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calculations  
for the **ICU**  
p14

Why techs  
**LEAVE**  
p16 ↘

DIY recipes  
for diet trials  
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We're so excited to announce the launch of Fetch, a dvm360 conference—an innovative 360-degree educational experience from the media powerhouse dvm360 that focuses on every aspect of the veterinary professional's life.

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Fetch is about industry-leading CE, sure. But it's also about inspiration, wellness,

community and real solutions to industry-wide problems like debt, compassion fatigue and impostor syndrome. The goal is to care for veterinary professionals as whole people.

Fetch is part of the dvm360 family of brands that also includes *Vetted*, *Firstline* and *dvm360* magazines along with the dvm360.com website. The parent company is UBM, a global events-first company, of which UBM Animal Care is a division. Learn more about the change at **fetchdvm360.com**.

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Meet  
*Zoey*

# PEARLS

(Lustrously good advice and tips)

## The anatomy of a vet nurse

### A sharp mind to ...

- > Notice when something isn't right during anesthesia *before* the monitors tell you so
- > Calculate constant rate infusions with skill and poise

### The backbone to expertly handle ...

- > Pet owners who vent their anger, frustration or grief on you
- > Anyone who compromises the health and well-being of your patients

### Steady hands that ...

- > Expertly administer chemotherapeutic meds
- > Perform dental cleanings
- > Offer nursing and TLC to ICU patients

### The grit to keep going when ...

- > The skin sloughs off the cat you were about to vaccinate
- > You must perform a necropsy on a dog that's covered in maggots

### Strong knees to ...

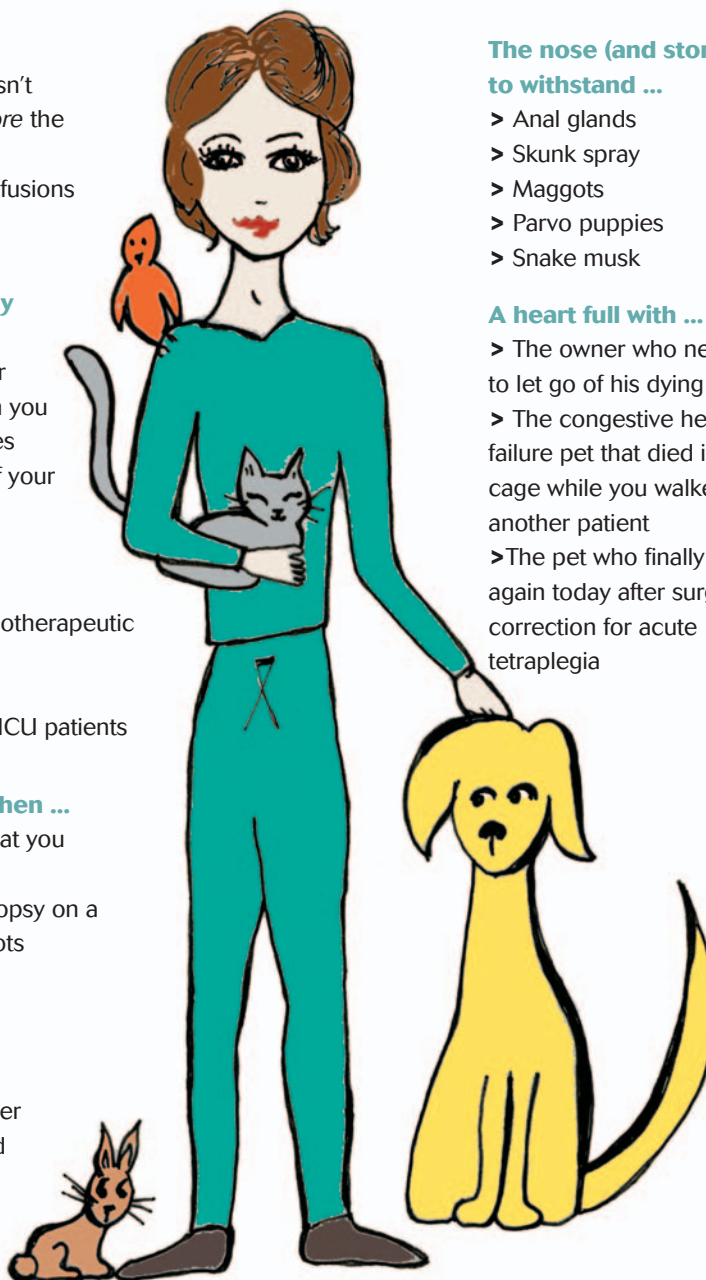
- > Crouch under surgical drapes to check and adjust blood pressure cuffs, Doppler crystals, IVs, CRI pumps and more.

### The nose (and stomach) to withstand ...

- > Anal glands
- > Skunk spray
- > Maggots
- > Parvo puppies
- > Snake musk

### A heart full with ...

- > The owner who needs to let go of his dying pet
- > The congestive heart failure pet that died in her cage while you walked another patient
- > The pet who finally stood again today after surgical correction for acute tetraplegia



If your clients are like many pet owners, they may not know about all of the amazing care your highly skilled nursing team performs in the course of the day to offer the highest quality care for their pets. To educate your clients, download the poster at [dvm360.com/thanknurse](http://dvm360.com/thanknurse) (it comes in 8.5 inch by 11 inch and 11 inch by 17 inch sizes) and post it in your exam room. It's a great conversation starter—especially during National Veterinary Technician Week October 15-21.





# THE RISK IS OUT THERE.

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<sup>1</sup> Data on file at Merial.

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## The potty: Your newest profit center

Your veterinary practice's restroom is prime advertising space, so use it!

**C**VC (now Fetch!) educator Jennifer L. Wardlaw, DVM, MS, DACVS, wants you to make better use of your practice's public powder room. At a recent conference, Dr. Wardlaw encouraged attendees

to take a closer look at what they're posting in their restrooms.

"You have a captive audience," Dr. Wardlaw says. She recommends copying what restaurants do—placing advertisements next to the mirrors or

on the doors of their public restrooms.

"Advertise your new deal. Advertise your special. Advertise your pet weight-loss program," she says. "It's your space. Use it. Make sales in there."

FROM YOUR VETERINARIAN

### Top three behaviors to train first for cats

**Go to space:** Teach the cat to move to his bed, a mat or a cat-shedding area when asked. The behavior focuses the cat's positive association and familiarity with a certain area, becoming his chosen to-die-in designated space. Go to space may be useful for guiding a cat away from other areas, such as the kitchen counter or dining table, and it provides a portable anxiety blanket of sorts to increase the cat's comfort in quiet areas of the house like the work office. You can also use it to guide the cat into the water or exercise cage.

**Touch at target:** This behavior encourages the cat to approach new people and objects the cat is to perform other desired behaviors, such as move with three people out of an all-female team and take a cat through space. You can also use the target to show the cat to go into a certain area when needed, such as into their cage. In the veterinary hospital, you can use targeting to move the feline where needed or to encourage a positive association with the veterinary team.

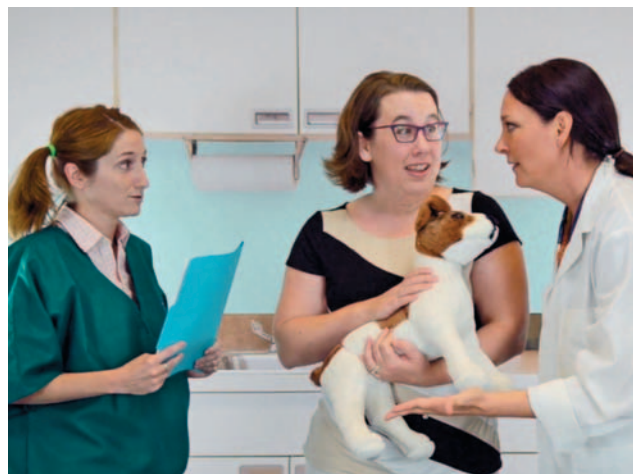
**Sit:** Sit is a default behavior that can become the cat's public way of asking for things it wants, like petting or food, and it can replace undesirable behaviors like the cat using to get attention. Being prompted to sit and receiving reward and praise for the behavior offers the cat a predictable way to interact with people, including veterinary team members.

## Top three behaviors to train first for cats

You can train cats. The benefit: more relaxed (and accommodating) patients.

**S**tarting training for a calmer cat can be tricky, especially when your veterinary client has no idea where to start. This client handout can solve that easily, by telling your clients what to train for first with their cats. Visit [dvm360.com/traincattool](http://dvm360.com/traincattool) for the downloadable PDF version.

If you want even more advice on how to go about cat training with your clients, check out the rest of the awesome training tips that Mikkel Becker, CPDT, has to offer on the subject, at [dvm360.com/traincats](http://dvm360.com/traincats).



## Back Office Blunders, Episode 9: The overeager educator

**E**nthusiasm is a great trait for veterinary team members ... as long as they don't overwhelm pet owners. Visit [dvm360.com/backofficeblunders](http://dvm360.com/backofficeblunders) for a look at what can happen when you get too excited in the exam room. Watch and laugh (or cringe), then stick around for comments from Dr. Sarah Wooten and Tasha McNerney, CVT, CVPP.



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\*Source: Among veterinary brands. Survey conducted in February 2016 of small animal veterinarians who recommended oral joint health supplements.



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# Wanna be Fear Free?

1. Stop staring so much at cats, dogs. (Seriously)
2. Step up. Those patients need your advocacy!



The reasons to use Fear Free techniques in your veterinary clinic extend beyond the welfare of your patients, according to Debbie Martin, CPDT-KA, KPA CTP, LVT, VTS (behavior). But that's the place to start.

For example, she notes that dogs and cats get stressed out by things like eye contact and the presence of something towering over them.

"Rather than maintaining direct eye contact with them, you look and you look away," she says. "We can turn sideways so we're less

threatening and we're not looming over them."

(Visit [dvm360.com/petdecides](http://dvm360.com/petdecides) to learn how one technician decides what to pull out of the Fear Free arsenal during reception area introductions, exam room visits or treatment areas encounters.)

But the benefits don't end with the pet. Martin says there's also a workplace benefit: "If the pets that come in are happier, it makes us veterinary technicians happier about going to our job and enjoy what we're doing much better."

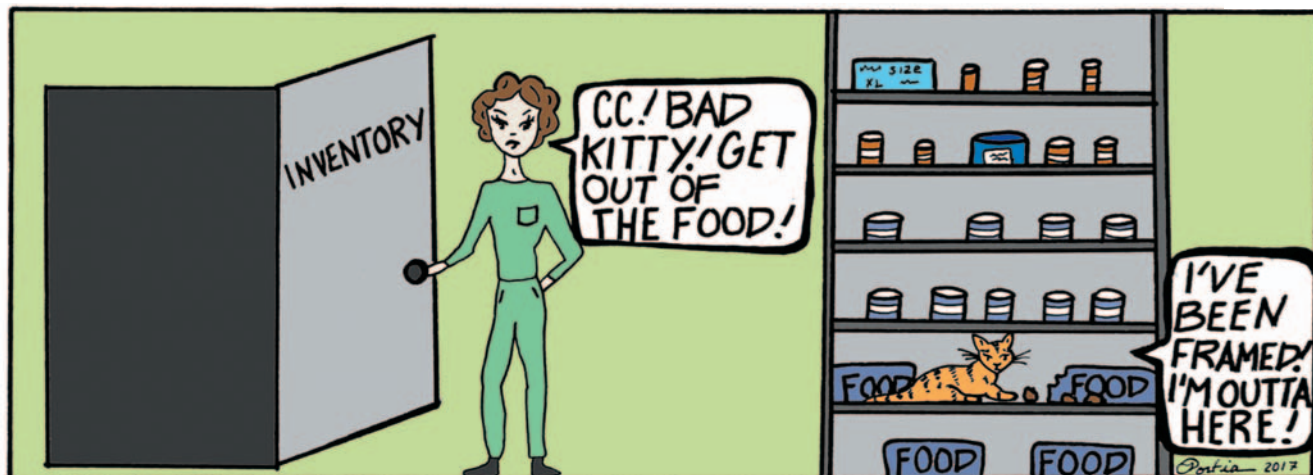
Additionally, she describes how



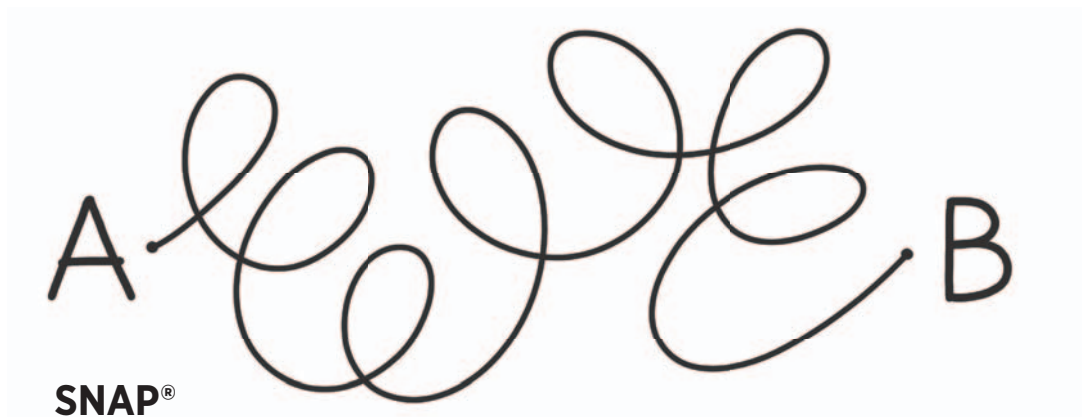
taking on the role of Fear Free advocate can open up great career options. "If you become the Fear Free advocate in your hospital, you can start taking on things like preventive care services, which can be added income," she says.

