

Study finds rabies booster defends pets with out-of-date vaccination against the disease

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A new study by Kansas State University veterinary diagnosticians finds that pets with out-of-date rabies vaccinations are very unlikely to develop the fatal disease if given a rabies booster immediately after exposure to the virus.

The finding gives pet owners, veterinarians and [public health officials](#) new options when faced with the difficult situation of quarantining or even euthanizing a pet that has been exposed to the [rabies](#) virus, said Michael Moore, project manager of the Kansas State University Veterinary Diagnostic Laboratory.

"This has the potential to save a lot of pets' lives," Moore said. "Our hope is that now animals with an out-of-date vaccination status that are exposed to rabies will be allowed to be handled the same as dogs and cats with up-to-date vaccinations. They will be given a booster and a 45-day observation at home."

Moore conducted the study with Rolan Davis, reference diagnostician of the Veterinary Diagnostic Lab; Derek Mosier, professor of diagnostic medicine and pathobiology; Christopher Vahl, assistant professor of statistics; and colleagues at the Statistical Intelligence Group LLC and Centers for Disease Control and Prevention.

The findings appear in the *Journal of the American Veterinary Medical Association* study, "Comparison of anamnestic responses to [rabies vaccination](#) in dogs and cats with current and out-of-date vaccination

status." It is the first study to present scientific data for animals with out-of-date rabies vaccinations.

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 Pets with out-of-date vaccinations that are exposed to the rabies virus are required to either stay in observed quarantine for six months—which can cost owners \$5,000-\$7,000—or to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

"I get calls from a lot of people around the U.S. who are very sad because they had to euthanize their pet because they couldn't afford the quarantine cost," Moore said. "Even if an owner can afford the quarantine, they cannot see their pet for six months."

The study looked at 74 dogs and 33 cats with current and out-of-date rabies vaccinations. Most of the animals were one to two years out-of-date on their vaccines. A smaller segment was three to four years out-of-date.

Researchers studied the anamnestic antibody responses of the animals. They found that when an animal with an out-of-date vaccination was given a booster vaccination, the neutralizing antibodies in the animal's blood rose, protecting the animal against exposure to the rabies virus.

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

The rabies booster is only effective if an animal has been given its initial rabies vaccination, Moore said.

While conducting trials, researchers also found that some manufacturers' formulations for their one-year and three-year rabies vaccines were

identical.

In addition to the medical benefits, Moore said the findings might 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," Moore 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."

Provided by Kansas State University

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