



# HIKING TRAILS LIKE A BOSS. MeloxiDONE.



- ✓ Controls OA pain & inflammation
- ✓ Costs less than Metacam® (meloxicam)
- ✓ Easy to dose

When you recommend Meloxidyl® (meloxicam), your patients can move on to bigger and better things. Ask for Meloxidyl® (meloxicam) when you place your next order for OA pain relief.



DO NOT USE MELOXIDYL ORAL SUSPENSION IN CATS. Acute renal failure and death have been associated with the use of meloxicam in cats. Dogs with known hypersensitivity to meloxicam or other NSAIDs should not receive Meloxidyl Oral Suspension. Meloxidyl Oral Suspension is not recommended for use in dogs with bleeding disorders. If vomiting, diarrhea, decreased appetite or other signs of illness are seen, discontinue treatment immediately. ©2018 Ceva Animal Health, LLC. Meloxidyl is a registered trademark of Ceva Santé Animale S.A. METACAM is a registered trademark of Boehringer Ingelheim Vetmedica GmbH.



# WHY MELOXIDYL®?

- ✓ **Controls osteoarthritis pain & inflammation**  
Helps increase quality of life and mobility for dogs
- ✓ **Costs less than Metacam® (meloxicam)**  
**Meloxidyl® (meloxicam)** is a premium generic at an affordable price with the same active ingredient as Metacam® (meloxicam)
- ✓ **Easy to dose**  
Easily administer exact dose needed for dogs of all weights via syringe



When you recommend Meloxidyl® (meloxicam), your patients can move on to bigger and better things. Ask for Meloxidyl® (meloxicam) when you place your next order for OA pain relief.

**[www.meloxidyl.com](http://www.meloxidyl.com)**

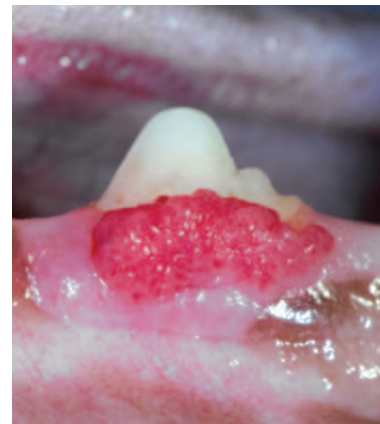
See brief summary on page 6.



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# Stayin' alive with RECOVER

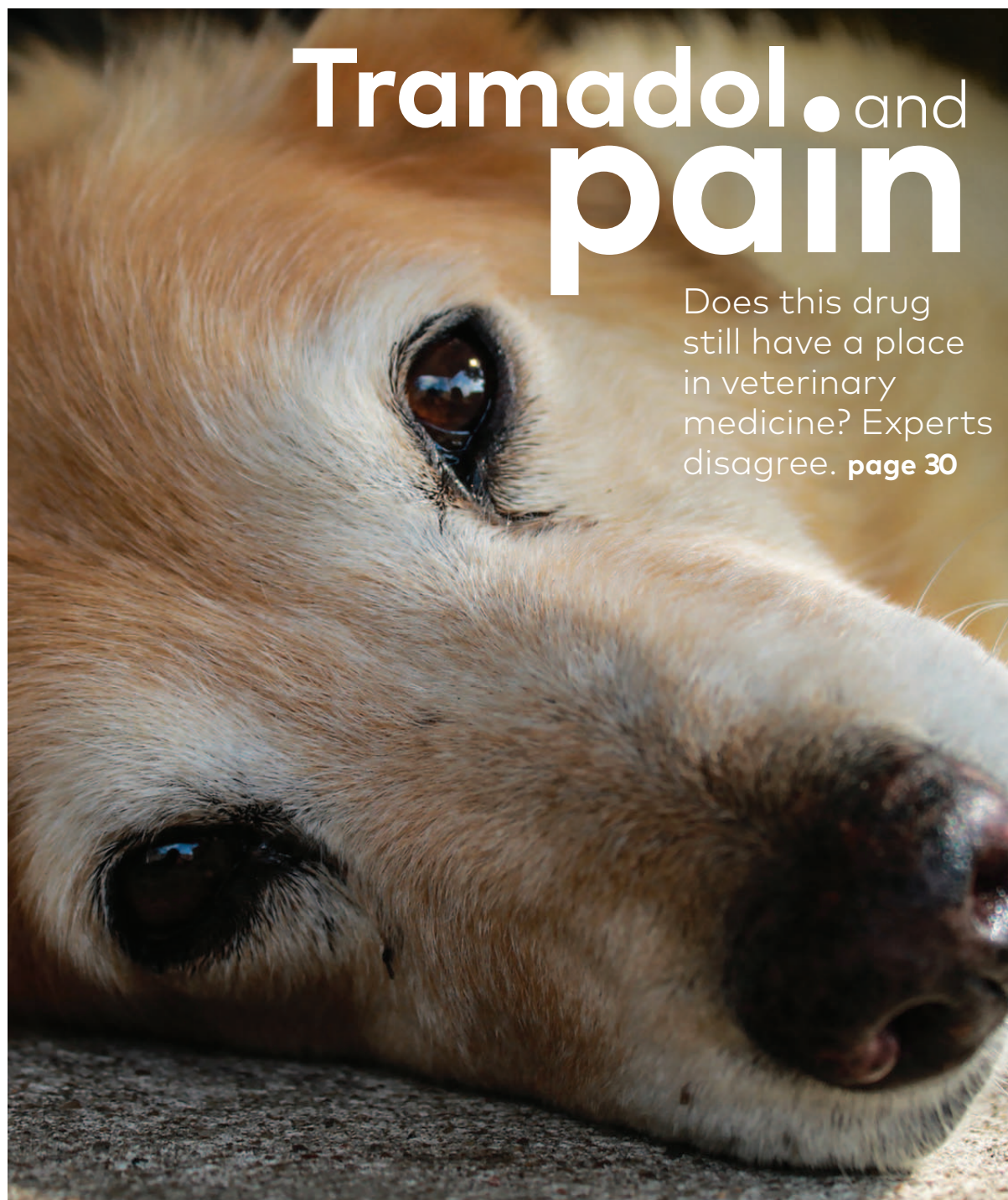
If a patient arrests in your veterinary hospital, how's your resuscitation rate? Experts in emergency and critical care are collaborating on a mission to improve that number the world over.