## CC the Clinic Cat

Find more Clinic Cat comics and fun stuff at [dvm360.com/cliniccat](http://dvm360.com/cliniccat)







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# RABID

It's a lurid read, but also a horrifying disease. This book showcases the havoc wreaked by rabies throughout history—and the myths and monsters it has engendered in our cultural imagination.

By Kristi Reimer Fender, News Channel Director

**W**hat happens when a tech journalist and a veterinarian with a public health degree get married? They write a book about rabies, of course.

Bill Wasik, a senior editor at *Wired* who covers technology, media and crowd dynamics, and Monica Murphy, DVM, DACVPM, a University of Minnesota veterinary grad with an MPH from Johns Hopkins, are the minds behind *Rabid: A Cultural History of the World's Most Diabolical Virus* (Viking, 2012).

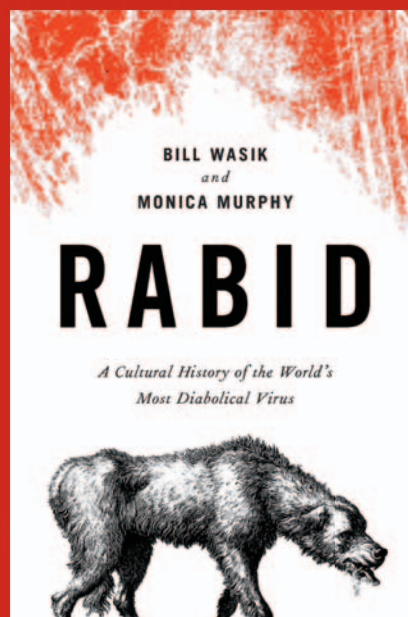
It's easy to forget, in our successfully regulated U.S. society where spread of the virus is more or less controlled, how horrifying a disease rabies really is. Wasik and Dr. Murphy remind us of the horror in no uncertain terms. Here's a sample:

"Once inside the brain, the [rabies] virus works slowly, diligently, fatally to warp the mind, suppressing the rational

and stimulating the animal. Aggression rises to fever pitch; inhibitions melt away; salivation increases. The infected creature now has only days to live, and these he will likely spend on the attack, foaming at the mouth, chasing and lunging and biting in the throes of madness—because the demon that possesses him seeks more hosts."

After a vivid explanation of how rabies manifests in people and animals and how the virus operates within the body, the authors delve into a history of how rabies has been evident in art, literature and history, most likely giving rise to the myths of the werewolf and the vampire, both of which are created through the bite of an infected creature, with an irrevocable outcome. Larger discussions of zoonotic diseases are also sprinkled throughout, along with deep examinations of the mystery and dread surrounding diseases that originate in animals and spread to humans—even from our truest, most loyal companions.

If nothing else, reading *Rabid*



will help drive any tendency to be blasé about rabies right out of a veterinarian or team member's mind. That rabies vaccine you give multiple times a day is a gift to animals and humankind both. As the authors note, the book is not for the squeamish, but it is fascinating, excellently written and almost impossible to put down. If you double-checked your own rabies titer after reading, we wouldn't blame you a bit.

## Don't forget!

World Rabies Day is September 28.





# Ticks And Canine Disease

The rise of ticks in the United States and the risk to your patients.

## The Growing Threat

Ticks now pose a greater threat to dogs across the country than ever before.<sup>1</sup> Several species of ticks – and the diseases that they can transmit – are now commonly found in parts of the country where they previously did not exist.

### What's to Blame?<sup>2-6</sup>

Some potential causes include:

- Reforestation
- Wildlife conservation, relocation and restocking
- Climate changes
- Migratory birds
- Decreased environmental pesticide application
- Increased human involvement in forested areas

### A Year-Round Threat

Ticks are more than just a summer nuisance. These hardy parasites can thrive – and hunt – in temperatures as low as 40 degrees.<sup>7</sup> The rising populations of ticks across the U.S. have led to an increased risk of exposure for many pets. Given the resilience of ticks, this risk can be high for many months of the year, even year-round in some areas.

### Where Ticks Prey

Ticks lurk in many of the places dogs love to go, including:

- Parks
- Nature trails
- Wooded areas
- Campsites

Even in urban areas, ticks can be brought into residential yards by hosts like white-tailed deer, raccoons, wild turkeys, coyotes, and the neighbors' pets.<sup>2</sup>

## Tick-Borne Diseases



**Blacklegged (deer) tick<sup>8</sup>**  
(*Ixodes scapularis*)

Associated with:

- Lyme disease
- Anaplasmosis



**American dog tick<sup>8</sup>**  
(*Dermacentor variabilis*)

Associated with:

- Rocky Mountain spotted fever
- Tularemia



**Brown dog tick<sup>8</sup>**  
(*Rhipicephalus sanguineus*)

Associated with:

- Rocky Mountain spotted fever



**Lone star tick<sup>8</sup>**  
(*Amblyomma americanum*)

Associated with:

- Ehrlichiosis
- Tularemia

**Complete Tick Life Cycle =  
Often Two – Three Years**



# Blacklegged Tick and Canine Lyme Borreliosis (CLB)

In North America, only one tick genus of veterinary importance has been found to effectively harbor and transmit the bacterial agent of canine Lyme borreliosis (CLB). The genus *Ixodes* includes the blacklegged tick (*Ixodes scapularis*) and the Western blacklegged tick *Ixodes pacificus*.

*I. scapularis* is mainly found in the eastern half of the United States, though drier and hotter microclimates within this zone may not harbor as many ticks.

*I. scapularis* is a three-host tick, successively feeding on a different host during each of its three growth phases. It is mainly a forest dweller, spending most of its life either in the leaf litter – where moisture is high and the risk of drying out is low – or on leafy green vegetation lower than knee-height.<sup>9</sup>

The larval deer tick stage, active in August and September, is pathogen-free. CLB is carried by the nymphal and adult deer tick stages, which are active May through July and October through August, respectively.<sup>10</sup>

## Lyme Disease Today

Canine Lyme disease has become a major concern in the United States and Europe over the last 20 years. More recently, the disease has been increasing in parts of the U.S. that previously only had sporadic cases. Practitioners face many challenges when it comes to Lyme disease.

1. **Diagnosis:** Verifying a sick dog that is serologically positive actually has Lyme disease.
2. **Treatment:** Determine what antibiotic to use, how much and for how long.
3. **Monitoring:** Determine when, and how, practitioners should monitor non-clinical dogs for evidence of *Borrelia burgdorferi* infection.
4. **Prevention:** Consider how practitioners can prevent Lyme disease from affecting their patients.

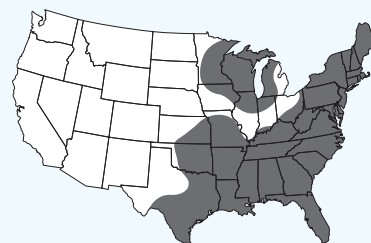
**Diagnosis:** The apparent lack of clinical signs in many dogs with Lyme infection can make the diagnosis of Lyme disease difficult. In fact, clinical signs, including those below, are observed in just 10% of infected dogs<sup>11</sup>:

- Lameness
- Lethargy
- Joint/limb swelling
- Fever
- Lymphadenopathy

## Staying Alert

The key word is vigilance. Even if you do not live in a state that is known to be endemic for CLB, remember that many dogs and their owners routinely travel in and out of areas thick with *Ixodes scapularis* ticks carrying or infected with *Borrelia burgdorferi*. Awareness, knowledge of testing, treatment and prevention procedures are important for veterinary staff members, regardless of geographic location.

## Areas Inhabited by Blacklegged Ticks<sup>8</sup>



**A multipronged approach is important to help protect your patients against Lyme disease and the ticks that transmit it.**

- **Vaccinate.**
- **Use tick control.**
- **Remove ticks daily:** It takes approximately 48 hours for an infected tick to transmit *Borrelia burgdorferi* to a dog.<sup>12</sup> Pet owners in areas with a heavy tick burden should examine their pet for ticks daily, and carefully remove any tick they find.

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# When kids go back to school, dogs drool and cats rule

If some family members are children, the end of summer can be a sensitive time for pets as their routines switch up drastically. Here's how you can help advise your veterinary clients to make sure their pets transition smoothly.

By Hilal Dogan, BVSc

**W**hen the little hoomans go back to school, we might imagine that cats are doing the happy dance, while dogs are feeling sorry for themselves. To get the real story, I asked veterinary behaviorist Dr. Lisa Radosta what it may mean for our furry companions when kids head back to class.

**Q Are changes pets might experience when kids go back to school after being home all summer something we need to be discussing with our clients preemptively?**

Yes, of course! We always want to prepare our furry kids for changes in their routine, and back to school is a big one. The technicians in our practices can spend time with the client. It doesn't have to be a doctor.



"How are we going to entertain ourselves now? Oh, I know!"

**Q Could there be an opposite effect that when the kids are at school, the adults get to better hone the human-animal bond?**

If one or more of the parents stay home, yes. But if the parents go back to work, it will more likely be negative. Lots of dogs love the human kids who live in the home, but often I see that they are more closely bonded with the adults. They play with the kids and sleep with them, but they go to the

adults for safety. So the changes to the kids' schedules cause changes to the adults' schedules and there is stress.

**Q What are some signs to watch for that pets may have the back-to-school blues?**

- > Depression as the family leaves
- > Signs of separation distress or anxiety, such as destruction, urination, defecation, howling or barking when alone

# NexGard® (afoxolaner) Chewables

**CAUTION:** Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.

## Description:

NexGard® (afoxolaner) is available in four sizes of beef-flavored, soft chewables for oral administration to dogs and puppies according to their weight. Each chewable is formulated to provide a minimum afoxolaner dosage of 1.14 mg/lb (2.5 mg/kg). Afoxolaner has the chemical composition 1-Naphthalene-carboxamide, 4-[5-[3-chloro-5-(trifluoromethyl)-phenyl]-4,5-dihydro-5-(trifluoromethyl)-3-isoxazoly]-N-[2-oxo-2-[2,2,2-trifluoroethyl]amino]ethyl.

## Indications:

NexGard kills adult fleas and is indicated for the treatment and prevention of flea infestations (*Ctenocephalides felis*), and the treatment and control of Black-legged tick (*Ixodes scapularis*), American Dog tick (*Dermacentor variabilis*), Lone Star tick (*Amblyomma americanum*), and Brown dog tick (*Rhipicephalus sanguineus*) infestations in dogs and puppies 8 weeks of age and older, weighing 4 pounds of body weight or greater, for one month.

