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New guidance for pets exposed to rabies

Cats and dogs overdue for a vaccine can have a booster shot

By Katie Burns

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New guidance in this issue of the *JAVMA* advises that cats and dogs that are exposed to rabies and are overdue for a vaccine can have a booster shot followed by an observation period rather than be subject to quarantine or euthanasia.

The recommendation appears in the 2016 edition of the [Compendium of Animal Rabies Prevention and Control](#) (*J Am Vet Med Assoc* 2016;248:505-517) from the National Association of State Public Health Veterinarians, along with other updates from the 2011 edition. Dr. Catherine M. Brown, co-chair of the compendium committee, described the compendium as a series of best practices that jurisdictions can choose to follow.

The update pertaining to out-of-date vaccination status follows publication in the Jan. 15, 2015, issue of *JAVMA* of a report on "[Comparison of anamnestic responses to rabies vaccination in dogs and cats with current and out-of-date vaccination status](#)" (*J Am Vet Med Assoc* 2015;246:205-211). According to the abstract, "Results indicated that dogs with out-of-date vaccination status were not inferior in their antibody response following booster rabies vaccination, compared with dogs with current vaccination status."



The Rabies Laboratory at the Kansas State Veterinary Diagnostic Laboratory offers the rapid fluorescent foci inhibition test for rabies-neutralizing antibodies in serum. Veterinary student Morgan Taylor (far left) fixes slides in acetone in a chemical fume hood, checking the cell layer. At the workbench, research assistants Sami Pralle (foreground) and Beth McQuade stain fixed slides. (Photos by Tommy Theis/K-State Photo Services)

The 2016 edition of the compendium also advises reducing the quarantine period from six months to four for unvaccinated cats and dogs exposed to rabies. The compendium committee based the guidance on unpublished data from various states.

Furthermore, the 2016 edition includes a recommendation “to collect and report at the national level additional data elements on rabid domestic animals.”

Pet owners are not always aware when their cat or dog has been exposed to rabies, unfortunately. Dr. Brown re-emphasized the need to vaccinate. She said, “The best protection against rabies in both an individual animal and in the population is to have all of them currently vaccinated against rabies.”

The study

Dr. Michael C. Moore, lead author of the study on out-of-date vaccination status, joined the Kansas State Veterinary Diagnostic Laboratory in 1999. One of his duties was to answer phone calls regarding rabies antibody titers, but the compendium did not give a lot of leeway for using titers to assess the immune status of cats and dogs exposed to rabies.

“In humans, we utilize titers,” Dr. Moore said. “In humans, if they’re pre-exposure vaccinated and exposed to rabies, we booster them with great success, and they don’t develop disease.”

Dr. Moore and colleagues at Kansas State decided to evaluate whether cats and dogs overdue for a vaccine respond as well to a booster as cats and dogs with current vaccination status do. The researchers started to collect data, mostly from veterinarians who called wanting help assessing the immune status of a client’s animal.

When it comes to vaccinating either people or animals, they don't just all of a sudden on a predetermined date have zero protection or loss of priming."

*Dr. Michael C. Moore,
Kansas State Veterinary
Diagnostic Laboratory*

"The initial results were pretty outstanding, we felt, so we proactively started recruiting people," Dr. Moore said.

Between 2010 and 2014, the researchers obtained serum samples from a total of 74 dogs and 33 cats that, according to the study abstract, "had been exposed to rabies and brought to a veterinarian for proactive serologic monitoring or that had been brought to a veterinarian for booster rabies vaccination."

Results: "All animals had an antirabies antibody titer ≥ 0.5 IU/mL 5 to 15 days after booster vaccination. 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."

