Pets and Ticks

By Karen Shaw Becker, DVM

According to a recent article in veterinary publication dvm360 regarding ticks:

"Perhaps the scariest of the blood-sucking hangers-on are ticks. But our understanding of tick parasitism has been sparse thus far."[1]

The article states that until recently, little was known about the prevalence of individual tick species and their life stages on dogs and cats.

I confess my first thought when I read this was, "Wait, what? If the veterinary community doesn't understand much about ticks on dogs and cats, why has it been so enthusiastically pushing **chemical tick preventives** for every pet, for year-round use, for decades?"

The article goes on to cite various studies beginning in 2007 that have revealed many more specifics about the prevalence of ticks on pets, tick species, gender and life cycles, attachment sites, when (month) and where (geographic location) the bites occurred, plus the age, gender, weight, spay/neuter status and estimated percentage of time affected pets spend outdoors.

What follows are some of the findings from a large-scale study at Oklahoma State University that covered the period February 2018 to January 2019. Tick submissions were solicited from 190 veterinary practices across the U.S., for a total of 10,978 ticks harvested from 1,494 dogs and 336 cats.

Data was collected on canine patients at 263 veterinary hospitals in 49 states — a total of 1,494 dogs.

Dog ages ranged from 40 days to 19 years

Average weight was 44 pounds

Gender and spay/neuter status were about the same as the general dog population

Half the dogs spent over 30% of their time outdoors

Most (over 90%) of the dogs had just one tick; 5.5% had more than 9 ticks; one poor animal was infested with over 4,700 ticks

A total of 14 tick species were identified: 36% of dogs were bitten by the **American dog tick**, 27% by the deer (black-legged) tick, 23% by the Lone Star tick and 11% by the brown dog tick; the

remaining dogs were bitten by a variety of other species; about 6% were bitten by more than one tick species

A review of tick species with respect to percentage of total ticks revealed the brown dog tick as the most prevalent at 62%, followed by the Lone Star tick (19%), the American dog tick (10%) and the deer tick (6%)

Attachment sites appeared to be associated with the species of tick: the American dog tick, deer tick and brown dog tick were most often found attached to the head, ears and neck — the brown dog tick was also less frequently attached to the abdomen, axillae ("armpit"), groin, legs and paws; the Lone Star tick was more commonly attached to the abdomen, armpit and groin area

Data was collected on feline patients at 109 veterinary clinics in 39 states — a total of 336 cats.

Cat ages ranged from 18 days to 18 years

Average weight was just under 10 pounds

Gender breakout was 59% male compared with 49.6% for the general cat population; a "disproportionately small percentage" were sterilized

Over 56% of cats spent more than 70% of their time **outdoors**

Average number of ticks per cat was 2.6, with a range of one to 38 ticks

A total of 12 tick species were identified: 46% of cats were bitten by the deer (black-legged) tick, 30% by the Lone Star tick and 18% by the American dog tick; the remaining cats were bitten by a variety of other species; about 4% were bitten by more than one tick species

A review of tick species with respect to percentage of total ticks revealed the Lone Star tick as the most prevalent at 39%, followed by the deer tick (32%) and the American dog tick (14%)

Attachment sites mirrored those for dogs

New Findings From the Oklahoma State Study

The primary ticks infesting dogs were the brown dog tick, the Lone Star tick and the American dog tick (totaling 95% of submissions)

For cats, the Lone Star tick, the American dog tick and the black-legged tick accounted for 80% of samples

About 40% of the ticks removed from dogs and cats were adult females, however, nearly half were larvae and 16% were nymphs, therefore, "This finding confirms that immature stages of some common tick species are significant players in tick parasitism of pets. It also suggests the importance of tick control, as these small stages can be overlooked easily."

Certain tick species are expanding their geographic distribution

There is a year-round presence of feeding ticks in the U.S.

A small portion of pets were reported to rarely or never go outside, suggesting that ticks are carried indoors on clothing and other pets

"Cats may be underrepresented as hosts for ticks"

Protecting Your Pet From Ticks

While all of the above information is good to know, it doesn't change any of the recommendations I've been offering pet parents for years with regard to protecting dogs and cats from ticks and tick-borne disease.

When it comes to **flea and tick protection**, many veterinarians recommend chemical preventives as a solution (some even recommend them to pets year-round), but I don't agree with the automatic use of chemicals as a means of attempting to control nature.

In deciding how to best protect your dog or cat from ticks, I recommend you assess your pets like you do the rest of your family. If you're planning a hike in a high-risk area and plan to use chemicals to repel parasites on you or your kids, your dogs will also need the same level of protection (so you'll need to be prepared with products from your vet).

You need to take into account when pest season begins and ends where you live, your pet's individual risk (e.g., do you go for long walks in the woods or do a lot of hiking?; does your furry family member have unrestricted access to the outdoors?), as well as the level of disease risk in your area.

Ticks are resilient and increasingly resistant to pesticides, and because they feed on many different animals (humans, dogs, cats, squirrels, mice, opossums, deer and more), and they feed for long periods of time, they're quite good at acquiring and transmitting diseases, some of which can be life-threatening.