## Dosage and Administration:

NexGard is given orally once a month, at the minimum dosage of 1.14 mg/lb (2.5 mg/kg).

## Dosing Schedule:

Body Weight	Afoxolaner Per Chewable (mg)	Chewables Administered
4.0 to 10.0 lbs.	11.3	One
10.1 to 24.0 lbs.	28.3	One
24.1 to 60.0 lbs.	68	One
60.1 to 121.0 lbs.	136	One
Over 121.0 lbs.	Administer the appropriate combination of chewables	

NexGard can be administered with or without food. Care should be taken that the dog consumes the complete dose, and treated animals should be observed for a few minutes to ensure that part of the dose is not lost or refused. If it is suspected that any of the dose has been lost or if vomiting occurs within two hours of administration, redose with another full dose. If a dose is missed, administer NexGard and resume a monthly dosing schedule.

## Flea Treatment and Prevention:

Treatment with NexGard may begin at any time of the year. In areas where fleas are common year-round, monthly treatment with NexGard should continue the entire year without interruption.

To minimize the likelihood of flea reinfestation, it is important to treat all animals within a household with an approved flea control product.

## Tick Treatment and Control:

Treatment with NexGard may begin at any time of the year (see **Effectiveness**).

## Contraindications:

There are no known contraindications for the use of NexGard.

## Warnings:

Not for use in humans. Keep this and all drugs out of the reach of children. In case of accidental ingestion, contact a physician immediately.

## Precautions:

The safe use of NexGard in breeding, pregnant or lactating dogs has not been evaluated. Use with caution in dogs with a history of seizures (see **Adverse Reactions**).

## Adverse Reactions:

In a well-controlled US field study, which included a total of 333 households and 615 treated dogs (415 administered afoxolaner, 200 administered active control), no serious adverse reactions were observed with NexGard. Over the 90-day study period, all observations of potential adverse reactions were recorded. The most frequent reactions reported at an incidence of >1% within any of the three months of observations are presented in the following table. The most frequently reported adverse reaction was vomiting. The occurrence of vomiting was generally self-limiting and of short duration and tended to decrease with subsequent doses in both groups. Five treated dogs experienced anorexia during the study, and two of those dogs experienced anorexia with the first dose but not subsequent doses.

**Table 1: Dogs With Adverse Reactions.**

	Treatment Group			
	Afoxolaner		Oral active control	
	N <sup>1</sup>	% (n=415)	N <sup>2</sup>	% (n=200)
Vomiting (with and without blood)	17	4.1	25	12.5
Dry/Flaky Skin	13	3.1	2	1.0
Diarrhea (with and without blood)	13	3.1	7	3.5
Lethargy	7	1.7	4	2.0
Anorexia	5	1.2	9	4.5

<sup>1</sup>Number of dogs in the afoxolaner treatment group with the identified abnormality.

<sup>2</sup>Number of dogs in the control group with the identified abnormality.

In the US field study, one dog with a history of seizures experienced a seizure on the same day after receiving the first dose and on the same day after receiving the second dose of NexGard. This dog experienced a third seizure one week after receiving the third dose. The dog remained enrolled and completed the study. Another dog with a history of seizures had a seizure 19 days after the third dose of NexGard. The dog remained enrolled and completed the study. A third dog with a history of seizures received NexGard and experienced no seizures throughout the study.

To report suspected adverse events, for technical assistance or to obtain a copy of the MSDS, contact Merial at 1-888-637-4251 or [www.merial.com/NexGard](http://www.merial.com/NexGard). For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or online at <http://www.fda.gov/AnimalVeterinary/SafetyHealth>.

## Mode of Action:

Afoxolaner is a member of the isoxazoline family, shown to bind at a binding site to inhibit insect and acarine ligand-gated chloride channels, in particular those gated by the neurotransmitter gamma-aminobutyric acid (GABA), thereby blocking pre- and post-synaptic transfer of chloride ions across cell membranes. Prolonged afoxolaner-induced hyperexcitation results in uncontrolled activity of the central nervous system and death of insects and acarines. The selective toxicity of afoxolaner between insects and acarines and mammals may be inferred by the differential sensitivity of the insects and acarines' GABA receptors versus mammalian GABA receptors.

## Effectiveness:

In a well-controlled laboratory study, NexGard began to kill fleas four hours after initial administration and demonstrated >99% effectiveness at eight hours. In a separate well-controlled laboratory study, NexGard demonstrated 100% effectiveness against adult fleas 24 hours post-infestation for 35 days, and was > 93% effective at 12 hours post-infestation through Day 21, and on Day 35. On Day 28, NexGard was 81.1% effective 12 hours post-infestation. Dogs in both the treated and control groups that were infested with fleas on Day -1 generated flea eggs at 12- and 24-hours post-treatment (0-11 eggs and 1-17 eggs in the NexGard treated dogs, and 4-90 eggs and 0-118 eggs in the control dogs, at 12- and 24-hours, respectively). At subsequent evaluations post-infestation, fleas from dogs in the treated group were essentially unable to produce any eggs (0-1 eggs) while fleas from dogs in the control group continued to produce eggs (1-141 eggs).

In a 90-day US field study conducted in households with existing flea infestations of varying severity, the effectiveness of NexGard against fleas on the Day 30, 60 and 90 visits compared with baseline was 98.0%, 99.7%, and 99.9%, respectively. Collectively, the data from the three studies (two laboratory and one field) demonstrate that NexGard kills fleas before they can lay eggs, thus preventing subsequent flea infestations after the start of treatment of existing flea infestations.

In well-controlled laboratory studies, NexGard demonstrated >97% effectiveness against *Dermacentor variabilis*, >94% effectiveness against *Ixodes scapularis*, and >93% effectiveness against *Rhipicephalus sanguineus*, 48 hours post-infestation for 30 days. At 72 hours post-infestation, NexGard demonstrated >97% effectiveness against *Amblyomma americanum* for 30 days.

## Animal Safety:

In a margin of safety study, NexGard was administered orally to 8 to 9-week-old Beagle puppies at 1, 3, and 5 times the maximum exposure dose (6.3 mg/kg) for three treatments every 28 days, followed by three treatments every 14 days, for a total of six treatments. Dogs in the control group were sham-dosed. There were no clinically-relevant effects related to treatment on physical examination, body weight, food consumption, clinical pathology (hematology, clinical chemistries, or coagulation tests), gross pathology, histopathology or organ weights. Vomiting occurred throughout the study, with a similar incidence in the treated and control groups, including one dog in the 5x group that vomited four hours after treatment.

In a well-controlled field study, NexGard was used concomitantly with other medications, such as vaccines, antihelmintics, antibiotics (including topical), steroids, NSAIDs, anesthetics, and antihistamines. No adverse reactions were observed from the concomitant use of NexGard with other medications.

## Storage Information:

Store at or below 30°C (86°F) with excursions permitted up to 40°C (104°F).

## How Supplied:

NexGard is available in four sizes of beef-flavored soft chewables: 11.3, 28.3, 68 or 136 mg afoxolaner. Each chewable size is available in color-coded packages of 1, 3 or 6 beef-flavored chewables.

NADA 141-406, Approved by FDA

Marketed by: Frontline Vet Labs™, a Division of Merial, Inc.  
Duluth, GA 30096-4640 USA

Made in Brazil.

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Rev. 1/2015



- > Following the family around more than usual when they're home
- > If the pet is storm-phobic, a worsening of the behavior because the family isn't home when the pet experiences storms.

## Q Might some animals—just like parents—enjoy having the kids out of their hair/fur?

Oh yes! Some dogs simply tolerate the kids or can have their fill of time with children, so they may be happy to have their personal space.

## Q Does it help to play animal videos and music when pets are left alone in the house?

Music soothes dogs and cats. The literature supports that dogs in kennel situations bark less when classical music is played and cats require less anesthesia when classical music is played via headphones. However, in the veterinary clinic, the only effect that has been shown was on the veterinary team members working on the patients. So the bottom line is that it is helpful to soothe kitties and doggies and it can't hurt, but don't expect too much.

## Your homework assignment

Make sure you're discussing the possibilities of back-to-school blues with clients. Depending on a pet's individual reactions and needs, you can tailor a program that will help ease the transition. If people are already aware their pets may be anxious, it would be wise to try to add some extra play time into the day. Pet owners could wake up early and spend time with the pet, for example, by mixing their morning run routine up and going to a dog-friendly space. Or your clients could set aside time as an after-school activity to include furry family members. Whatever pet owners can do to be more conscious of their pets' needs during this time is a great first step.



Hilal Dogan, BVSc, owns the mobile veterinary practice Dogan Vet Care in Maui, Hawaii. She started the Veterinary Confessionals Project as a senior veterinary student at Massey University in New Zealand.





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**NexGard**<sup>®</sup>  
(afoxolaner) Chewables

See brief summary on page 12.



<sup>1</sup>Data on file at Merial.

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**IMPORTANT SAFETY INFORMATION:** NexGard<sup>®</sup> is for use in dogs only. The most frequently reported adverse reactions included pruritus, vomiting, dry/flaky skin, diarrhea, lethargy, and lack of appetite. The safe use of NexGard in pregnant, breeding, or lactating dogs has not been evaluated. Use with caution in dogs with a history of seizures. For more information, see full prescribing information or visit [www.NexGardForDogs.com](http://www.NexGardForDogs.com).

# Common calculations for veterinary ICU techs

New to the ICU? Keep this calculations chart on hand so you can spend more time saving patients and less time scratching your head.

**W**hen Paula Plummer, LVT, VTS (ECC, SAIM), a feline internal medicine technician at the Texas A&M University Veterinary Teaching Hospital and speaker at the CVC (now Fetch) veterinary conference, created a list of common calculations used by ICU technicians, she included items she wished she'd had on hand her first day in the ICU.

The printable common calculations chart below includes drug calculations, whole blood transfusions (in cats), nutrition, fluids and infusions. While Plummer says that most of the calculations are straightforward, she offers a few tips on fluid rates.

"When you have a patient that needs to go on IV fluids, make sure you don't just calculate its maintenance rate—which is 40 to 60 ml/kg per day—using the bottom end of the range for cats and the top end of the range for dogs," she says.

These rates need to be adjusted based on the patient's

needs, says Plummer: "If you have a cardiac patient, you usually have to go a lot lower so you don't fluid overload that patient due to their reduced cardiac output. And if your patient is dehydrated or has ongoing losses, you have to figure that into your maintenance rate to get an adequate rate to rehydrate your patient. To do this, you have to calculate the dehydration rate, and then if you have ongoing losses, you calculate that, and then you use all three of those numbers to get your 24-hour fluid rate—or sooner if you're trying to rehydrate them or bolus them faster."

Plummer also notes that if ICU technicians are going to do constant rate infusions (CRIs) it's ideal to keep them separate from the maintenance bag of fluids.

"I encourage technicians to run them separately if they have access to syringe pumps because as the patient becomes rehydrated, they won't have to change out everything—they'll only have to change the fluid rate on the IV pump," says Plummer.

## COMMON CALCULATIONS FOR ICU TECHS

Drug calculations	Units needed = weight (kg) x dose
	Amount needed = $\frac{\text{dose}}{\text{drug concentration}}$
Whole blood transfusion (cats)	ml needed = patient weight (kg) x 70 x (desired packed cell volume (PCV) - $\frac{\text{current PCV}}{\text{donor PCV}}$ )
Nutrition and fluids	Resting energy requirement (RER) = 70 x weight (kg) to the 0.75 power
	Maintenance energy requirement (MER) = activity or illness factor x RER
	Food dosage = $\frac{\text{kcal required}}{\text{caloric density of food}}$
	Fluid deficit (L) = % dehydration (decimal) x weight (kg) x 1000 ml
Infusions	Drip rate = $\frac{\text{solution volume (ml)} \times \text{drops/ml}}{\text{time (min)}} = \text{volume in drops/min (ggt/min)}$
	Volume to give per hour (ml/hr) = $\frac{\text{solution volume (ml)}}{\text{infusion time length (hr)}}$
	Amount to add to fluids (continuous rate infusions) = $\frac{\text{drug ml/hr} \times \text{fluid amount (ml)}}{\text{fluid ml/hr}}$ You will need to know: <ul style="list-style-type: none"> <li>• The dose rate of the drug</li> <li>• The patient's body weight</li> <li>• The fluid administration rate</li> <li>• The drug concentration</li> </ul>









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<sup>2</sup> Please refer to Tri-Heart® Plus Prescribing Information for more detail.

