Assess Revaccination Needs with Canine and Feline Vaccine Panels

By: Carole Bolin, DVM, PhD; Roger Maes, DVM, PhD

Note: A version of this article was originally published in the spring 2007 issue of our quarterly newsletter. Because of the seasonality of vaccine screening and increased interest we have seen from our clients, we are reprinting this update to help put information you need at your fingertips.

What is the logic behind it?
Safe and effective vaccines and bacterins against major infectious diseases of dogs and cats have had a major impact on disease incidence. For core canine (distemper, parvovirus, adenovirus) and feline (panleukopenia, herpes, calicivirus) viral vaccines, yearly revaccination has long been the standard protocol. Side effects associated with repeated vaccination and new knowledge regarding duration of protective immunity led to the AAHA recommendation to lengthen revaccination intervals. The current AAHA panel recommendations for both dogs and cats include a primary series for puppies and kittens, a booster 1 year later, and subsequent revaccination at 3-year intervals.

Some owners and veterinarians may choose to test dogs and cats for titers associated with vaccination. This assures the presence of titers that are consistent with protection and assists in making decisions regarding the timing and frequency of vaccination for individual animals. DCPAH offers a full range of testing for vaccine-induced antibodies and offers unique services in the interpretation of leptospirosis vaccine titers.

In Michigan and many regions, the prevalence of canine leptospirosis warrants consideration of routine leptospiral vaccination. In contrast to the longer duration of immunity for the core viral vaccines, the duration of protective immunity for leptospirosis vaccines is less clear and there is little information in the literature to assist with the decision of how frequently to vaccinate. In addition, owners and veterinarians are concerned regarding the potential for adverse reactions associated with use of leptospiral vaccines. Therefore, veterinarians request advice regarding the frequency of vaccination in order to balance the risks of leptospiral vaccination with the clinical benefits of protection against leptospirosis.

How does post-vaccination serological screening help with the decision to revaccinate?
An important proposal (Horzinek) is to measure antibody levels to core viral vaccine components after the first boost, given 1 year after the primary series. Adequate levels of humoral immunity, though not an absolute guarantee of protection, indicate that the expected immune response to each vaccine component occurred. In addition, current practice is often to combine clinical judgment and client wishes to determine the need for additional serological viral screening between vaccinations. DCPAH offers screening of titers against viral vaccine components to assist with vaccination decisions.

As a unique service, DCPAH also offers screening of leptospirosis titers to assist veterinarians in making the decision to revaccinate for leptospirosis. DCPAH scientists have performed vaccination/infection trials in puppies to support our recommendations, and an individual interpretation for each animal is provided.

What are the available testing formats?
DCPAH offers vaccine serology screens for both dogs and cats. Serum (1.5 mL) is requested for these tests, and this testing can be done in combination with other tests sent to DCPAH, e.g., thyroid function tests.

Spring Cleaning: A Toxicologist’s View

By John Buchweitz, PhD

Spring represents a new beginning in nature and around the home. The change of seasons and holidays are often an opportunity to reconnect with friends and family. Usually a period of cleaning and preparation precedes these festivities. Around my house, it’s called spring cleaning and it typically begins around early March.

So why is spring cleaning so important and what purpose does it serve? For me, it serves as a reminder of all the products my family uses in and around the home. More importantly, it is an opportunity to identify and mitigate household dangers for our best friend, an often curious and sometimes rambunctious two year old goldendoodle named Belle.

Kitchen

Leftovers and miscellaneous “science projects” are removed from the refrigerator to make room for all of the baked goods and sundry dishes that migrate to our house with guests. Belle thinks this is great, and likes to assist where possible. She is quick to maneuver her head into the garbage to retrieve any random morsel. This type of “garbage diving” has led to many ailments for pets that uncover food covered in mold, often the work of tremorgenic mycotoxins, such as penitrem A and roquefortine. Mycotoxicoses in companion animals may present with rapid breathing (polypnea), rapid heart rate (tachycardia), lack of coordination (ataxia), and seizures.

And then there are sweets. For chocolate, “the dose makes the poison” and not all chocolates are created equal. Baker’s chocolate has higher concentrations of theobromine and caffeine per ounce than semi-sweet or milk chocolate. Just a few squares may be all that it takes to make a small dog quite ill. Depending on the quantity ingested, signs may range from vomiting and diarrhea early on to seizures and ultimately cardiac failure if not addressed by a veterinarian. Theobromine and caffeine are methylxanthine compounds that are not metabolized well by dogs, exhibiting half-lives of 17.5 and 4.5 hours, respectively. Therefore, symptoms may linger for a few days. Be careful to keep chocolates out of harm’s way.