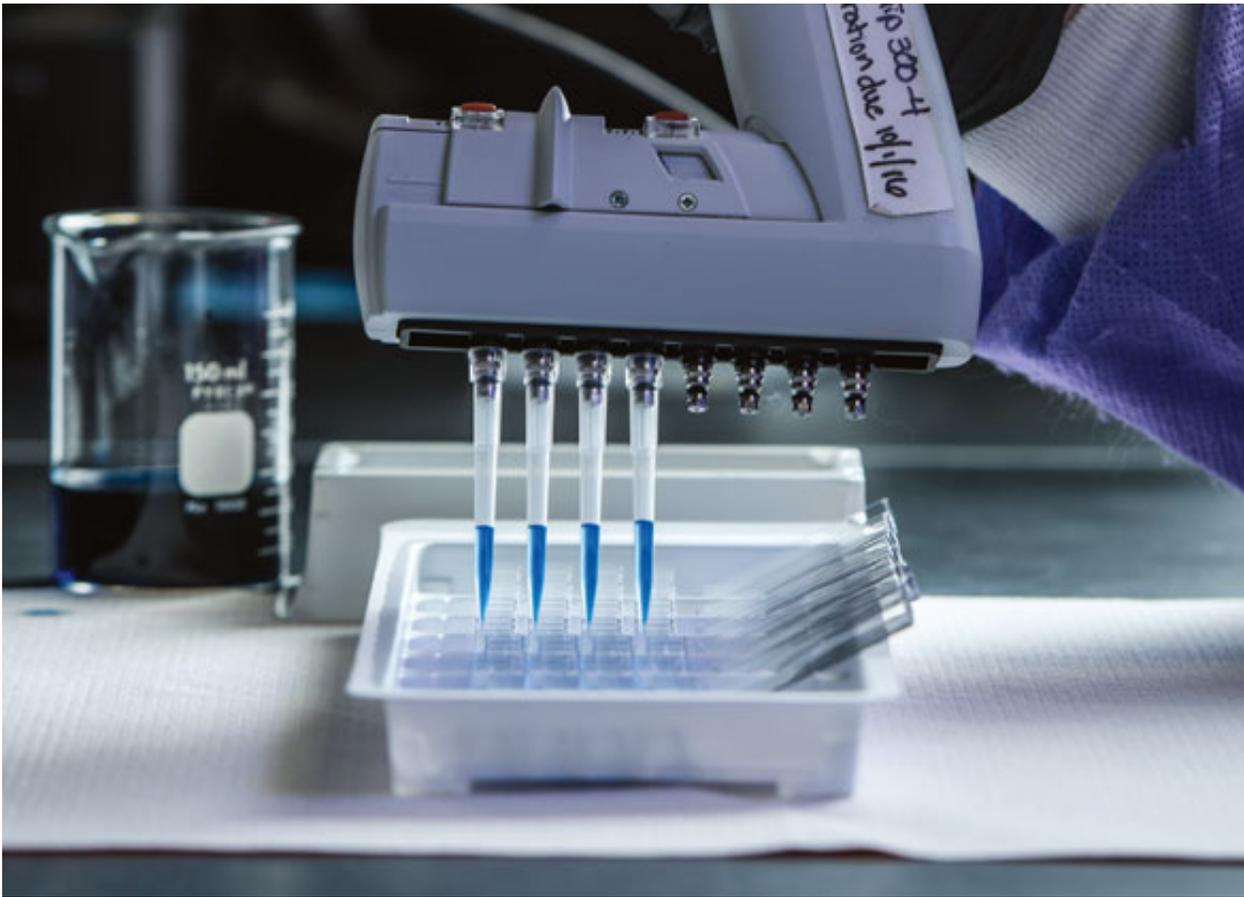
According to the report, "Because of the small number of cats in the study and the fact that most cats ... had a titer ≥ 12 IU/mL 5 to 15 days after booster vaccination, proportional hazards analysis could not be used to analyze the response to booster vaccination in cats with current versus out-of-date vaccination status."

The authors concluded, "Findings supported immediate booster vaccination followed by observation for 45 days of dogs and cats with an out-of-date vaccination status that are exposed to rabies, as is the current practice for dogs and cats with current vaccination status."

Dr. Moore said, "When it comes to vaccinating either people or animals, they don't just all of a sudden on a predetermined date have zero protection or loss of priming."

The Rabies Laboratory at the Kansas State Veterinary Diagnostic Laboratory receives several calls every month regarding cats and dogs exposed to rabies and overdue for a vaccine. Dr. Moore said the only recourse has been euthanasia or a six-month quarantine at a cost of thousands of dollars.

"We are very excited that people might have an additional option if their cat or dog is out-of-date and exposed to rabies," he said.



Sami Pralle, research assistant at the K-State Rabies Laboratory, uses an automated, multichannel pipette to add stain to slides.



Research assistant Beth McQuade prepares tissue culture cells in a biological safety cabinet.

The compendium

The guidance to implement the findings of the Kansas State study and other new data is a set of recommendations. Dr. Brown, state public health veterinarian for Massachusetts as well as co-chair of the compendium committee, said, “It is somewhat complicated, and we debated that as well, but we also wanted to make sure that we were using the best science available in order to help protect public health but also reduce the need for unnecessary euthanasia or quarantine of animals.”

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Dr. Catherine M. Brown, co-chair of the Compendium of Animal Rabies Prevention and Control Committee, on the new guidance

As before, cats and dogs that are exposed to rabies and are current on vaccination should receive veterinary care and a booster, then be kept under the owner’s control and observed for 45 days.