<sup>3</sup> Average discounted price of Tri-Heart® Plus compared to Heartgard® Plus, December 2016, \$7-69 US Flea and Heartworm Markets, Brakke Consulting and Average price of Tri-Heart® Plus compared to Heartgard® Plus as per Price List, Merial® Brand Pet Products Effective February 1st, 2017.

All dogs should be tested for heartworm infection before starting a preventive program. In a small percentage of ivermectin/pyrantel treated dogs, digestive and neurological side effects may occur. Tri-Heart and Tri-Heart Plus logos are registered trademarks of Merck Animal Health. Heartgard is a registered trademark of Merial, Inc.

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**See brief summary on page 16.**



## Chewable Tablets

**Brief Summary:** Please consult full package insert for more information.

**INDICATIONS:** Tri-Heart® Plus chewable tablets are indicated for use in prevention of canine heartworm caused by *Dirofilaria immitis* and for the treatment and control of ascarids (*Toxocara canis*, *Toxascaris leonina*) and hookworms (*Ancylostoma caninum*, *Uncinaria stenocephala*, *Ancylostoma braziliense*) in dogs and in puppies 6 weeks of age and older.

**PRECAUTIONS:** All dogs should be tested for existing heartworm infection before starting treatment with Tri-Heart® Plus chewable tablets. A mild hypersensitivity-type reaction, presumably due to dead or dying microfilariae and particularly involving a transient diarrhea has been observed in clinical trials with ivermectin alone after treatment of some dogs that have circulating microfilariae.

**Keep this and all drugs out of the reach of children.** In case of ingestion by humans, clients should be advised to contact a physician immediately. Physicians may contact a Poison Control Center for advice concerning cases of ingestion by humans.

**ADVERSE REACTIONS:** The following adverse reactions have been reported following the use of ivermectin at the recommended dose: depression/lethargy, vomiting, anorexia, diarrhea, mydriasis, ataxia, staggering, convulsions and hypersalivation.

**Caution:** Federal (U.S.A.) law restricts this drug to use by or on the order of a licensed veterinarian.

**HOW SUPPLIED:** Tri-Heart® Plus chewable tablets are available in three dosage strengths for dogs of different weights. Each strength comes in convenient packs of 6 chewable tablets.

Store at controlled room temperature of 59-86° F (15-30° C). Protect product from light.

**For Technical Assistance, call  
Merck Animal Health: 1-800-224-5318**

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# Why technicians LEAVE —and what you can do about it

**As a practice manager, you play a key role in keeping veterinary technicians happy and healthy and at your practice.** *By Julie Carlson, CVT*

## It's the money, honey

Let's face it, techs will never earn what they're actually worth to a practice, but they have to make a living wage. Veterinary technicians go through extensive training and education, and most have made the commitment to achieve a two-year degree and are paying off student debt. While it may not be in your budget to pay your techs handsomely, here are some ideas to close the gap.

**> Pay them better.** If you can find the funds to raise their pay, do it. Good, fast technicians improve hospital profitability. They pay for themselves by being efficient with their work, allowing you to see more patients and boost your bottom line.

**> Provide benefits.** Health insurance, CE, scrubs, pet insurance and lunch and learns all show you care about your techs' education, health and well-being. It costs a lot for techs to buy these items individually, but you can get discounts and bulk rates for your whole team by making connections with companies. These benefits make a lower wage more palatable.

**> Explain the bottom line.** If techs understand the costs of running

and owning a practice, it helps put their wages into perspective.

**> Be open with the books.** Your technicians know if your practice made \$5 million last year, and they may wonder, "Why are we making \$12 an hour?" Explaining the cost to run the business shows your team the big picture—and they might even have ideas about how to improve the bottom line.

**> Ask for their input.** Techs who feel heard feel valuable. Ask for feedback on hospital policies, procedures and so on. If your techs say a client should be fired, consider it. They take a lot of grief from clients you might not even know about. Keeping a cruel client tells techs that you don't care about them.

## They need R-E-S-P-E-C-T

Many techs leave practice because they feel that they're not respected as professionals. Some feel belittled by veterinarians or managers, others feel dismissed and even harassed by their employer. Here's how to show technicians you value them.

**> Listen to your techs.** They have valuable insights into every part of the business. Many have ideas on





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how to improve the workflow, streamline appointments, make scheduling less complicated and even rearrange work areas to make them more functional. When you give team members a sense of validation and value they feel respected. And don't forget to ask technicians what *you* can do better—you might be surprised by the feedback.

**> Schedule regular meetings with the entire team.** It's common for technicians to have a monthly meeting, but how often do veterinarians attend? Show your team that you think of them as equals by making sure all team members, including veterinarians, attend meetings and listen to the messages your team shares.

**> Encourage your doctors to get silly.** It might sound strange, but doctors who can find the right balance of serious to funny are oftentimes held in higher regard than those who are stoic all the time. When doctors show they're comfortable being silly in front of your techs they show they trust their technicians.

**> Don't have secret meetings.** Techs know you must meet with other practice leaders—co-owners, sharehold-

ers, and so on—to develop financial strategies. But when you have a lot of closed-door discussions, especially inside the clinic, it creates an us-versus-them feeling that can make your team uncomfortable and on edge.

**> Don't trash talk any staff member.** Techs are smart. They know if you're talking crap about one of them, you're likely doing it to the others.

**> Be clear with instructions, but be nice about it.** Explain the task and ask if the technician has any questions or needs assistance to achieve the goal. (And make sure your doctors are doing this too!) No one responds well to condescension or passive-aggressiveness.

## They're SO over it

Every technician I know has dealt with frustration in the workplace. Here's help to quell these common irritations.

**> Don't give confusing or conflicting instructions.** Get owners, managers and supervisors on the same page so you can give clear instructions to the team.

**> Follow through.** If you tell your team that you're going to hold an event, fix a broken piece of equipment or stock a cer-

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tain product, do it! It makes your team feel unimportant when you put them off, and they're frustrated when they must make do. For example, Mrs. Smith has been asking for Doxie the dachshund's favorite type of dental chew, and your technician told her it's on the way. But you didn't order it. And it's your technician who takes the heat when Mrs. Smith gets mad that Doxie's dental treat never arrived.

**> Address staff issues.** If Roxy is consistently late, discipline her. If Lisa takes a lot of unauthorized breaks, make her stop. If a tech comes to you with a problem they're having with another team member, help them solve it. Ignoring staff issues is a surefire way to breed frustration and animosity, and team members might just get so frustrated they quit.

## You're boring them

Most technicians have gone through years of schooling and hands-on training, as well as passing lengthy state and national exams and attending regular continuing education classes. When you don't use their skills to the fullest potential, you're conveying a message of mistrust in their abilities and doubts about their knowledge. Here are some ways to use your technicians more effectively.

**> Put your technicians in charge.** If you have a tech with a proclivity for client education, put her in charge of developing client handouts. If your tech is interested in lab work, put her in charge of maintaining lab equipment and training other team members on lab procedures. If your tech loves dentistry, surgery, radiology or another area of practice, send her to CE classes where she can learn more on the subject and then teach it to the rest of the team. These will be your go-to people

and subject matter experts who can help train your team to raise everyone's satisfaction level in the workplace.

### **> Send techs to CE conferences like Fetch, a dvm360 conference.**

They will learn a ton of information to bring back to the clinic and reignite their passion for veterinary medicine. That passion is contagious to others and will get them excited to try what they've learned.

## You don't give them (enough) credit

CVT, LVT, RVT, technician, nurse, assistant—what does it all mean? There's confusion even among us in the profession, so how can we expect the public to know what's what? We've all had the experience of seeing the confused looks we get when we tell someone, "I'm a veterinary technician." Or worse, have someone reply, "Wow, I wish I could play with puppies and kittens all day!" Take the opportunity to teach your clients by using the following tips.

### **> Don't lump all your techs into one category.**

Call them credentialed veterinary technicians (or nurses, if that's the direction your state board is heading), call them assistants, call them what they are—give credit where credit is due.

### **> Explain techs' worth to clients.**

Tell clients about their skills.

For example:  
"Mary will be performing Fluffy's dental cleaning and taking radiographs. Kirstin will take a blood sample and analyze it. Annette will scrub in with Dr. Cares on Fido's surgery."

**> Celebrate National Veterinary Technician Week.** This is your chance to show the world how much you appreciate your techs. Here are a few ideas:

1. Post a photo of each technician with a bio of their interests and hobbies.
2. Ask your technicians to create a handout or display that will show off their knowledge and skills.
3. Publish a daily post on social media about your veterinary technicians and the work they do.
4. Give technicians personalized gifts that show you care about them (for example, bandage scissors engraved with each tech's name).

**> Update your website with bios on each tech.** Leaving them off the site shows they're not important. Not updating because "there's too much staff turnover" shows they're replaceable and not worth investing in.

Losing good veterinary technicians is disappointing. Sometimes it's for reasons beyond our control. But we can help our technicians feel cared for and valued. And when in doubt, just talk to your technicians. Ask them for feedback on what you can do to improve your hospital and be the most effective leader for your team.

*Julie Carlson, CVT, is a freelance author. She is the winner of the 2015 Hero Veterinary Technician Award from the American Humane Association and the Founder of Vets for Vets' Pets, a nonprofit organization providing medical care to the pets of homeless and at-risk veterans. Julie has five cats and two Chihuahuas and lives in Phoenix, Arizona.*

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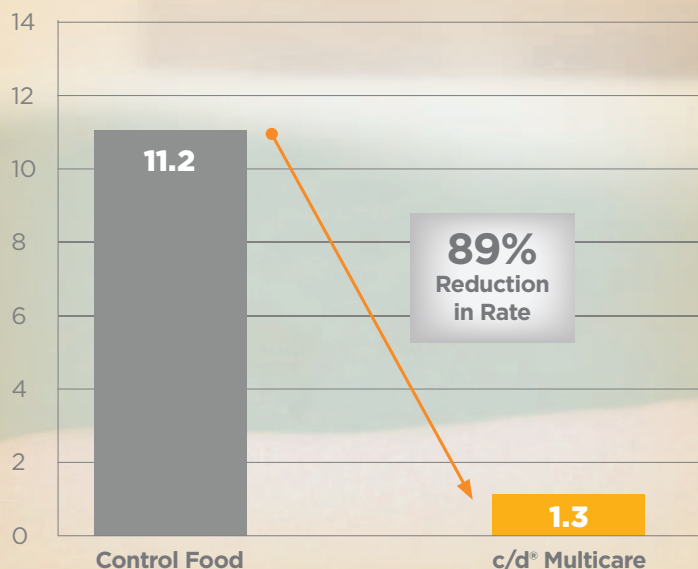


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<sup>1</sup>Kruger JM, Lulich JP, MacLeay J, et al. Comparison of foods with differing nutritional profiles for long-term management of acute nonobstructive idiopathic cystitis in cats. *J Am Vet Med Assoc.* 2015;247(5):508-517.

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<sup>2</sup>Lulich JP, Kruger JM, MacLeay JM, et al. Efficacy of two commercially available, low-magnesium, urine-acidifying dry foods for the dissolution of struvite uroliths in cats. *J Am Vet Med Assoc.* 2013;243(8):1147-1153. Average 27 days *in vivo* study in urolith forming cats.

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# 10 career moves for veterinary technicians

Don't stay stuck in your career. There are plenty of doors waiting for you to open and explore.