Bathrooms

In attempt to remove rings or discolorations from toilets a number of products have been made available to “bleach and deodorize.” These products are corrosive and may be hazardous to the animal that doesn’t discriminate when it comes to a “fresh bowl of water.”

Countertops are also problematic. Deodorants, hair care items, perfumes, toothpaste, even frequently used prescriptions and over-the-counter medications tend to populate the spaces around the sink. To her credit, Belle stands upright approximately 4’6” on her hind legs. This makes the sink area easily accessible to her curiosity. Although many medications have child-proof lids, the plastic medication bottles are no match for Belle’s jaws. NSAIDs, muscle relaxers, and sleep aids are just a few of the medications accessed by animals each year. Some NSAIDs are particularly poisonous to companion animals when taken in overdose due to their ability to recirculate in the body (enterohepatic recirculation) causing repeated exposure.

Living Room

Because these rooms are typically equipped with large windows designed to let in more natural light, they are a great place to showcase indoor plants. Dogs and cats are equally attracted to various floral scents and may find leaves, flowers, or even roots delectable. However, some varieties of plants may be toxic to both cats and dogs, or individually specific to each. The Easter Lily is a popular springtime plant and will adorn many tables. Around my house, Belle will be able to enjoy the fragrance and possibly a bite without too much concern, but in homes with feline friends the risk for accidental poisoning is much greater. Cats that consume this plant are prone to episodes of vomiting, inappetance, lethargy, and acute renal failure. A good basic resource for identifying whether the types of plants in or around your home are potentially poisonous is the ASPCA website’s “Toxic and Non-Toxic Plants” search tool (www.aspca.org/pet-care/poison-control/).

Bedrooms

As winter clothes are exchanged for spring wear, the question of storage usually arises. I remember the distinct odor of mothballs having been placed in storage chests along with wool sweaters and coats. Mothballs are fumigants
consisting of either naphthalene or 1,4-
dichlorobenzene and their use in sealed
containers is the most appropriate use
based on label directions. Those who are
desperate to rid their property of nuisance
wildlife including snakes and mice are
quick to turn to this inexpensive method
with no proof of effectiveness. Scarily,
they have even been recommended for
use inside the engine compartment of
vehicles to ward off unwanted mice...not a
good idea. The use of large quantities of
mothballs in open living or crawl spaces
may lead to respiratory problems for the
inhabitants. Mothballs are also appealing to
both animals and children, and hence are a
concern for accidental poisoning. Clinical
signs of toxicity in animals may vary with
dose and route of exposure and can cover
a broad spectrum: nausea/hypersalivation,
vomiting, lethargy, ataxia, tremors, and seizures.

Garage

Since my garage door is frequently open
to the outdoors, I have to contend with the
possibility of mice finding a place to shelter.
As a homeowner, there are many options
available in rodent control. Of particular
concern are a number of products utilizing
rodenticides, such as bromethalin,
chlocalciferol, and zinc phosphate,
as well as first (warfarin, chlorphacinone
and difenacoum) and second
generation anticoagulants (brodifacoum,
bromadiolone, difenacoum, and
difenethitone). Unlike the first
three chemicals mentioned,
anticoagulants take
approximately 3 to 5 days
to induce a coagulopathy.
If anticoagulant rodenticide
poisoning is discovered in a
companion animal, vitamin K is a readily available
antidote. **This is not the case
with the other rodenticides,
which have no antidote.**

Although I am glad that there are choices
available, I choose the sticky pads for ease
of disposal and to ensure that Belle and
my children do not mistakenly get into
something that they shouldn’t.

Also in the garage are automotive products.
Among these is antifreeze. Antifreeze
typically contains ethylene glycol, but
newer formulations have moved toward
the use of a less toxic propylene glycol.
Nevertheless, ethylene glycol is attractive
to dogs and cats because of its sweet taste.
Signs of poisoning include the appearance
of “drunken behavior” such as ataxia,
stupor, and vomiting. If left unaddressed
the animal may progress to renal failure
and death. Antidotes for ethylene glycol
poisoning witnessed by an owner may
include administration of alcohol (ethanol)
or fomepizole to inhibit the metabolic
conversion of ethylene glycol to its toxic
metabolites glycolic and oxalic acid.