*By Sarah J. Wooten, DVM*

A few months ago I was perusing my Facebook feed when a video posted by my friend and classmate Daniel Fletcher, PhD, DVM, DACVECC, caught my eye. It was a group of people from Japan performing CPR on dog dummies timed to the Bee Gees song "Stayin' Alive."

I later learned that Dr. Fletcher, along with Kenichiro Yagi, MS, RVT, VTS (ECC, SAIM), was in Japan earlier this year teaching CPR as part of an initiative called RECOVER (Reassessment Campaign on Veterinary Resuscitation). Eager to learn more, I recently caught up with Dr. Fletcher and Yagi to ask them what RECOVER was all about and how veterinary professionals could save more pets. Here's what they had to say.

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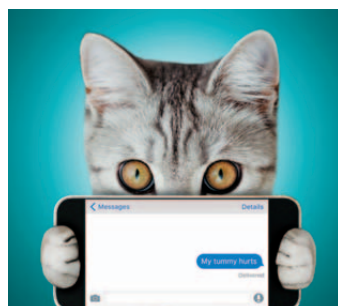
# Tramadol and pain

Does this drug still have a place in veterinary medicine? Experts disagree. **page 30**



Top spots to eat,  
drink and explore  
in Kansas City

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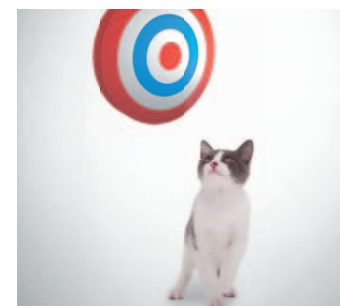
New telemedicine  
service aims to be  
a boon to vets

**page 7**



6 savvy tips and  
tricks to try in  
the surgical suite

**page 43**



Feline CKD  
therapeutic goals:  
Hit the target

**page M1**



Make killing  
fleas & ticks

DELICIOUSLY  
SIMPLE.



**Preferred by dogs<sup>1</sup> and dog owners<sup>2</sup> –**

NexGard® (afoxolaner) makes it easy to protect your canine patients against fleas and four of the most common species of ticks in North America.

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

<sup>2</sup>Data on file at Merial. Based on veterinary dispensed dose data.

**NexGard is a Merial product.  
Merial is now part of Boehringer Ingelheim.**



NexGard® is a registered trademark, and FRONTLINE VET LABS™ is a trademark, of Merial. ©2017 Merial, Inc., Duluth, GA. All rights reserved. NEX18TRADEAD1 (01/18).

**IMPORTANT SAFETY INFORMATION: NexGard® (afoxolaner)** 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).

Please see Brief Summary on page 3.





#### Mission

Through its extensive network of news sources, **dvm360** provides unbiased multimedia reporting on all issues affecting the veterinary profession.

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# Eat, drink and explore in KC

Fetch dvm360 puts stellar food, sips and fun at your fingertips.

When you attend the Fetch dvm360 conference in Kansas City, you expect high-quality CE from awesome speakers, but you might not expect much from the city itself. We're here to change that perception.

## Caffeine

Here's where to start your day:

**Mildred's Coffeehouse:** When you go to Mildred's you get a two for one: delicious breakfast sandwiches *and* great coffee.

**Messenger Cafe:** *Food & Wine* recently picked Messenger as the top coffee shop in Missouri. Enjoy your morning brew and flaky pastry on the rooftop deck.

**Thou Mayest:** Thou Mayest's laid-back space has campground vibes and indoor and outdoor seating for enjoying your coffee.

## Culture

Free time? Here's how to fill it:

**Union Station:** Union Station is home to food, KC memorabilia and trains, of course! Kids joining you? Don't miss Science City or Dinosaurs Revealed.

**Nelson-Atkins Museum of Art:** This is the museum to visit if you've got the time. The exhibits cover just about any time period or style you can dream up.