By Ann K. Johnson, LVT

**Y**ou stepped into the profession with high hopes and goals. Have they come true? Or are you feeling burned out on the repetitive duties that, while important, can get stale in general practice?

Veterinary medicine changes every day. Some days by leaps and bounds ... others by micro-steps. And you know what? That's OK! There's a place for you within all of these changes. So what can you do while working in a general practice to further your career—and the profession? Here are a few ideas.

**1 Become a CVPP.** When you become a certified veterinary pain practitioner (CVPP), your hospital benefits from a trained and well-educated technician in the field of pain management. While most hospitals are now practicing higher levels of pain control, there's still much we can do to ensure our patients receive the highest level of pain management possible. (Check out the CVC—now Fetch!—for continuing education.)

**2 Become a technician specialist.** Whether you focus on clinical practice or specialize in a more focused area like surgery, dentistry or rehab, you can bring

knowledge and exceptional skills to general practice. Specialties help us take our careers to the next level by demonstrating our commitment to high-quality medicine, patient health and nursing. (The same is true of standardizing our title to registered veterinary nurse.)

**3 Volunteer with organizations, such as AVMA and AAHA.** While it may not add to your paycheck, becoming a volunteer can add to your resume and your experience in vet med. And you'll make connections that last a lifetime.

**4 Work with your state veterinary technician association.** And if there isn't one already, start one! Working with your state technician association helps you stay on the front lines of what's required of you as a technician within your state. You're able to be a part of continuing education and legislation that's vital to us as technicians.

**5 Teach at a local community college.** This is not always the easiest path to take, but it's worthwhile if you enjoy teaching others. Not all states have programs, and those that do tend to hang onto their teachers. So it may

be a long process to find a program that's the right fit. Volunteer at local colleges to try to get your foot in the door, or apply with online programs. The more teaching experience you have to go alongside your veterinary technician licensure, the better your chances of obtaining a position. Some programs may also require higher education—some may accept an associate's degree, while others may require a bachelor's degree.

**6 Lead your hospital programs.** Many hospitals have their own programs to educate and support clients and team members. Some ideas include:

- Becoming a trial hospital for up-and-coming drugs
- Providing in-house CE programs for team members as well as hospital teams around the area
- Becoming an animal blood bank location
- Providing client education courses
- Being the nutrition leader for clients
- Bringing physical rehabilitation into your hospital

**7 Become a community outreach leader.** Your hospital is part of the community. Are you acting like it? Do members of your team



attend community programs and take part? Does your hospital host community programs? Talk with local businesses and attend local events to spread the word on your hospital's name and the services.

**8** **Speak at conferences.** Talk with state associations, local and national conferences and other hospitals in your area. If you're an expert in a particular area or topic in your field, share it with others! It will help open doors for your career.

**9** **Write articles** on those topics of interest or experience and have them published in magazines.

**10** **Earn your CVPM.** You might be surprised by how much your manager needs a hand in certain areas. All you have to do is ask. And there are wonderful management training programs to help that goal become a reality.

Many technicians start out in general practice but decide to leave because they feel like their career is stagnant. Don't let this happen to you. Look around and find a new direction to boost your career and improve the medicine that you practice.

*Ann Johnson, LVT, is a veterinary technician at Hayfield Animal Hospital in Alexandria, Virginia.*



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# Feline physical rehab: 7 tips to reduce stress and boost success

Yes, you can rehab a cat. Really! It's all about getting them comfortable.

**B**elieve it or not, cats make willing patients for physical rehabilitation therapy if the sessions are kept short and interesting and are held in a quiet, relaxed environment, says CVC (Now Fetch!) educator Mary Ellen Goldberg, BS, LVT, CVT, SRA, CCRA, CVPP, VTS-physical rehabilitation (OC). The rehabilitation plan must be creative, easy to follow and have short intervals for cats, she says, as cats have less of an attention span than dogs do.

Before beginning a rehabilitation session, the patient needs to be examined by the veterinarian to ensure that pain and stress aren't

factors and to have the veterinarian draw up the therapeutic plan, Goldberg says. The rehabilitation veterinary technician or nurse will most likely interact with the pet owner, carry out parts of the therapeutic plan and monitor the cat's comfort.

When cats are in situations they find stressful, they will most often try to create distance between themselves and the stressor.<sup>1</sup> Or if they can't move away, they'll attempt to groom or "waste time," hoping the stress will go away. As a last resort they'll use aggression, Goldberg says. She offers the following tips for successful rehab sessions.

## TIP 1

Use pheromone diffusers in the hospital and rehabilitation area to help reduce stress. Remember, some kitties may arrive already stressed from travel or the condition that necessitates the therapy. Waiting rooms are also very stressful for cats.

## TIP 2

Keep waiting time to a minimum and provide benches so the cat's carrier can be placed up off of the ground so the cat feels less exposed, Goldberg says.





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Bravecto also kills American dog ticks for 8 weeks.

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PLEASE SEE BRIEF SUMMARY 24.

**REFERENCE:** 1. Bravecto Topical Solution for Cats [prescribing information]. Madison, NJ: Merck Animal Health; 2016.

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**BRAVECTO®**  
(FLURALANER)  
TOPICAL SOLUTION





## (fluralaner topical solution) for Cats

### BRIEF SUMMARY (For full Prescribing Information, see package insert)

#### Caution:

Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.

#### Indications:

Bravecto kills adult fleas and is indicated for the treatment and prevention of flea infestations (*Ctenocephalides felis*) and the treatment and control of *Ixodes scapularis* (black-legged tick) infestations for 12 weeks in cats and kittens 6 months of age and older, and weighing 2.6 pounds or greater.

Bravecto is also indicated for the treatment and control of *Dermacentor variabilis* (American dog tick) infestations for 8 weeks in cats and kittens 6 months of age and older, and weighing 2.6 pounds or greater.

#### Contraindications:

There are no known contraindications for the use of the product.

#### WARNINGS

##### Human Warnings:

Not for human use. Keep this and all drugs out of the reach of children. **Do not contact or allow children to contact the application site until dry.** Keep the product in the original packaging until use in order to prevent children from getting direct access to the product. Do not eat, drink or smoke while handling the product. Avoid contact with skin and eyes. If contact with eyes occurs, then flush eyes slowly and gently with water. **Wash hands and contacted skin thoroughly with soap and water immediately after use of the product.**

The product is highly flammable. Keep away from heat, sparks, open flame or other sources of ignition.

##### Precautions:

For topical use only. Avoid oral ingestion. Use with caution in cats with a history of neurologic abnormalities. Neurologic abnormalities have been reported in cats receiving Bravecto, even in cats without a history of neurologic abnormalities. Bravecto has not been shown to be effective for 12-weeks duration in kittens less than 6 months of age. Bravecto is not effective against *Dermacentor variabilis* ticks beyond 8 weeks after dosing. The safety of Bravecto has not been established in breeding, pregnant and lactating cats.

##### Adverse Reactions:

In a well-controlled U.S. field study, which included a total of 161 households and 311 treated cats (224 with fluralaner and 87 with a topical active control), there were no serious adverse reactions.

##### Percentage of Cats with Adverse Reactions (AR) in the Field Study

Adverse Reaction (AR)	Bravecto Group: Percent of Cats with the AR During the 105-Day Study (n=224 cats)	Control Group: Percent of Cats with the AR During the 84-Day Study (n=87 cats)
Vomiting	7.6%	6.9%
Pruritus	5.4%	11.5%
Diarrhea	4.9%	1.1%
Alopecia	4.9%	4.6%
Decreased Appetite	3.6%	0.0%
Lethargy	3.1%	2.3%
Scabs/Ulcerated Lesions	2.2%	3.4%

In the field study, two cats treated with fluralaner topical solution experienced ataxia. One cat became ataxic with a right head tilt 34 days after the first dose. The cat improved within one week of starting antibiotics. The ataxia and right head tilt, along with lateral recumbency, reoccurred 82 days after administration of the first dose. The cat recovered with antibiotics and was redosed with fluralaner topical solution 92 days after administration of the first dose, with no further abnormalities during the study. A second cat became ataxic 15 days after receiving its first dose and recovered the next day. The cat was redosed with fluralaner topical solution 82 days after administration of the first dose, with no further abnormalities during the study.

In a European field study, two cats from the same household experienced tremors, lethargy, and anorexia within one day of administration. The signs resolved in both cats within 48-72 hours.

In a European field study, there were three reports of facial dermatitis in humans after close contact with the application site which occurred within 4 days of application.

For technical assistance or to report a suspected adverse drug reaction, or to obtain a copy of the Safety Data Sheet (SDS), contact Merck Animal Health at 1-800-224-5318. Additional information can be found at [www.bravecto.com](http://www.bravecto.com). For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or online at <http://www.fda.gov/AnimalVeterinary/SafetyHealth>.

##### How Supplied:

Bravecto is available in three strengths for use in cats (112.5, 250, and 500 mg fluralaner per tube). Each tube is packaged individually in a pouch. Product may be supplied in 1 or 2 tubes per carton.

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159363 R3



# Do You Have Time for Dull Instruments?

## TIP 3

Gather any required equipment for the physical rehabilitation session before getting the cat out of the carrier.

## TIP 4

Have the pet owner bring the cat's own bedding and toys. This not only makes the owner feel useful, but can help the cat feel more settled through the retention of a more familiar scent, Goldberg says.

## TIP 5

Have the pet owner bring the cat's favorite treats. Having a variety of low-calorie, palatable treats on hand is helpful in bonding with the kitty and goes a long way to establishing trust for future rewards after therapeutic exercises, Goldberg says.

## TIP 6

Let the cat acclimate to its new surroundings and explore the area to feel more comfortable. The exam area should be quiet and secure, with little or no traffic to cause disruption, Goldberg says. The acclimation time spent with a patient also helps to develop a rapport between the cat and the nurse.

## TIP 7

Less is more when it comes to restraint. Also avoid sudden or rapid movements, because it can seem threatening. (Avoid a cat bite, amiright?)

Keep in mind that cats mask pain, Goldberg says. The rehabilitation nurse must be skilled at recognizing pain in feline patients. Therapy will provide little to no benefit if the patient is in pain. If you suspect pain, alert the veterinarian and discontinue any stressful therapy until the cat is no longer suffering pain. Unless this is followed, the cat will associate the rehabilitation with pain. You don't want that!

### Reference

1. Ellis S. The Veterinary Nurse workshops 2015: Feline patients and stress. *The Veterinary Nurse*. March 2015;6(2):78-82.

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# DIY recipes for diet trials

If clients need to use a limited-ingredient diet to complete a diet trial for their pet, Dr. Anthea Schick recommends these two homemade diets.

By Katie James, dvm360 Associate Content Specialist

**W**hen patients need to complete an elimination diet trial for dermatologic woes, Anthea Schick, DVM, DACVD, chooses a home-cooked diet. Why?

Because you can control all aspects of the food. Not many owners are able to do this, but when they can there are two recipes Dr. Schick recommends. The first is black bean and quinoa. It's not fully nutritionally balanced for long-term feeding, but for a six-to-eight-week diet trial it's OK, she says. This diet has the added bonus of helping with weight control if the pet also needs help in that area.

Another diet Dr. Schick uses is pork, oatmeal and green beans. Sometimes pickier dogs enjoy this one because it's a meat-based diet, Dr. Schick says. This one is also easier for clients, because those three ingredients are readily available and are easy to batch cook and then portion out at meal time.

Want the two recipes Dr. Schick mentions above? She's kindly provided the recipes below, with a slightly modified black bean version that includes pork. Keep in mind that these diets are recommended for feeding as a six-week diet trial, as they are not balanced for long-term use.

## Pork, oatmeal and green bean recipe

Base to start with:

- 1 cup cooked pork
- 2 cups cooked oatmeal
- 1 cup cooked or fresh green beans

**Notes:** A lean pork roast is preferred for this mixture, which is readily available at grocery stores or butcher shops. Rolled oats cooked in water are also preferred over instant oatmeal varieties. For the green beans, fresh or frozen whole beans may be used. Fresh green beans can be blanched or given raw, and frozen green beans may be cooked appropriately and added to the mixture.