“The rationale behind that is that development of rabies in an animal that is currently vaccinated is extraordinarily rare,” Dr. Brown said. “It almost never happens. But because it’s almost never, we know we need to be cautious. So, we make sure they get that booster vaccination to stimulate their immune system, so it can fight the rabies virus.”

Euthanasia is the primary recommendation for cats and dogs that are exposed to rabies and have never been vaccinated, because of the high risk of developing disease. The other option is vaccination and quarantine.

“If the owner is unwilling to have the animal euthanized and has the wherewithal to do a strict quarantine, we actually have reduced that quarantine period for dogs and cats to four months from six months,” Dr. Brown said.

The committee based the guidance on unpublished data from states that provided information on the incubation period for rabies in unvaccinated cats and dogs. There are cases in the literature of animals developing rabies more than six months after exposure, Dr. Brown noted, but these also are extraordinarily rare. She said the mean incubation period is about six weeks.

For cats and dogs exposed to rabies and overdue for a vaccine, the committee distinguished between animals with documentation of vaccination and animals without documentation. With documentation, the compendium does recommend that animals out of date for vaccination be treated the same as animals that are up-to-date.

“The most confusing category is dogs and cats that are overdue for a booster vaccination—so, they have received a rabies vaccination at some point—but there is no appropriate documentation,” Dr. Brown said. “The simplest thing to do is go ahead and booster that animal—get them to veterinary medical care, give them a booster—and then place them in strict quarantine for four months. So, essentially, you’re treating them as an unvaccinated animal.”

According to the compendium: “Alternatively, prior to booster vaccination, the attending veterinarian may request guidance from the local public health authorities in the possible use of prospective serologic monitoring. Such monitoring would entail collecting paired blood samples to document prior vaccination by providing evidence of an anamnestic response to booster vaccination. If an adequate anamnestic response is documented, the animal can be considered to be overdue for booster vaccination ... and observed for 45 days.”

Dr. Brown said, “Owners should have current rabies vaccination certificates for their animals. That remains, actually, our priority. But we also know that sometimes things happen. You move houses, and you lose the paperwork along the way. ... This gives them a possible alternative to the four-month quarantine.”

Additional data

There are no national statistics on how many animals are quarantined or euthanized after rabies exposure, Dr. Brown said, and there are not a lot of data on incubation periods.

According to the compendium: "To enhance the ability to make evidence-based recommendations from national surveillance data, additional data should be collected and reported on all rabid domestic animals. In this regard, essential data elements include age, sex, neuter status, ownership status, quarantine dates (if any), date of onset of any clinical signs, and complete vaccination history."

Dr. Brown said the committee hopes that explicitly encouraging data collection and reporting will result in a better evidence base to improve the compendium in the future.

Related JAVMA content:

[Compendium of Animal Rabies Prevention and Control, 2016](#) (March 1, 2016)

[Comparison of anamnestic responses to rabies vaccination in dogs and cats with current and out-of-date vaccination status](#) (Jan. 15, 2015)

New website provides rabies information resource

A new website, www.RabiesAware.org, provides a national rabies information resource for the veterinary profession.

Merial launched the website Jan. 18 at the 2016 North American Veterinary Community Conference in Orlando, Florida. Leading the site is Dr. Richard Ford, an emeritus professor at North Carolina State University College of Veterinary Medicine.

"The application, interpretation and enforcement of rabies vaccination laws can vary significantly from state to state, and even county to county," Dr. Ford said in a written announcement about the launch. "Complex and sometimes conflicting rabies laws can lead to considerable confusion, misinterpretation of state and local statutes and inappropriate actions on the part of individual practitioners. The information found on RabiesAware.org will not only provide veterinarians and staff access to the most up-to-date information, but it will also ensure that they have the necessary tools to help educate pet owners on the importance of rabies vaccinations."

The site provides information such as the following:

- State-specific frequently asked questions.
- Surveillance data.
- Links to the Compendium of Animal Rabies Prevention and Control from the National Association of State Public Health Veterinarians.
- A comprehensive list of available U.S.-approved rabies vaccines.
- Contact information for state public health veterinarians.

As of Jan. 18, [RabiesAware.org](http://www.RabiesAware.org) contained information on 18 states: Alabama, California, Connecticut, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Massachusetts, Michigan, Minnesota, New Jersey, North Carolina, Rhode Island, South Carolina, Tennessee, and Virginia. Dr. Ford said the site will be completed for all 50 states and Puerto Rico by summer.