## Food

Hungry? These places can help:

**Fiorella's Jack Stack:** Kansas City is chock full of BBQ, but if you want a slightly more formal experience without losing any authenticity, go here.

**Corvino Supper Club & Tasting Room:** Eat in the Supper Club for shareable plates and live music or in the Tasting Room for a curated experience with food specially prepared by Chef Michael Corvino.

**Café Gratitude:** You'll find a delicious vegan-friendly menu including cold pressed juices and entrees like eggplant parmesan and Indian curry.

## Brews

The perfect spots to relax:

**Boulevard Brewing Company:** The most well-known Kansas City beer, Boulevard's tap-

room boasts seasonal brews and experimental sips you can only get at the brewery. Bonus: You can book a tour if you have time!

**The Rieger:** Harken back to pre-Prohibition days at The Rieger, which is modeled after a hotel that was shut down in 1919. Get a great dinner and locally made liquor,

including whiskey, gin, wheat vodka and caffe amaro. Cheers!

Go to [www.fetchdvm360.com/kceats](http://www.fetchdvm360.com/kceats) to see the full Kansas City guide, including recommendations from the dvm360 team.



## 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-Naphthalenecarboxamide, 4-[5-[3-chloro-4-(trifluoromethyl)-phenyl]-4, 5-dihydro-5-(trifluoromethyl)-3-isoxazolyl]-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 > 83% 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, anthelmintics, antibiotics (including topicals), 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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1050-4493-03  
Rev. 1/2015





## On any given day, you're dealing with ...

Money problems

Job performance woes

Relationship struggles

Medical emergencies

Frustrated coworkers




Fractional furballs ...

**And you know what? We can't stand it any longer.**

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**We think these issues are critical. So, you'll find the support you need at every Fetch dvm360 conference.**

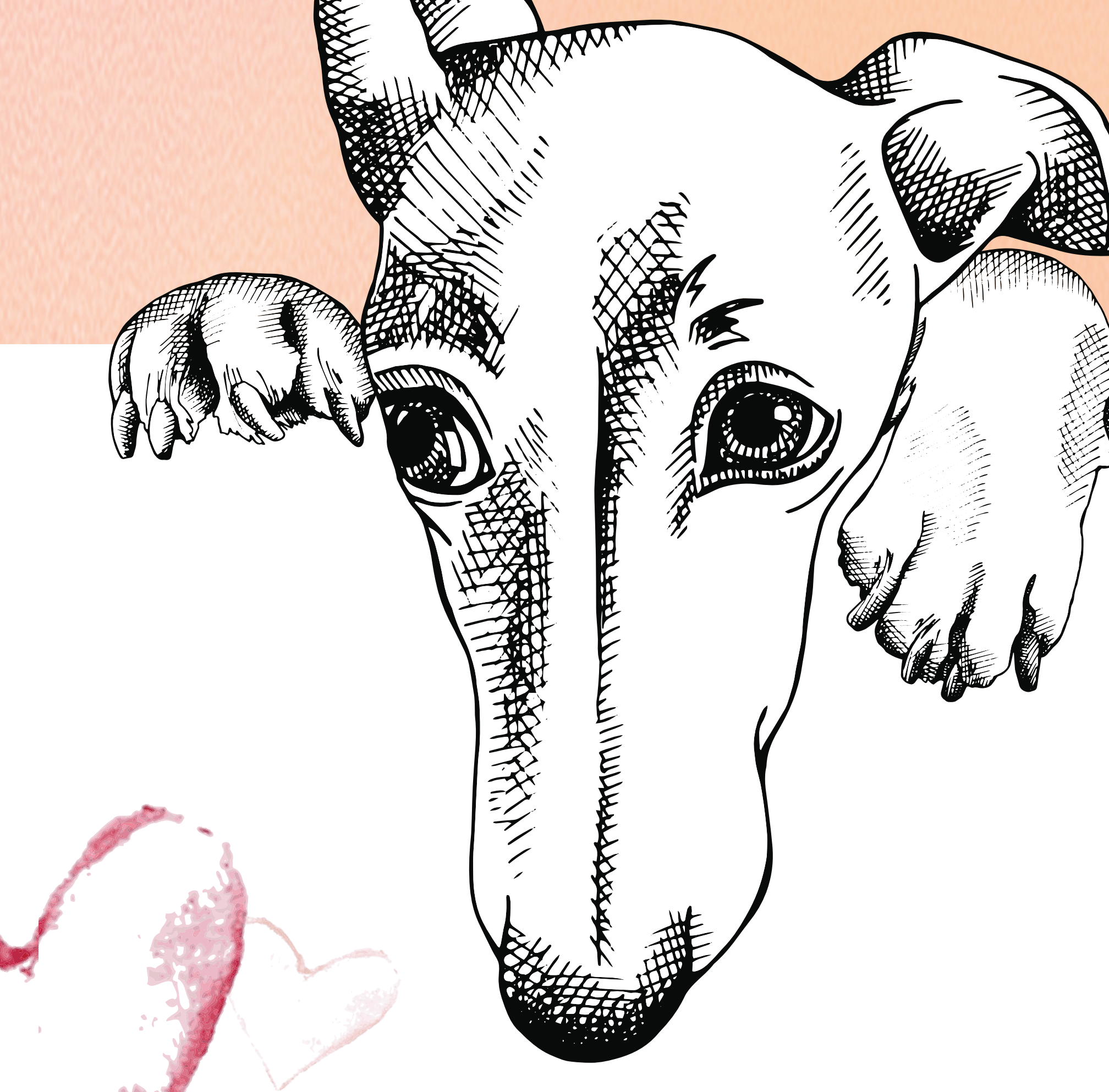
What does that look like?