This diet can be cooked in large quantities ahead of time and frozen for later use, then rationed out accordingly. The portion chart below will help determine how much the pet should be fed per day.

If you'd like a printable version of this recipe—with a feeding guide—see the box below.

## Pork, black bean and quinoa recipe

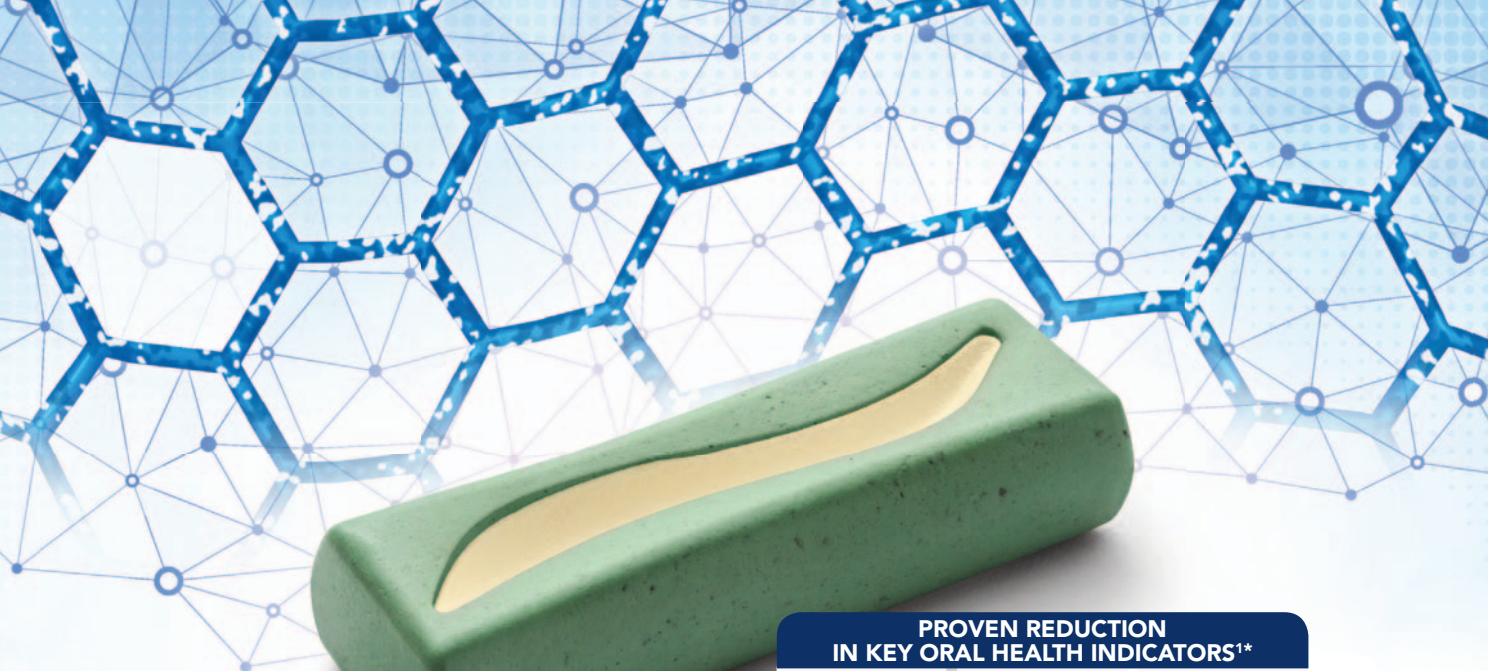
Base to start with:

- 1 cup cooked pork
- 1 cup cooked black beans
- ½ cup cooked quinoa

**Notes:** A lean pork roast is preferred for this mixture, which is readily available at grocery stores or butcher shops.

This diet can be cooked in large quantities ahead of time and frozen for later use, then rationed out accordingly. The portion chart in the handout will help determine how much the pet should be fed per day.

If you'd like a printable version of this recipe—with a feeding guide—visit [dvm360.com/diydietrecipe](http://dvm360.com/diydietrecipe).



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**References:** 1. Data on file. 2. Steinberg D, Beeman D, Bowen W. The effect of delmopinol on glucosyltransferase adsorbed on to saliva-coated hydroxyapatite. *Archs Oral Biol.* 1992;37:33-38. 3. Vassilakos N, Arnebrant T, Rundegren J. In vitro interactions of delmopinol hydrochloride with salivary films adsorbed at solid/liquid interfaces. *Caries Res.* 1993;27:176-182.



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# Just Smile

A very pointed veterinary dental instrument sharpening guide.

*By Benita Altier, LVT, VTS (dentistry)*

When it comes to dental instruments, sharpness matters. A dull instrument may not be able to effectively remove bacteria-laden debris from the surface of a crown or root. Dullness can also negatively affect speed and efficacy, meaning the patient is under anesthesia longer and the technician has to use more force.

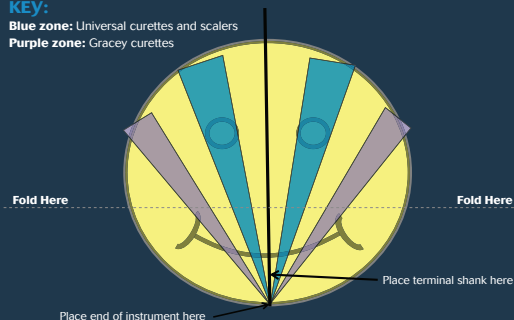
Fine-tipped instruments like curettes and scalers should undergo gentle sharpening before every use, and it's never a good idea to let an instrument become very dull and then try to sharpen it again. Daily sharpening will save you time in the long run.

I created the "Just Smile" guide to help veterinary professionals sharpen dental curettes

and scalers efficiently and accurately using the stationary instrument/moving stone method.

**KEY:**

**Blue zone:** Universal curettes and scalers  
**Purple zone:** Gracey curettes



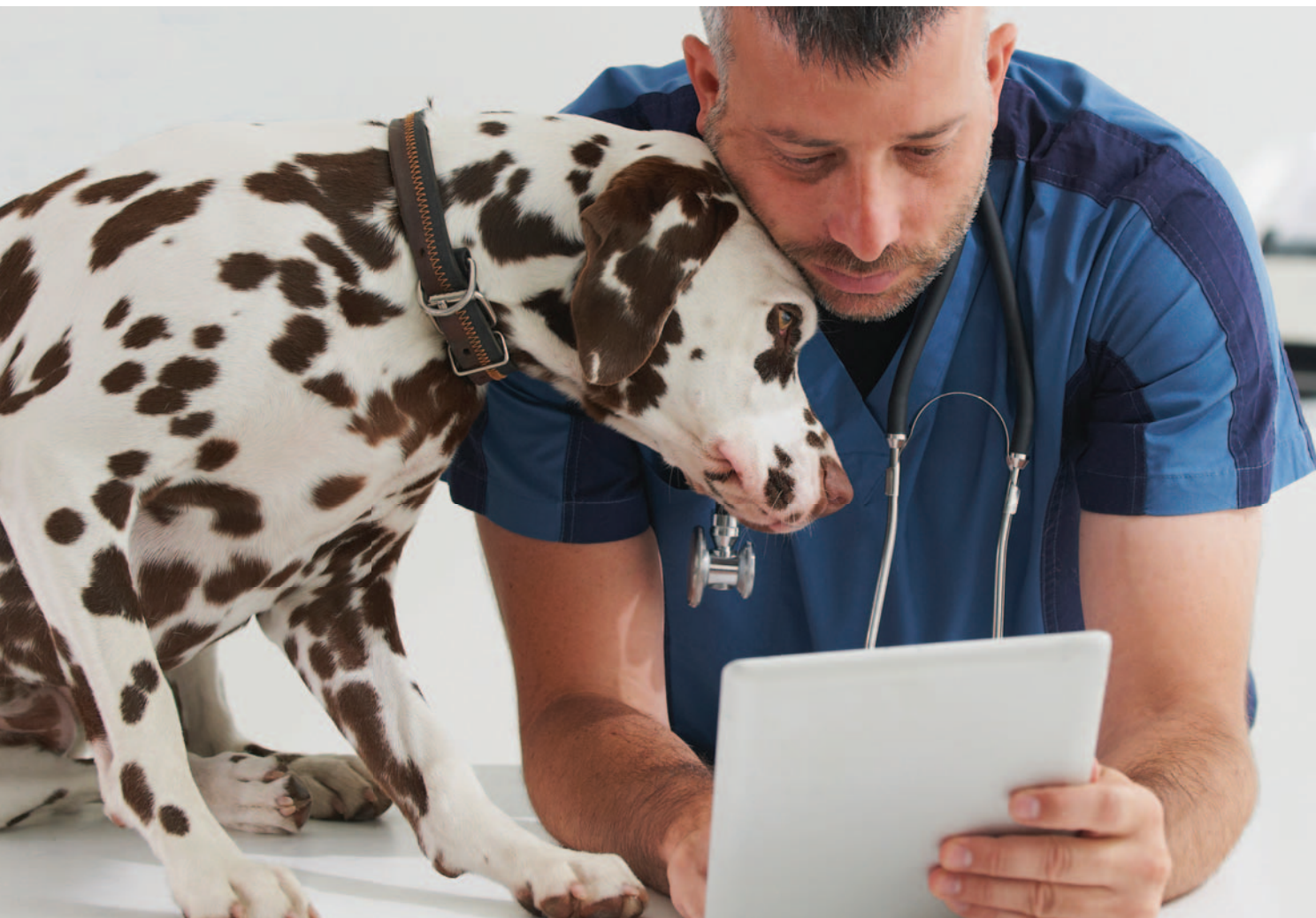
**"Just Smile" Instrument Sharpening Guide**

Benita Altier LVT, VTS (Dentistry)  
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FIRST2017VA



# A naysayer's guide to pet insurance and third-party payment plans

By Brendan Howard, Business Channel Director

**N**o money means no care means no healthy pets. We know you don't want to be a pet insurance salesman or pitch veterinary care credit cards, and you don't have to. Here are some ways to fight through your reservations—or the worries of others—about these products.

## THE 'NAYS' OF PET INSURANCE

**The nay:** "They turn down some of my best clients for insurance or reimbursement!"

**The yay:** Do you talk up a particular pet insurance company with clients, but you're not happy with their recent service? Or have you had a bad experience in the past with a particular pet insurance company, personally or professionally? Dump 'em and pick another one.

That's what 2017 dvm360/VHMA Practice Manager of the Year Judi Bailey, CVPM, did. She lost her favorite sales representative, and the company struggled to get her brochures in time. Worst of all, her team members started to complain.

"I listen to staff when there are complaints," Bailey says. "The one pet insurance we recommend hasn't been approving treatments for some well-loved clients, so we're switching. Team members felt heard when I announced we'd be interviewing other companies to see if a change makes sense."

**The nay:** "I'm too busy to talk about pet insurance!"

**The yay:** You must really love

exam room and front-of-clinic complaints about how expensive care is. You don't have to know every nook and cranny of every pet insurance plan to be versed in the basics of one (or two). And wouldn't it be worth a little time in your workweek to reduce the number of money conversations you have?

"We're not a hard sell for pet insurance," Bailey says, "but we definitely educate." And if pet owners are interested, they fill out paperwork right then and there in the exam room.

At Bailey's practice, the veterinary technician or assistant asks new clients, especially those with a puppy or kitten, if they have pet insurance. If not, the pet owner gets a brochure and looks it over while the team member manages some of those first steps to a pet visit.

Next, the doctor shows up and says, "I see my assistant gave you information about the pet insurance we recommend. Do you have any questions while I get started on the examination?" If they're interested, pet owners sign up online in the exam room on the computer or the team rings the pet owner back in three days to see if they had any



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\*Studies show Simparica starts killing ticks in 8 hours and is  $\geq 96.9\%$  effective for 35 days against weekly reinfestations of *Ixodes scapularis*, *Amblyomma americanum*, *Amblyomma maculatum*, *Dermacentor variabilis*, and *Rhipicephalus sanguineus*.<sup>12</sup>

Learn more about Simparica.  
Contact Zoetis Customer Service at  
**1-888-ZOETIS-1** or **1-888-963-8471**.