So even if you opt to use chemicals on your human and canine family members, it's still wise to do tick checks once you're home; don't rely solely on any product and assume you are protected. Tick-borne diseases include:

Lyme disease	Cytauxzoonosis
Rocky Mountain Spotted Fever	**Ehrlichiosis**
Anaplasmosis	Hepatozoonosis
Babesiosis	Tularemia

Unfortunately, a single tick bite can expose your whole family to multiple diseases, but exposure is not the same as infection. In many cases, your pet will be able to fight off tick-borne diseases with no treatment required. The immune system of most dogs and cats does exactly what it's supposed to do when a foreign bacterium enters the body — it mounts an effective immune response.

The only way to know if a pet has effectively eliminated the bacteria (was exposed but not infected) or is currently infected is to run a QC6 (Quantitative C6) test that differentiates exposure from infection. Sadly, large numbers of dogs and even some cats each year are unnecessarily treated with extensive antibiotic therapy because their veterinarians panic after seeing a positive exposure. Please don't let your vet do this!

Up to 90% of dogs in certain areas (and substantially fewer cats)[2] may have been exposed to tick-borne pathogens, but most are able to fight off infection on their own. In those that do not, quickly identifying the problem and creating an appropriate treatment plan is crucial. I recommend that my clients who live in tick-endemic areas or who have pets who receive multiple tick bites each year have them tested every six months.

How do you make sure you're catching possible tick-borne infections before they take hold? Ask your veterinarian to replace the standard heartworm test with a more comprehensive annual blood test that identifies several tick-borne potential pathogens long before dogs show symptoms.

The **SNAP 4Dx Plus** (from Idexx Labs) and the Accuplex4 tests (Antech Diagnostics) that screen for heartworm, Lyme disease and two strains each of ehrlichia and anaplasma should be screening tests for dogs in tick-endemic areas, in my opinion. Completing one of these simple blood tests every 6 to 12 months is the best way to:

- Avoid unnecessary chemical preventive application
- Identify infections before chronic disease occurs
- Catch cases of dogs infected as a result of pesticide resistance (a growing problem)

I also recommend that pets living in tick-infested areas who test positive on the SNAP 4Dx Plus or the Accuplex4 also be screened for **babesia exposure**. The best way to detect exposure to this parasite is with a PCR (polymerase chain reaction) test that checks for the presence of babesia DNA. Unfortunately, there isn't a quick in-house test that checks for feline tick-borne diseases, probably because they occur in much lower frequency, compared to dogs.

Before You Reach for a Chemical Pest Preventive

I strongly discourage pet parents from automatically applying potentially toxic chemical agents to their pets or around their home to repel or kill pests. Each pesticide application should have thoughtful awareness that assesses risks vs. benefits for all family members. The use of **spot-on products** may cause skin irritation, paralysis, seizures and even death if used improperly, and there are effective natural alternatives that are far safer.

In addition, ticks are growing resistant to chemical pesticides, which means your dog or cat may still be exposed to tick-borne disease. If, however, you choose to use these chemicals, follow these precautions:

- Be very careful to follow dosing directions on the label, and if your pet is at the low end of a dosage range use the next lowest dosage. Be extremely cautious with small dogs, and do not under any circumstances apply dog product to your **cat**.
- Monitor your pet for adverse reactions after you apply a chemical product — especially when using one for the first time.
- Don't depend exclusively on chemical treatments. Rotate natural preventives with chemicals, including diatomaceous earth, pet-friendly essential oil products and **natural deterrent collars**. An every-other-month rotation works well for many pet parents. In many parts of the country people find they can successfully control ticks with two doses a year: one in the spring and one in the late summer.

Since your pet's liver will be tasked with processing the chemicals that make it into the bloodstream, it can be very beneficial to give a supplement to help **detoxify** the liver. I recommend milk thistle, which is a detox agent and also helps to regenerate liver cells. Another product I recommend is chlorella, a super green food that is a very powerful detox agent.

Work with your integrative veterinarian to determine how much to give your pet depending on her age, weight and the medications she's taking. I recommend one dose daily for seven days following any chemical flea, tick or heartworm preventive application.

Safe, Non-toxic Alternatives to Chemicals

There are safe, non-toxic alternatives for flea and tick control for pets, and they don't have side effects, unlike virtually all forms of chemical pesticides. Alternatives I recommend include:

A safe, natural pest deterrent
Cedar oil (specifically manufactured for pet health)
Natural, food-grade diatomaceous earth, topically (not on the face)
Fresh garlic (¼ teaspoon of freshly chopped garlic per 15 pounds of body weight once daily)
Feed a nutritionally optimal, species-specific fresh food diet
Bathe and brush your pet regularly and perform frequent full-body inspections to check for parasite activity (if your dog or cat spends a lot of time outdoors, it's important to check your pet and yourself for ticks every night during tick season)
Use a flea and tick comb to naturally exfoliate your pet's skin while removing or exposing pests (absolutely nothing takes the place of physically checking for ticks)
Make sure both your indoor and outdoor environments are unfriendly to pests