-  Sessions where your peers talk openly about the solutions to keep from totally losing it on everyone in their lives
-  Opportunities to invest in your emotional health, because sanity is something worth fighting for
-  Healthy physical activities that change the way you learn and open your mind to new ideas.



All that, and the CE you need to nurture your mind and get back to enjoying your life and work. **Register today.**





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## Meloxidyl® (meloxicam)

ANADA 200-550, approved by FDA.  
\*Please read entire package insert before use.

**Meloxidyl®**  
(meloxicam) 1.5 mg/mL Oral Suspension

Non-steroidal anti-inflammatory drug for oral use in dogs only

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

**Indications:** Meloxidyl Oral Suspension is indicated for the control of pain and inflammation associated with osteoarthritis in dogs.

**Contraindications:** Dogs with known hypersensitivity to meloxicam should not receive Meloxidyl Oral Suspension. **Do not use Meloxidyl Oral Suspension in cats. Acute renal failure and death have been associated with the use of meloxicam in cats.**

**Warning:** Repeated use of meloxicam in cats has been associated with acute renal failure and death. Do not administer additional injectable or oral meloxicam to cats. See Contraindications, Warnings, and Precautions for detailed information.

**Warnings:** Not for use in humans. Keep this and all medications out of reach of children. Consult a physician in case of accidental ingestion by humans. **For oral use in dogs only.**

As with any NSAID, all dogs should undergo a thorough history and physical examination before the initiation of NSAID therapy. Appropriate laboratory testing to establish hematological and serum biochemical baseline data is recommended prior to and periodically during administration. Owner should be advised to observe their dog for signs of potential drug toxicity and be given a client information sheet about Meloxidyl Oral Suspension.

**Precautions:** The safe use of Meloxidyl Oral Suspension in dogs younger than 6 months of age, dogs used for breeding, or in pregnant or lactating dogs has not been evaluated. Meloxicam Oral Suspension is not recommended for use in dogs with bleeding disorders, as safety has not been established in dogs with these disorders. As a class, cyclo-oxygenase inhibitory NSAIDs may be associated with gastrointestinal, renal and hepatic toxicity. Sensitivity to drug-associated adverse events varies with the individual patient. Dogs that have experienced adverse reactions from one NSAID may experience adverse reactions from another NSAID. Patients at greatest risk for renal toxicity are those that are dehydrated, on concomitant diuretic therapy, or those with existing renal, cardiovascular, and/or hepatic dysfunction. Concurrent administration of potentially nephrotoxic drugs should be carefully approached. NSAIDs may inhibit the prostaglandins that maintain normal homeostatic function. Such antiprostaglandin effects may result in clinically significant disease in patients with underlying or pre-existing disease that has not been previously diagnosed. Since NSAIDs possess the potential to induce gastrointestinal ulcerations and/or perforations, concomitant use with other anti-inflammatory drugs, such as NSAIDs or corticosteroids, should be avoided. If additional pain medication is needed after administration of the total daily dose of Meloxidyl Oral Suspension, a non-NSAID or non-corticosteroid class of analgesia should be considered. The use of another NSAID is not recommended. Consider appropriate washout times when switching from corticosteroid use or from one NSAID to another in dogs. The use of concomitantly protein-bound drugs with Meloxidyl Oral Suspension has not been studied in dogs. Commonly used protein-bound drugs include cardiac, anticonvulsant and behavioral medications. The influence of concomitant drugs that may inhibit metabolism of Meloxidyl Oral Suspension has not been evaluated. Drug compatibility should be monitored in patients requiring adjunctive therapy.

**Adverse Reactions:** Field safety was evaluated in 306 dogs. Based on the results of two studies, GI abnormalities (vomiting, soft stools, diarrhea, and inappetence) were the most common adverse reactions associated with the administration of meloxicam. The following table lists adverse reactions and the numbers of dogs that experienced them during the studies. Dogs may have experienced more than one episode of the adverse reaction during the study.

In foreign suspected adverse drug reaction (SADR) reporting over a 9 year period, incidences of adverse reactions related to meloxicam administration included: auto-immune hemolytic anemia (1 dog), thrombocytopenia (1 dog), polyarthritis (1 dog), nursing puppy lethargy (1 dog), and pyoderma (1 dog).

**Post-Approval Experience: (Rev 2010)**

The following adverse events are based on post-approval adverse drug experience reporting. Not all adverse reactions are reported to FDA/CVM. It is not always possible to reliably estimate the adverse event frequency or establish a causal relationship to product exposure using these data. The following adverse events are listed in decreasing order of frequency by body system.