**References:** 1. Six RH, Geurden T, Carter L, et al. Evaluation of the speed of kill of sarolaner (Simparica™) against induced infestations of three species of ticks (*Amblyomma maculatum*, *Ixodes scapularis*, *Ixodes ricinus*) on dogs. *Vet Parasitol.* 2016;222:37–42. 2. Six RH, Everett WR, Young DR, et al. Efficacy of a novel oral formulation of sarolaner (Simparica™) against five common tick species infesting dogs in the United States. *Vet Parasitol.* 2016;222:28–32.

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See brief summary on page 32



#### FOR ORAL USE IN DOGS ONLY

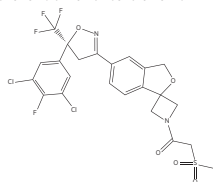
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#### Description:

SIMPARICA is a flavored, chewable tablet for administration to dogs over 6 months of age according to their weight. Each tablet is formulated to provide a minimum sarolaner dosage of 0.91 mg/lb (2 mg/kg) body weight.

Sarolaner is a member of the isoxazoline class of parasiticides and the chemical name is 1-(5'-(5S)-5-(3,5-Dichloro-4-fluorophenyl)-5-(trifluoromethyl)-4,5-dihydroisoxazol-3-yl)-3'-H-spiro[azetidine-3,1'-(2)benzofuran]-1-yl)-2-(methylsulfonyl)ethanone. SIMPARICA contains the S-enantiomer of sarolaner.

The chemical structure of the S-enantiomer of sarolaner is:



#### Indications:

SIMPARICA kills adult fleas, and is indicated for the treatment and prevention of flea infestations (*Ctenocephalides felis*), and the treatment and control of tick infestations [*Amblyomma americanum* (lone star tick), *Amblyomma maculatum* (Gulf Coast tick), *Dermacentor variabilis* (American dog tick), *Ixodes scapularis* (black-legged tick), and *Rhipicephalus sanguineus* (brown dog tick)] for one month in dogs 6 months of age or older and weighing 2.8 pounds or greater.

#### Dosage and Administration:

SIMPARICA is given orally once a month at the recommended minimum dosage of 0.91 mg/lb (2 mg/kg).

Dosage Schedule:

Body Weight	SAROLANER per Tablet (mg)	Number of Tablets Administered
2.8 to 5.5 lbs	5	One
5.6 to 11.0 lbs	10	One
11.1 to 22.0 lbs	20	One
22.1 to 44.0 lbs	40	One
44.1 to 88.0 lbs	80	One
88.1 to 132.0 lbs	120	One
>132.1 lbs	Administer the appropriate combination of tablets	

SIMPARICA can be offered by hand, in the food, or administered like other tablet medications.

Care should be taken that the dog consumes the complete dose, and treated animals should be observed for a few minutes to ensure that part of the dose is not lost or refused. If a dose is missed, administer SIMPARICA and resume a monthly dosing schedule.

SIMPARICA should be administered at monthly intervals.

#### Flea Treatment and Prevention:

Treatment with SIMPARICA may begin at any time of the year. In areas where fleas are common year-round, monthly treatment with SIMPARICA can continue the entire year without interruption.

To minimize the likelihood of flea re-infestation, it is important to treat all dogs and cats within a household with an approved flea control product.

#### Tick Treatment and Control:

Treatment with SIMPARICA can begin at any time of the year (see **Effectiveness**).

#### Contraindications:

There are no known contraindications for the use of SIMPARICA.

#### Warnings:

Not for use in humans. Keep this and all drugs out of reach of children and pets. For use in dogs only. Do not use SIMPARICA in cats.

SIMPARICA should not be used in dogs less than 6 months of age (see **Animal Safety**).

#### Precautions:

SIMPARICA may cause abnormal neurologic signs such as tremors, decreased conscious proprioception, ataxia, decreased or absent menace, and/or seizures (see **Animal Safety**). The safe use of SIMPARICA has not been evaluated in breeding, pregnant, or lactating dogs.

#### Adverse Reactions:

SIMPARICA was administered in a well-controlled US field study, which included a total of 479 dogs (315 dogs treated with SIMPARICA and 164 dogs treated with active control once monthly for three treatments).

Over the 90-day study period, all observations of potential adverse reactions were recorded.

**Table 1. Dogs with adverse reactions**

Adverse reaction	sarolaner	sarolaner	active control	active control
	N	% (n = 315)	N	% (n = 164)
Vomiting	3	0.95%	9	5.50%
Diarrhea	2	0.63%	2	1.20%
Lethargy	1	0.32%	2	1.20%
Inappetence	0	0%	3	1.80%

Additionally, one female dog aged 8.6 years exhibited lethargy, ataxia while posturing to eliminate, elevated third eyelids, and inappetence one day after receiving SIMPARICA concurrently with a heartworm preventative (ivermectin/pyrantel pamoate). The signs resolved one day later. After the day 14 visit, the owner elected to withdraw the dog from the study.

For a copy of the Safety Data Sheet (SDS) or to report adverse reactions call Zoetis Inc. at 1-888-963-8471. Additional information can be found at [www.SIMPARICA.com](http://www.SIMPARICA.com). For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or <http://www.fda.gov/AnimalVeterinary/SafetyHealth>.

#### Clinical Pharmacology:

Sarolaner is rapidly and well absorbed following oral administration of SIMPARICA. In a study of 12 Beagle dogs the mean maximum plasma concentration ( $C_{max}$ ) was 1100 ng/mL and the mean time to maximum concentration ( $T_{max}$ ) occurred at 3 hours following a single oral dose of 2 mg/kg to fasted animals. The mean oral bioavailability was 86% and 107% in fasted and fed dogs, respectively. The mean oral  $T_{1/2}$  values for fasted and fed animals was 10 and 12 days respectively.

Sarolaner is distributed widely; the mean volume of distribution ( $V_{dss}$ ) was 2.81 L/kg bodyweight following a 2 mg/kg intravenous dose of sarolaner. Sarolaner is highly bound ( $\geq 99.9\%$ ) to plasma proteins. The metabolism of sarolaner appears to be minimal in the dog. The primary route of sarolaner elimination from dogs is biliary excretion with elimination via the feces.

Following repeat administration of SIMPARICA once every 28 days for 10 doses to Beagle dogs at 1X, 3X, and 5X the maximum intended clinical dose of 4 mg/kg, steady-state plasma concentrations were reached after the 6th dose. Following treatment at 1X, 3X, and 5X the maximum intended clinical dose of 4 mg/kg, sarolaner systemic exposure was dose proportional over the range 1X to 5X.

#### Mode of Action:

The active substance of SIMPARICA, sarolaner, is an acaricide and insecticide belonging to the isoxazoline group. Sarolaner inhibits the function of the neurotransmitter gamma aminobutyric acid (GABA) receptor and glutamate receptor, and works at the neuromuscular junction in insects. This results in uncontrolled neuromuscular activity leading to death in insects or acarines.

#### Effectiveness:

In a well-controlled laboratory study, SIMPARICA began to kill fleas 3 hours after initial administration and reduced the number of live fleas by  $\geq 96.2\%$  within 8 hours after flea infestation through Day 35.

In a separate well-controlled laboratory study, SIMPARICA demonstrated 100% effectiveness against adult fleas within 24 hours following treatment and maintained 100% effectiveness against weekly re-infestations for 35 days.

In a study to explore flea egg production and viability, SIMPARICA killed fleas before they could lay eggs for 35 days. In a study to simulate a flea-infested home environment, with flea infestations established prior to the start of treatment and re-infestations on Days 7, 37 and 67, SIMPARICA administered monthly for three months demonstrated  $>95.6\%$  reduction in adult fleas within 14 days after treatment and reached 100% on Day 60.

In well-controlled laboratory studies, SIMPARICA demonstrated  $\geq 99\%$  effectiveness against an initial infestation of *Amblyomma americanum*, *Amblyomma maculatum*, *Dermacentor variabilis*, *Ixodes scapularis*, and *Rhipicephalus sanguineus* 48 hours post-administration and maintained  $>96\%$  effectiveness 48 hours post re-infestation for 30 days.

In a well-controlled 90-day US field study conducted in households with existing flea infestations of varying severity, the effectiveness of SIMPARICA against fleas on Day 30, 60 and 90 visits compared to baseline was 99.4%, 99.8%, and 100%, respectively. Dogs with signs of flea allergy dermatitis showed improvement in erythema, papules, scaling, alopecia, dermatitis/pododermatitis and pruritus as a direct result of eliminating fleas.

#### Animal Safety:

In a margin of safety study, SIMPARICA was administered orally to 8-week-old Beagle puppies at doses of 0, 1X, 3X, and 5X the maximum recommended dose (4 mg/kg) at 28-day intervals for 10 doses (8 dogs per group). The control group received placebo tablets. No neurologic signs were observed in the 1X group. In the 3X group, one male dog exhibited tremors and ataxia post-dose on Day 0; one female dog exhibited tremors on Days 1, 2, 3, and 5; and one female dog exhibited tremors on Day 1. In the 5X group, one female dog had a seizure on Day 61 (5 days after third dose); one female dog had tremors post-dose on Day 0 and abnormal head coordination after dosing on Day 140; and one female dog exhibited seizures associated with the second and fourth doses and tremors associated with the second and third doses. All dogs recovered without treatment. Except for the observation of abnormal head coordination in one dog in the 5X group two hours after dosing on Day 140 (dose 6). There were no treatment-related neurological signs observed once the dogs reached the age of 6 months.

In a separate exploratory pharmacokinetic study, one female dog dosed at 12 mg/kg (3X the maximum recommended dose) exhibited lethargy, anorexia, and multiple neurological signs including ataxia, tremors, disorientation, hypersalivation, diminished proprioception, and absent menace, approximately 2 days after a third monthly dose. The dog was not treated, and was ultimately euthanized. The first two doses resulted in plasma concentrations that were consistent with those of the other dogs in the treatment group. Starting at 7 hours after the third dose, there was a rapid 2.5 fold increase in plasma concentrations within 41 hours, resulting in a  $C_{max}$  more than 7-fold higher than the mean  $C_{max}$  at the maximum recommended use dose. No cause for the sudden increase in sarolaner plasma concentrations was identified.

#### Storage Information:

Store at or below 30°C (86°F) with excursions permitted up to 40°C (104°F).

#### How Supplied:

SIMPARICA (sarolaner) Chewables are available in six flavored tablet sizes: 5, 10, 20, 40, 80, and 120 mg. Each tablet size is available in color-coded packages of one, three, or six tablets.

NADA #141-452, Approved by FDA

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trouble getting signed up from their home computer.

"The whole team believes in having insurance because our prices are not cheap, so they encourage clients to look into it because they know how much of the invoice gets reimbursed," Bailey says. "They feel like they're helping the client."

### THIRD-PARTY PAYMENT PLANS

**The nay:** "They turn down too many pet owners for credit!"

**The yay:** The same pet owners your hospital won't extend credit or give free services to may also not be able to get credit from a provider like CareCredit, Wells Fargo or Scratch. (You can see a complete list of today's big providers at [dvm360.com/clientpayproducts](http://dvm360.com/clientpayproducts).) That can lead to a perception that no one who wants veterinary-specific credit can get it. But Bailey tries to remind team members not to bias themselves early and to use the product to show they're trying.

"If we only recommend third-party payment plans to 'low on money' clients, the decline rate is going to be much higher than if we offer it to everyone," Bailey says. "I also tell team members that one of the main reasons I offer it is because I want to give my client service representatives an 'out' when a client gets declined. My staff automatically say, 'OK, Wells Fargo is not an option for you? I'll get our manager to see what the next step will be.'"

**The nay:** "I don't have time to learn about all these payment options!"

**The yay:** Again, you must really dig those difficult client payment conversations that end in, "But you won't let Fluffy die, will you?"