Landscape

Each spring I have visions of a well-
manicured, lush, green lawn for my children
and Belle to play on, but reality sets in
midway through the summer and I typically
salvage what I can as I fight off weeds and
other pests. Snails and slugs adversely
impact gardens by chewing on leaves and
flowers. Metaldehyde is a relatively
common ingredient in baits designed to
control mollusks. If these baits are overused
or placed in areas without barriers or other
protection, curious pets
can become victims. Signs
of metaldehyde toxicity
include hypersalivation/
panting, vomiting, tremors
and seizures. Unfortunately,
there are no antidotes for
metaldehyde poisoning,
and animals are treated
symptomatically.

**Meet Luke, a pit bull mix that ate
an anticoagulant rodenticide when
he was 6 months old. Emesis and vitamin K
therapy prevented any ill
effects.**

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**About the DCPAH
Toxicology Laboratory**

We test animal samples to
detect presence of toxins,
Drugs, or chemical residues
as well as food, water, and
environmental samples
to determine sources of
exposures to animals. We also
provide select therapeutic
drug monitoring. From 2008
to 2012, we have seen an 86%
increase in the number of
tests conducted.

**Frequently ordered tests include:**

- Anticoagulants in blood, tissues, and bait
- Bromide
- Cholinesterase in blood
- Ethylene glycol
- GCMS general organic compounds screen
- Glomerular filtration rate/
  iohexol clearance
- Ionophore
- Lead in blood
- Mycotoxins
- Toxic elements in whole
  blood, tissues, feeds, and water

For more information on
toxicology topics, visit us at
[animalhealth.msu.edu](http://animalhealth.msu.edu)
and
click on Diagnostic Sections.
For details on specific tests,
including collection protocol
and shipping requirements,
see our online test catalog
(under Available Tests).

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**Client Education Resources Available!**

A new guide designed to help clinicians educate pet owners about **pets, poison control, and making their homes safer** is available at [animalhealth.msu.edu](http://animalhealth.msu.edu). Other guides on canine leptospirosis, ticks and tick-borne diseases, and living with a pet diagnosed with chronic kidney disease are also available. Please let us know if you have topics you’d like us to cover by contacting DCPAH communications manager Courtney Chapin at chapinco@dcpah.msu.edu.
Taking Care of Business

Although the economic recession may be officially over, many businesses—including small and large veterinary practices—continue feeling the pinch. All of us at DCPAH, including the staff in our Business Office, understand that some months are harder than others. We review our finances monthly, just like you do.

Because we strive to be more efficient, effective, and financially responsible, we must enforce our billing policies. In your recent statements, you should have seen an insert containing our general policies; bill, payment, and contact information; and a credit card authorization. To help increase awareness of these important policies, we are also including details here.

**POLICIES** - All current charges are due within 28 days of the print date on your statement unless otherwise noted. Accounts not paid within the stated time period are subject to penalty. These penalties include: a finance charge of 1.5% applied to balances greater than 28 days; denial or cancellation of future services; placement with a collection firm which includes an additional processing fee.

Please be assured that we will make every effort to work with clients to resolve billing payment issues. Please contact our Business Office at 517.353.3045.

We care about our clients and the animals entrusted to them. We’re here to ensure you get quality diagnostics, accurate results, and continued access to the testing you rely on.

We Want to Hear from You

In March, we will be launching our 2013 Client Survey. A link to the survey will be featured on our website. It is important for us to learn more about our clients. The feedback you provide helps us to offer the best services possible. The survey is brief and should take only approximately 10 minutes of your time.

Because both your time and input are valuable, respondents have the opportunity to enter their name and contact information for a chance to win a token of our appreciation. The grand prize winner will receive a Drinkwell® Big Dog Fountain, cleaning kit, replacement filters, and gift certificate for DCPAH services. Five additional winners will receive a DCPAH gift certificate and a special DCPAH care package.

Please visit us online at animalhealth.msu.edu and take a few moments to complete the survey. The survey will be available through April.

News from the Endocrinology Lab

Effective February 2013, DCPAH’s endocrinology section began increasing the frequency for reporting parathyroid hormone and ionized calcium results in both the standalone test and panels. This test will now be set up daily Monday-Friday. Please see the announcement on our website (animalhealth.msu.edu) for more information.