*Gastrointestinal:* vomiting, anorexia, diarrhea, melena, gastrointestinal ulceration  
*Urinary:* azotemia, elevated creatinine, renal failure  
*Neurological/Behavioral:* lethargy, depression

Adverse Reactions Observed During Two Field Studies		
Clinical Observation	Meloxicam (n=157)	Placebo (n=149)
Vomiting	40	23
Diarrhea/Soft Stool	19	11
Bloody Stool	1	0
Inappetence	5	1
Bleeding Gums After Dental Procedure	1	0
Lethargy/Swollen Carpus	1	0
Epiphora	1	0

*Hepatic:* elevated liver enzymes  
*Dermatologic:* pruritus

Death has been reported as an outcome of the adverse events listed above. **Acute renal failure and death have been associated with use of meloxicam in cats.**

**Effectiveness:** The effectiveness of meloxicam was demonstrated in two field studies involving a total of 277 dogs representing various breeds, between six months and sixteen years of age, all diagnosed with osteoarthritis. Both of the placebo-controlled, masked studies were conducted for 14 days. All dogs received 0.2 mg/kg on day 1. All dogs were maintained on 0.1 mg/kg oral meloxicam from days 2 through 14 of both studies. Parameters evaluated by veterinarians included lameness, weight-bearing, pain on palpation, and overall improvement. Parameters assessed by owners included mobility, ability to rise, limping, and overall improvement. In the first field study (n= 109), dogs showed clinical improvement with statistical significance after 14 days of meloxicam treatment for all parameters. In the second field study (n = 48), dogs receiving meloxicam showed a clinical improvement after 14 days of therapy for all parameters; however, statistical significance was demonstrated only for the overall investigator evaluation on day 7, and for the owner evaluation on day 14.

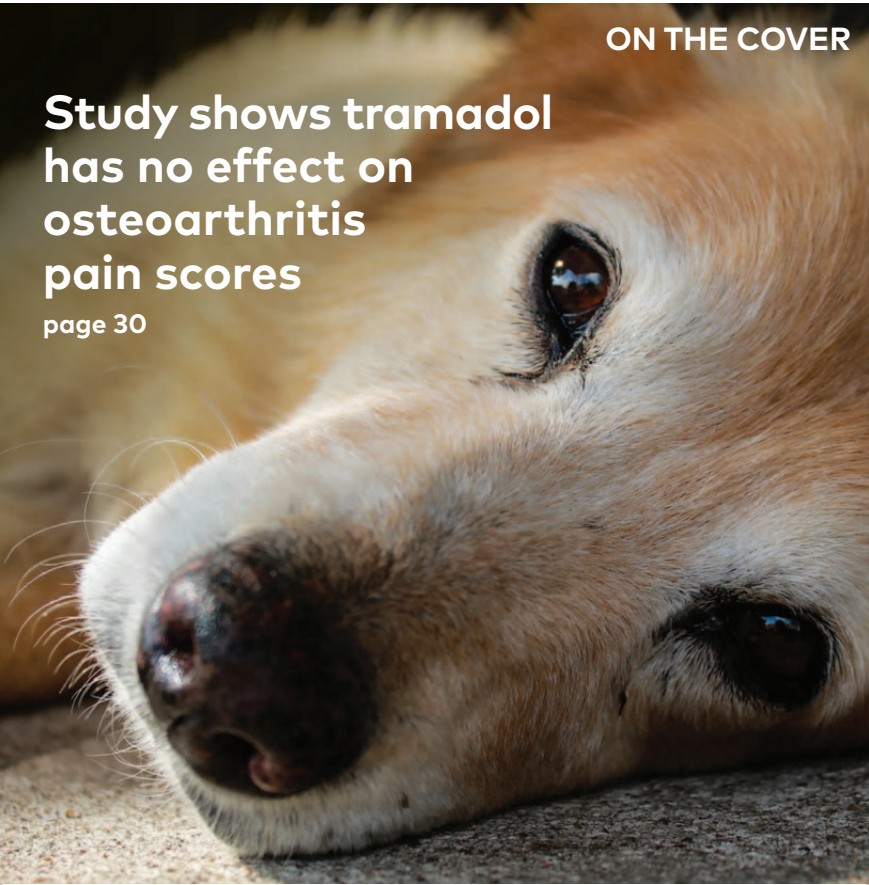
**How Supplied:** Meloxidyl® 1.5 mg/mL Oral Suspension: 10, 32, 100 and 200 mL bottles with small and large dosing syringes.

**Storage:** Store at controlled room temperature 68-77° F (20-25° C).  
**Manufactured for:** Ceva Santé Animale, S.A.  
**Marketed by:** Ceva Animal Health, LLC, Lenexa, KS 66215  
Meloxidyl® is a registered trademark of Ceva Santé Animale, S.A.