Bailey recommends that every team member know the payment and insurance options the practice recommends. Team members don't need to know all the pet insurance reimbursement rates or credit card financing options, but they should know the basics of how to sign up, how they work and who in the practice can talk about the details (like, y'know, the manager).

And don't shoulder the burden yourself: Make those product sales representatives earn their keep.

"I've included all my product and service reps in our new-hire onboarding process," Bailey says. That goes for parasite preventive and medication reps as well as third-party payment plan and pet insurance reps, she says.

"Each rep knows they'll come in and do a demonstration or training on either products or services to all new hires each quarter," Bailey says. "This allows new employees to ask all the questions and get all the answers from someone besides my trainers or me."

## Heartgard® Plus (ivermectin/pyrantel)

### CHEWABLES

**CAUTION:** Federal (U.S.A.) law restricts this drug to use by or on the order of a licensed veterinarian.

**INDICATIONS:** For use in dogs to prevent canine heartworm disease by eliminating the tissue stage of heartworm larvae (*Dirofilaria immitis*) for a month (30 days) after infection and for the treatment and control of ascarids (*Toxocara canis*, *Toxascaris leonina*) and hookworms (*Ancylostoma caninum*, *Uncinaria stenocephala*, *Ancylostoma braziliense*).

**DOSEAGE:** HEARTGARD® Plus (ivermectin/pyrantel) should be administered orally at monthly intervals at the recommended minimum dose level of 6 mcg of ivermectin per kilogram (2.72 mcg/lb) and 5 mg of pyrantel (as pamoate salt) per kg (2.27 mg/lb) of body weight. The recommended dosing schedule for prevention of canine heartworm disease and for the treatment and control of ascarids and hookworms is as follows:

Dog Weight	Cheewables Per Month	Ivermectin Content	Pyrantel Content	Color Coding On Foil Backing and Carton
Up to 25 lb	1	68 mcg	57 mg	Blue
26 to 50 lb	1	136 mcg	114 mg	Green
51 to 100 lb	1	272 mcg	227 mg	Brown

HEARTGARD Plus is recommended for dogs 6 weeks of age and older. For dogs over 100 lb use the appropriate combination of these chewables.

**ADMINISTRATION:** Remove only one chewable at a time from the foil-backed blister card. Return the card with the remaining chewables to its box to protect the product from light. Because most dogs find HEARTGARD Plus palatable, the product can be offered to the dog by hand. Alternatively, it may be added intact to a small amount of dog food. The chewable should be administered in a manner that encourages the dog to chew, rather than to swallow without chewing. Chewables may be broken into pieces and fed to dogs that normally swallow treats whole.

Care should be taken that the dog consumes the complete dose, and treated animals should be observed for a few minutes after administration to ensure that part of the dose is not lost or rejected. If it is suspected that any of the dose has been lost, redosing is recommended.

HEARTGARD Plus should be given at monthly intervals during the period of the year when mosquitoes (vectors), potentially carrying infective heartworm larvae, are active. The initial dose must be given within a month (30 days) after the dog's first exposure to mosquitoes. The final dose must be given within a month (30 days) after the dog's last exposure to mosquitoes.

When replacing another heartworm preventive product in a heartworm disease preventive program, the first dose of HEARTGARD Plus must be given within a month (30 days) of the last dose of the former medication.

If the interval between doses exceeds a month (30 days), the efficacy of ivermectin can be reduced. Therefore, for optimal performance, the chewable must be given once a month on or about the same day of the month. If treatment is delayed, whether by a few days or many, immediate treatment with HEARTGARD Plus and resumption of the recommended dosing regimen will minimize the opportunity for the development of adult heartworms.

Monthly treatment with HEARTGARD Plus also provides effective treatment and control of ascarids (*T. canis*, *T. leonina*) and hookworms (*A. caninum*, *U. stenocephala*, *A. braziliense*). Clients should be advised of measures to be taken to prevent reinfection with intestinal parasites.

**EFFICACY:** HEARTGARD Plus Chewables, given orally using the recommended dose and regimen, are effective against the tissue larval stage of *D. immitis* for a month (30 days) after infection and, as a result, prevent the development of the adult stage. HEARTGARD Plus Chewables are also effective against canine ascarids (*T. canis*, *T. leonina*) and hookworms (*A. caninum*, *U. stenocephala*, *A. braziliense*).

**ACCEPTABILITY:** In acceptability and field trials, HEARTGARD Plus was shown to be an acceptable oral dosage form that was consumed at first offering by the majority of dogs.

**PRECAUTIONS:** All dogs should be tested for existing heartworm infection before starting treatment with HEARTGARD Plus which is not effective against adult *D. immitis*. Infected dogs must be treated to remove adult heartworms and microfilariae before initiating a program with HEARTGARD Plus.

While some microfilariae may be killed by the ivermectin in HEARTGARD Plus at the recommended dose level, HEARTGARD Plus is not effective for microfilariae clearance. A mild hypersensitivity-type reaction, presumably due to dead or dying microfilariae and particularly involving a transient diarrhea, has been observed in clinical trials with ivermectin alone after treatment of some dogs that have circulating microfilariae.

**Keep this and all drugs out of the reach of children.**

In case of ingestion by humans, clients should be advised to contact a physician immediately. Physicians may contact a Poison Control Center for advice concerning cases of ingestion by humans.

Store between 68°F - 77°F (20°C - 25°C). Excursions between 59°F - 86°F (15°C - 30°C) are permitted. Protect product from light.

**ADVERSE REACTIONS:** In clinical field trials with HEARTGARD Plus, vomiting or diarrhea within 24 hours of dosing was rarely observed (1.1% of administered doses). The following adverse reactions have been reported following the use of HEARTGARD: Depression/lethargy, vomiting, anorexia, diarrhea, mydriasis, ataxia, staggering, convulsions and hypersalivation.

**SAFETY:** HEARTGARD Plus has been shown to be bioequivalent to HEARTGARD, with respect to the bioavailability of ivermectin. The dose regimens of HEARTGARD Plus and HEARTGARD are the same with regard to ivermectin (6 mcg/kg). Studies with ivermectin indicate that certain dogs of the Collie breed are more sensitive to the effects of ivermectin administered at elevated dose levels (more than 16 times the target use level) than dogs of other breeds. At elevated doses, sensitive dogs showed adverse reactions which included mydriasis, depression, ataxia, tremors, drooping, paresis, recumbency, excitability, stupor, coma and death. HEARTGARD Plus demonstrated no signs of toxicity at 10 times the recommended dose (60 mcg/kg) in sensitive Collies. Results of these trials and bioequivalency studies, support the safety of HEARTGARD products in dogs, including Collies, when used as recommended.

HEARTGARD Plus has shown a wide margin of safety at the recommended dose level in dogs, including pregnant or breeding bitches, stud dogs and puppies aged 6 or more weeks. In clinical trials, many commonly used flea collars, dips, shampoos, anthelmintics, antibiotics, vaccines and steroid preparations have been administered with HEARTGARD Plus in a heartworm disease prevention program.

In one trial, where some pups had parvovirus, there was a marginal reduction in efficacy against intestinal nematodes, possibly due to a change in intestinal transit time.

**HOW SUPPLIED:** HEARTGARD Plus is available in three dosage strengths (See DOSAGE section) for dogs of different weights. Each strength comes in convenient cartons of 6 and 12 chewables.

For customer service, please contact Merial at 1-888-637-4251.



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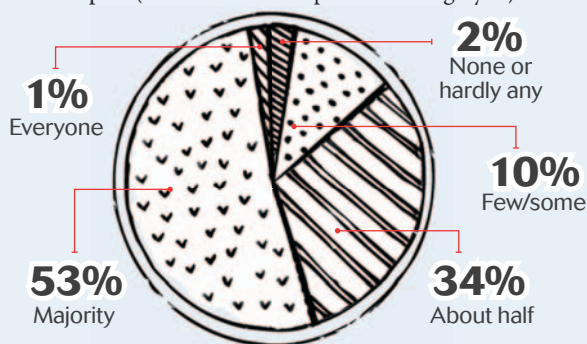
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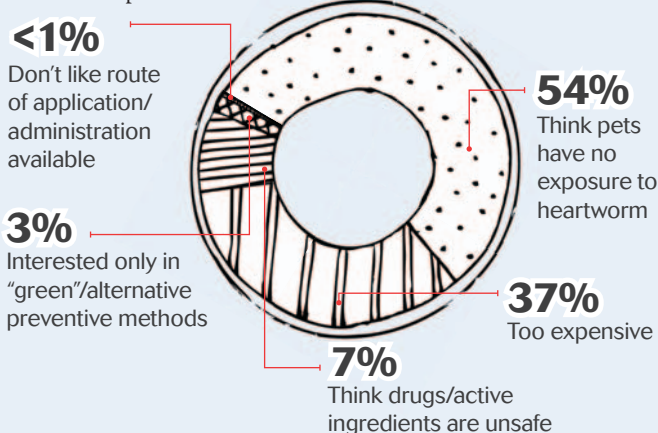
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## ► Weapons to fight heartworms!

What proportion of your clients use heartworm preventives for their pets (either OTC or dispensed through you)?

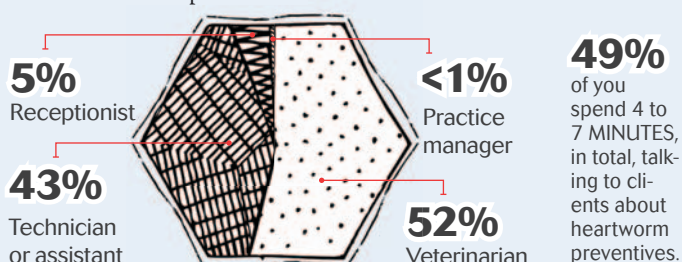


What's the primary reason a client declines using/buying heartworm preventives?\*



## ► Your allies in the fight against heartworms!

Who on your team spends the most total time educating clients about heartworm preventives?

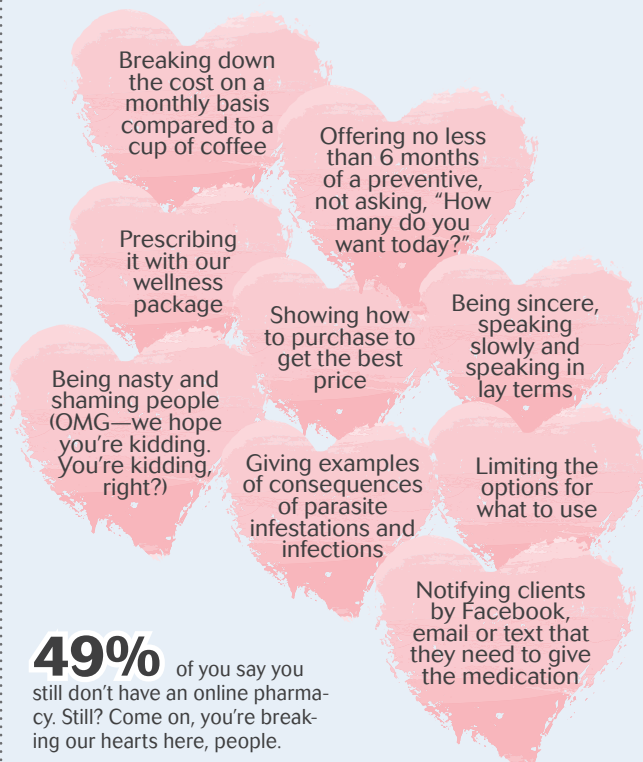


## Heartworms:

They're disgusting.  
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My team members who get the best client compliance for parasite prevention do so by ...





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<sup>1</sup> Data on file at Merial.

<sup>2</sup> Freedom of Information: NADA140-971 (January 15, 1993).

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See brief summary on page 33.

**IMPORTANT SAFETY INFORMATION:** HEARTGARD® Plus (ivermectin/pyrantel) is well tolerated. All dogs should be tested for heartworm infection before starting a preventive program. Following the use of HEARTGARD Plus, digestive and neurological side effects have rarely been reported. For more information, please visit [www.HEARTGARD.com](http://www.HEARTGARD.com).

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*(ivermectin/pyrantel)* **Plus**