonds, Director and Professor Emeritus at the University of Nevada, Reno:

> *"It just strikes me as totally ridiculous. I understand people make regulations and laws. The problem is that lawyers and regulators like black and white answers. Unfortunately, life isn't black and white.*
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> *Any qualified immunologist or virologist would have advised the animal control authorities responsible for this atrocity that the 'one-year' or 'three-year' designation for the rabies vaccine is somewhat arbitrary."*[2]

Story Prompts Rabies Antibody Study

The tragic story of Clyde prompted veterinary researchers at Kansas State University to conduct a study to compare anamnestic antibody responses of dogs and cats with current vs. out-of-date vaccination status.[3] Anamnestic is defined as "a second rapid increased production of antibodies in response to an immunogenic substance after serum antibodies from a first response can no longer be detected in the blood."[4]

The study looked at 74 dogs and 33 cats, some with current rabies vaccinations, and some with vaccinations that had lapsed anywhere from 1 to 4 years earlier. The dogs and cats had been exposed to rabies and brought to a veterinarian for proactive blood monitoring, or had been brought to a veterinarian for a rabies booster.

The researchers gave a rabies booster (which is the same as a rabies vaccination) to each dog and cat to evaluate their anamnestic antibody responses. Lo and behold, they discovered that when an animal with an out-of-date rabies vaccination received the booster, the antibodies in his or her blood rose, protecting against exposure to the virus. From the study:

> "*Specifically, titers 5 to 15 days after booster vaccination in dogs with an out-of-date vaccination status were shown to be noninferior to titers in dogs with a current vaccination status.*
>
> *Also, dogs with an out-of-date vaccination status had a higher median increase in titer, higher median fold increase in titer, and higher median titer following booster vaccination, compared with dogs with current vaccination status; however, statistical analyses were not performed to compare these parameters between groups.*"

Based on these results, lead study author Michael C. Moore concluded that:

> *"Basically once an animal has been vaccinated, they can receive a booster if they are exposed to the rabies virus. Then their chances for surviving that virus are very, very good.*"

Most Pets Were Protected Before Receiving Rabies Booster

The researchers took blood samples on all the pets on day 0 of the study, before they administered the rabies boosters. For purposes of comparison, they used a rabies neutralizing antibody titer of ≥ 0.5 IU/mL (the measure the World Health Organization considers an adequate vaccine response for dogs and cats traveling to rabies-free areas) to indicate immunity to the virus.

Ten dogs and two cats in the study group had been exposed to an animal suspected or known to be rabid. Interestingly, several of these animals whose rabies vaccinations were out-of-date had acceptable and even high rabies antibody titers pre-booster. Examples:

- A dog that was 3 months overdue for a 3-year vaccination had a pre-booster titer of 9.7 IU/mL
- A dog 5.5 months overdue for a 3-year vaccination had a pre-booster titer of 12 IU/mL
- A dog 2 years overdue for a 1-year vaccination had a pre-booster titer of 0.6 IU/mL, as did a dog 3.5 months overdue for a 1-year vaccination
- A dog 1.5 years overdue for a 1-year vaccination had a pre-booster titer of 1.8 IU/mL
- A cat 9 months overdue for a 3-year vaccination had a pre-booster titer of 12 IU/mL

For the entire group of 74 dogs, those with current vaccinations (55) had a median pre-booster titer of 2.6 IU/mL. The remaining 19 dogs with out-of-date vaccinations had a median pre-booster titer of 2.0 IU/mL.

Of the 33 kitties, 7 had a current rabies vaccination and the remaining 26 were overdue. The cats with a current vaccine had a median pre-booster titer of 2.4 IU/mL, and interestingly, the kitties whose vaccinations were out-of-date had a median pre-booster titer of 6.3 IU/mL.

Bottom line: The vast majority of pets in the study, whether they had a current rabies vaccination or were overdue for a 1- or 3-year vaccine, had adequate rabies neutralizing antibody titers and were protected in the event of exposure to the virus prior to receiving a rabies booster.

Will The KSU Study Prompt Policy Changes?

At a minimum, the study results tell us that the practice of 6-month quarantines or euthanasia for pets whose rabies vaccinations are out-of-date is inhumane and entirely unnecessary in the vast majority of cases.

It also reaffirms what many of us also know: Well-timed core vaccines for puppies and kittens, of which rabies is one, provide many years of immunity, up to lifetime immunity.

According to Kansas State University, each year the US has around 6,000 reported cases of rabies, mostly in raccoons, skunks, bats, and foxes. The disease is usually fatal for animals. Pets with out-of-date rabies vaccinations that are exposed to the virus are required to either stay in observed quarantine for 6 months — which can cost owners $5,000 to $7,000 — or be euthanized.

> *"I get calls from a lot of people around the US who are very sad because they had to euthanize their pet because they couldn't afford the quarantine cost," said study author Moor. 'Even if an owner can afford the quarantine, they cannot see their pet for six months.'"*[5]

Moore hopes the study findings help clarify and shape the current guidelines for pets that are exposed to the rabies virus:

> *"If you relate this to human health, humans are primed with an initial vaccination series and then have neutralizing antibodies checked from time to time,' he said.*

'If those antibodies fall below a certain level, we're given a booster. While the vaccines are licensed for a certain number of years, the immune system doesn't sync to a date on the calendar and shut down because it reached that particular date."

Sources and References

Phys.org January 26, 2015

[1,2] Patriot Ledger October 28, 2014

[3] Journal of the American Veterinary Medical Association, January 15, 2015, Vol. 246, No. 2, pp 205-211

[4] Merriam-Webster.com

[5] Kansas State University, January 26, 2015