ON THE COVER

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# New veterinary telemedicine service aims to save clients time, money

LiveDVM offers virtual veterinary appointments to pet owners and presents a new business opportunity for veterinarians. *By Sarah A. Moser*

**H**ow many times have you wished you were compensated for the time you spend on the phone with clients? And how often have clients said they wished they had a better way of knowing whether an in-person visit to the office was really necessary? Probably more times than you can count.

A new service called LiveDVM seeks to solve these problems by offering clients phone call, text or video appointments for a fee. For \$49.95, a client can call the LiveDVM line, after hours or during the regular business day, to get advice on a health question regarding their pet, check in for follow-up after a

previous office visit, or receive a clear answer on whether the pet needs to be seen in person—immediately, the following morning or in the next couple of weeks.

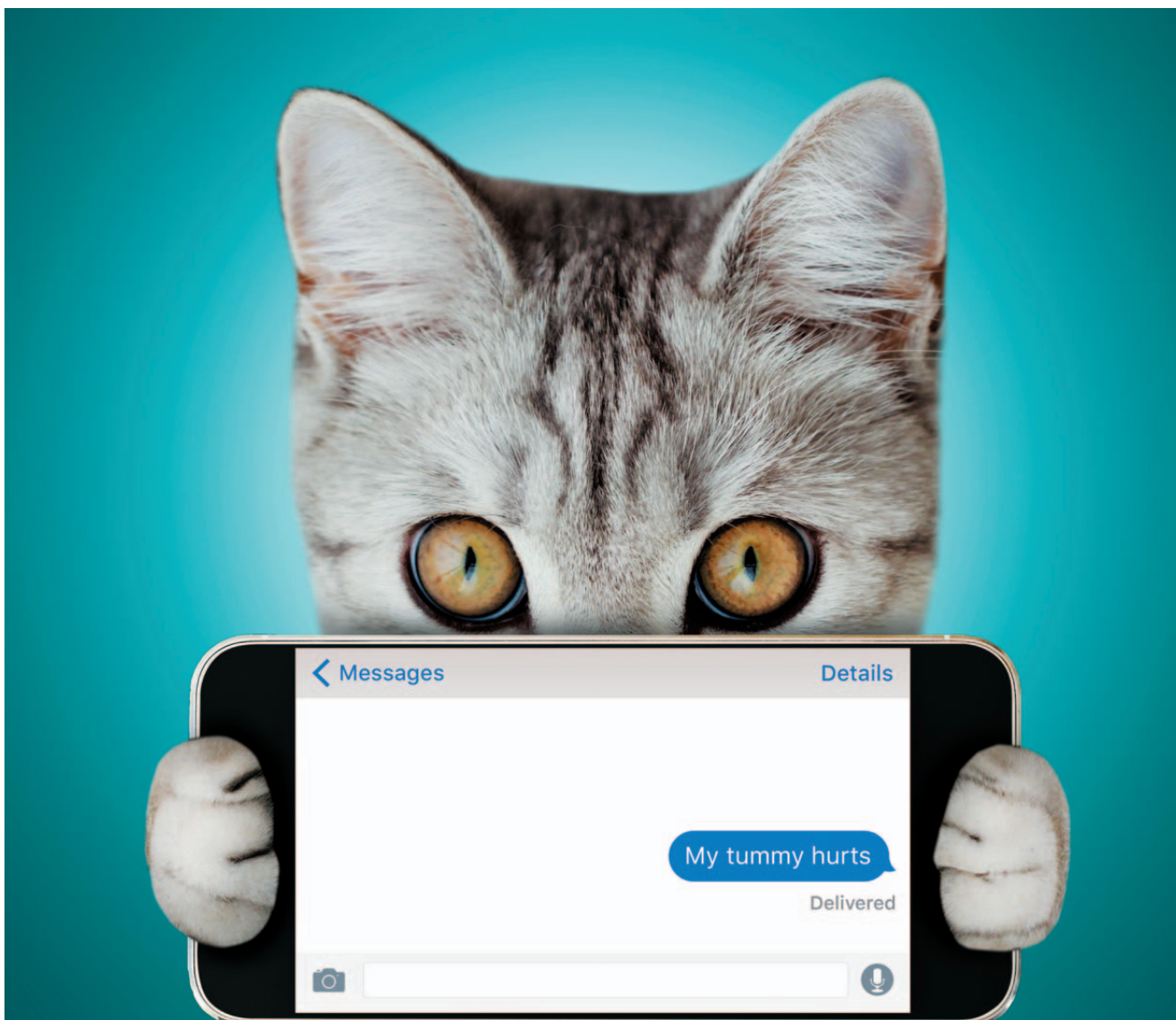
The brainchild of Jeff Werber, DVM, founder of Century Veterinary Group in Los Angeles, LiveDVM seeks to reinforce the veterinarian-client-patient relationship (VCPR) by providing off-hours service that directs clients straight back to their own provider.

“Our mission is to not take business away from veterinarians, but to become an additional arm working along with doctors in our network,” says Dr. Werber.

To make this happen, veterinar-

ians can sign up to join the network at [livedvm.com](http://livedvm.com). The yearly fee per practice is \$600, whether one veterinarian or 20 veterinarians sign on to take calls. “If the service saves that practice just two or three appointments a year—clients who would have made unnecessary trips to the emergency clinic rather than waiting till the next day to see their own veterinarian—it pays for itself,” Dr. Werber says.

