



You are here: [Home](#) | [News & Publications](#) | [JAVMA News](#)

JULY 01, 2016



# JAVMAnews

## To titer or to revaccinate

### Measuring antibody titers is becoming common, but for many veterinarians, the process remains confusing, even controversial

By **Katie Burns**

Posted **June 15, 2016**

When and why has it become more common for veterinarians to measure antibody titers when it comes to cats and dogs?

An antibody titer is a measure of the concentration of antibodies in the blood, as determined by diluting a blood sample and exposing those dilutions to an antigen. The shorthand is to refer to the concentration as titers.

#### AVMA Journals

##### JAVMA

[Scientific Articles](#)

[News Archives](#)

[News Photo Galleries](#)

[Business Classifieds](#)

[About JAVMA](#)

##### AJVR

[Read AJVR](#)

[About AJVR](#)



Convention Newspaper

AVMA Collections

AVMA@Work Blog

Newsletters

Hot Issues

RSS Feeds

Press Room

Dr. Richard Ford, emeritus professor of internal medicine at the North Carolina State University College of Veterinary Medicine, said factors inside and outside the profession are driving the increase in antibody titer testing.

In the late 1990s and early 2000s, the American Association of Feline Practitioners, AVMA, and American Animal Hospital Association released guidelines on vaccination suggesting that core vaccines have a longer duration of immunity than one year. The AAFP and AAHA guidelines recommended vaccinating every three years. Dr. Ford said many practices began measuring titers “to provide evidence to themselves that in fact the vaccinations are lasting longer than one year.”

Part of the impetus for the guidelines was concerns about the potential adverse effects of vaccines. Recently, Dr. Ford said, concerns about adverse effects of vaccines in children have spilled over into veterinary medicine.

The technology for measuring antibodies also has improved, he said. There are now affordable useful information within 20 to 25 minutes. Dr. Ford said, “Two things loom, and I think every One, what is the indication for using the test? And, two, how do you interpret the test results

For all forms of antibody testing, it remains confusing and even controversial whether the re immunity.

According to the AAHA guidelines, antibody testing is useful for monitoring immunity to certain guidelines recommend defined revaccination intervals for cats. Guidelines from the World S favor antibody testing for determining duration of immunity of core vaccines in dogs. But the Principles” sound a cautionary note.

## Principles of titers

According to the AVMA principles: “When serological titers are used to help determine the v animal, veterinarians should make sure these data have been clinically correlated to host-a specific diseases and species being tested. For most common vaccine antigens, the correla vaccination, long-term serostatus, and protection in the host animal has not been adequately often precludes practitioner’s ability to make well-informed vaccination decisions based on s

Dr. Laurel Gershwin, a professor who teaches immunology at the University of California-Da represents immunology on the AVMA Council on Biologic and Therapeutic Agents, which ha Principles.” The principles don’t make recommendations on specific vaccines or specific va said there are good data that immunity from core vaccines in cats and dogs should last for t

“For those clients that are reticent about not having a distemper vaccine every single year, f indication to go ahead and do a titer,” she said. “Having said that, when we measure antibod equation.”

GET AVMA EMAILS

SUBSCRIBE



A cat or dog could respond to a vaccine with a strong cell-mediated immune response, which is a common finding in a research setting. She said, “Even if you have a titer that is less than what is considered acceptable, it doesn't mean that the pet would get sick if he or she were challenged with just the street virus, walk with a dog that was infected, for example. But, obviously, one would want to boost those.”

Dr. Gershwin said the gold standard in titer testing involves sending a blood sample to a laboratory for a neutralization assay to measure antibodies to canine distemper virus or parvovirus or to perform a PCR test to measure antibodies to parvovirus.

Titer testing is a good idea for some cats and dogs, Dr. Gershwin believes. These include animals with a genetic predisposition to poor responsiveness to a vaccine, that have an allergic reaction to a vaccine, or that have immunosuppression.

### **Titers in practice**

The AAHA Canine Vaccination Guidelines state that “despite the confusion and controversy surrounding titer testing, titer testing is useful for monitoring immunity to canine distemper virus, canine parvovirus type 2, and rabies virus. The guidelines note, “Some clients are now having titers performed for CDV and

“I get the impression that some veterinarians are just not doing any vaccinations until the titer falls into the negative threshold level, and then they boost. So that might mean some dogs or cats will go on for multiple years

Dr. Ford of North Carolina State University said that the AAHA and AAEP guidelines on vaccination, especially for dogs, correspond well to gold-standard titer testing for canine distemper virus, canine parvovirus type 2, and the parvovirus that causes feline panleukopenia.

The test kits have a variety of applications. Some could do titers during animal intake to help control disease without euthanasia. In a routine vaccination series for a puppy, the puppy is immunized before starting puppy socialization.

without needing a vaccination. Some develop excellent levels of antibody that are sustained virtually for their lives following the initial vaccination series. And others don't seem to sustain them that well."

*Dr. Richard Ford, emeritus professor  
of internal medicine,  
North Carolina State University  
College of Veterinary Medicine*

More clients are asking whether b  
Ford said, and the cost has come  
the impression that some veterina  
vaccinations until the titer falls into  
then they boost. So that might me  
multiple years without needing a v  
levels of antibody that are sustain  
initial vaccination series. And othe  
well."

Dr. Ford uses the acronym PIE to  
Depending on the nature of the di  
protection, infection, or exposure.  
Lyme disease or leptospirosis imp  
titer test for ehrlichiosis implies ex

For titer tests as with all tests, Dr. Ford added, practitioners should consider data on the likelihood of negative results.

## **AAFP recommendations**

The AAFP Feline Vaccination Advisory Panel Report states, "Because antibody titers may not accurately predict the degree of protection or susceptibility for an individual cat, the Advisory Panel recommends regular vaccination intervals rather than measuring antibody titers to assure protection."

According to the report, most cats that have a positive result on a titer test for feline panleukopenia are immune to the disease. Titers for feline herpesvirus-1 and feline calicivirus "may not necessarily correlate well with protective immunity and should not be used to predict protection in the future." Titers for feline leukemia virus and feline immunodeficiency virus "do not correlate with immunity and should not be used to determine the need for vaccination."

Shila Nordone, who holds a doctorate in immunology and was an author on the report, said, "We have yet to determine the role of cell-mediated immunity in protection of the cat long term against specific diseases post-immunization. Antibody titers do correlate with protection but are by no means indicative of absolute protection."

Vaccine formulations vary quite a bit, Dr. Nordone said. The AAFP recommends boosting when protection is likely to begin waning, about halfway through the expected duration of immunity.

Dr. Nordone said vaccines for feline panleukopenia are highly effective, inducing sterilizing immunity, which means the virus is blocked from replicating in the cat. She said, "FCV and FHV vaccines do not induce sterilizing immunity but rather minimize clinical symptoms of disease. Similarly, FIV and FeLV vaccines don't induce sterilizing immunity against the pathogens."

She concluded, "My bias, as an immunologist, is to avoid overimmunization and follow recommendations in order to maintain full protection."

## **What is a titer?**

In brief: A titer is a measurement of the concentration of antibodies in the blood, as measured by a repeated dilution of the blood, exposing

Dr. Laurence Nordone, an immunologist at North Carolina State University, said, "The titer is a measure of the patient's immune response to a specific antigen. The endpoint of the titer is the type of antibody that is produced. The titer is the number of times the serum can be diluted before the reaction, which is a