Doctors sign up to take shifts in their off hours to answer calls from clients. When a client calls, the LiveDVM service matches that person with a doctor from their own practice, when one is available. LiveDVM has access to that hospital’s records, making personalized



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Appetite Stimulant

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

**Description:** ENTYCE® (capromorelin oral solution) is a selective ghrelin receptor agonist that binds to receptors and affects signaling in the hypothalamus to cause appetite stimulation and binds to the growth hormone secretagogue receptor in the pituitary gland to increase growth hormone secretion.

**Indication:** ENTYCE (capromorelin oral solution) is indicated for appetite stimulation in dogs.

**Contraindications:** ENTYCE should not be used in dogs that have a hypersensitivity to capromorelin.

**Warnings:** Not for use in humans. Keep this and all medications out of reach of children and pets. Consult a physician in case of accidental ingestion by humans. **For use in dogs only**

**Precautions:** Use with caution in dogs with hepatic dysfunction. ENTYCE is metabolized by CYP3A4 and CYP3A5 enzymes (See Clinical Pharmacology). Use with caution in dogs with renal insufficiency. ENTYCE is excreted approximately 37% in urine and 62% in feces (See Adverse Reactions and Clinical Pharmacology).

The safe use of ENTYCE has not been evaluated in dogs used for breeding or pregnant or lactating bitches.

**Adverse Reactions:** Field safety was evaluated in 244 dogs. The most common adverse reactions were diarrhea and vomiting. Of the dogs that received ENTYCE (n = 171), 12 experienced diarrhea and 11 experienced vomiting. Of the dogs treated with placebo (n = 73), 5 experienced diarrhea and 4 experienced vomiting.

To report suspected adverse drug events and/or obtain a copy of the Safety Data Sheet (SDS) or for technical assistance, call Aratana Therapeutics at 1-844-272-8262.

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>

NADA 141-457, Approved by FDA

US Patent: 6,107,306

US Patent: 6,673,929

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Leawood, KS 66211

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AT2-021-16

August 2016



service possible. The doctor then uses a phone call, text message conversation or videoconference chat to communicate with the client about what's going on with their pet, perhaps even seeing the animal virtually.

"To protect the client's bond with their own veterinarian, we won't match a caller with a doctor within 50 miles of their home practice when their own veterinarian isn't available," says Dr. Werber. "We don't want our doctors to fear losing clients."

Also, when the client is matched with a veterinarian who's not their own (in other words, who does not have an established VCPR), the doctor follows a protocol that's designed to educate the pet owner and suggest hypothetical scenarios—more of a "telehealth" approach than actual "telemedicine"—so as to stay within legal guidelines. "And if there's the slightest shadow of a doubt that a patient needs to be seen, we will send them to their own practice or their local emergency clinic," Dr. Werber says.

The 15-minute consultation costs the client \$49.95. Dr. Werber says most clients are happy to pay that if it means not taking time off work, hauling a pet across town, sitting through an appointment and interrupting their day. And in his case, he offers an extra incentive for clients to use the service: If, after the consultation, clients still need to bring in a pet, he only charges the difference between his practice

visit fee and the consultation fee. For just \$19 more, they can be seen in clinic if necessary.

And what about benefits to the providing doctor? The doctor taking the call gets \$35, the hospital that joined the network gets \$5, and the balance of \$9.95 goes to LiveDVM. If the veterinarian takes four 15-minute calls while watching television on Sunday afternoon, he or she earns \$140.

Dr. Werber and his partner, Chance White (recently of [savethislife.com](http://savethislife.com)), have pulled together a board of directors consisting of a number of veterinary industry innovation illuminati—including Lori Teller, DVM, DABVP, who helped create the AVMA's telemedicine policy, Chad Dodd, DVM, of Animatas Consulting, and Bruce Truman, MBA, of BLT Consulting—who believe strongly in what LiveDVM is doing, Dr. Werber says.

Dr. Dodd likens the new company to a hybrid car. "A hybrid car takes the strengths of two technologies to make an even better product," he says. "At LiveDVM we combine virtual care with in-clinic care to provide the best care for our pets. We are using technology to make the connection even stronger."

The benefit to doctors is retaining a client during off hours, squeezing in more appointments than you can in a clinical setting, and saving clients time and stress when they might otherwise run to an emergency clinic for some-

thing that isn't truly an emergency.

"Most of the time pet owners just want someone to talk to in order to find out if their pet needs to be seen—and we know from industry statistics that 80 percent of 'emergencies' actually aren't," Dr. Werber says. "Clients love concierge service from their veterinarians, and this is a way to offer it and still be compensated. It's a win for all."

*Sarah A. Moser is a freelance writer in Lenexa, Kansas.*



Managers: Who's the best of the best?

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to see the ultimate winner? Join us at Fetch dvm360 conference in San Diego, Dec. 13-16. Visit

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**IMPORTANT SAFETY INFORMATION:** ENTYCE® (capromorelin oral solution) is for use in dogs only. Do not use in breeding, pregnant or lactating dogs. Use with caution in dogs with hepatic dysfunction or renal insufficiency. Adverse reactions in dogs may include diarrhea, vomiting, polydipsia, and hypersalivation. Should not be used in dogs that have a hypersensitivity to capromorelin. See page 08 for product information summary. Please see the full Prescribing Information at [entyce.aratana.com/PI](http://entyce.aratana.com/PI).



# Study provides evidence that, yes, canine companions love your ‘doggy talk’

Researchers find that adult dogs prefer ‘dog-directed speech’—as long as you’re talking about something the pooch cares about. *By John Ciribassi, DVM, DACVB*

As veterinarians we often hear our clients make statements such as, “My dog is just like a child to me.” Or, “We don’t have any children, so our dog is our baby.” This relationship scenario becomes even more obvious when we consider how many pet owners talk to their dogs—their speech pattern is often very similar to what we hear when some adults speak to infants.

This pattern of speech has been termed “infant-directed speech” and is characterized by a higher pitch or frequency (experts theorize that this characteristic is designed to gather attention), exaggerated intonation contours (a pitch pattern that rises and falls at various points in a phrase), and greater affect (facial expressions meant to increase affiliative interactions). All of these features distinguish infant-directed speech from adult-directed speech.

A similar speech pattern exists in dogs, and it’s termed “dog-directed speech.” The primary difference between infant-directed and dog-directed speech is that people don’t tend to hyperarticulate their vowels with dogs like they do with infants. Experts think this aspect of infant-directed speech is meant to assist with language acquisition. Research with infants has demonstrated on numerous occasions that babies choose infant-directed speech over adult-directed speech.

A recent study published in *Animal Cognition* was designed to determine whether dogs, like infants, prefer dog-directed speech over adult-directed speech.<sup>1</sup> The investigators were building on previous research showing that puppies preferred dog-directed speech over adult-directed speech but that mature dogs did not—at least when that speech was played over a loudspeaker with no human present in the room.<sup>2</sup> These researchers speculated that if a person was available for the dogs to associate with either kind of speech, the results might be different.

In order to test this hypothesis, the researchers established a similar protocol, but instead of having only loudspeakers play the content, they had volunteers hold audio playback devices on their laps

## GALLIPRANT® (grapiprant tablets)

**For oral use in dogs only**  
**20 mg, 60 mg and 100 mg flavored tablets**

**A prostaglandin E<sub>2</sub> (PGE<sub>2</sub>) EP4 receptor antagonist; a non-cyclooxygenase inhibiting, non-steroidal anti-inflammatory drug**

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

**Before using this product, please consult the product insert, a summary of which follows:**

**Indication:** GALLIPRANT (grapiprant tablets) is indicated for the control of pain and inflammation associated with osteoarthritis in dogs.

**Dosage and Administration:** Always provide “Information for Dog Owners” Sheet with prescription. Use the lowest effective dose for the shortest duration consistent with individual response.

The dose of GALLIPRANT (grapiprant tablets) is 0.9 mg/lb (2 mg/kg) once daily.

GALLIPRANT tablets are scored and dosage should be calculated in half tablet increments.

Dogs less than 8 lbs (3.6 kgs) cannot be accurately dosed. **See product insert for complete dosing and administration information.**

**Contraindications:** GALLIPRANT should not be used in dogs that have a hypersensitivity to grapiprant.

**Warnings:** Not for use in humans. Keep this and all medications out of reach of children and pets. Consult a physician in case of accidental ingestion by humans. **For use in dogs only.** Store GALLIPRANT out of reach of dogs and other pets in a secured location in order to prevent accidental ingestion or overdose.

**Precautions:** The safe use of GALLIPRANT has not been evaluated in dogs younger than 9 months of age and less than 8 lbs (3.6 kg), dogs used for breeding, or in pregnant or lactating dogs. Adverse reactions in dogs receiving GALLIPRANT may include vomiting, diarrhea, decreased appetite, mucoid, watery or bloody stools, and decreases in serum albumin and total protein. If GALLIPRANT is used long term, appropriate monitoring is recommended.

Concurrent use with other anti-inflammatory drugs has not been studied. Concomitant use of GALLIPRANT with other anti-inflammatory drugs, such as COX-inhibiting NSAIDs or corticosteroids, should be avoided. If additional pain medication is needed after a daily dose of GALLIPRANT, a non-NSAID/non-corticosteroid class of analgesic may be necessary.

The concomitant use of protein-bound drugs with GALLIPRANT has not been studied. Commonly used protein-bound drugs include cardiac, anticonvulsant and behavioral medications.

Drug compatibility should be monitored in patients requiring adjunctive therapy. Consider appropriate washout times when switching from one anti-inflammatory to another or when switching from corticosteroids or COX-inhibiting NSAIDs to GALLIPRANT use.

The use of GALLIPRANT in dogs with cardiac disease has not been studied.

It is not known whether dogs with a history of hypersensitivity to sulfonamide drugs will exhibit hypersensitivity to GALLIPRANT. GALLIPRANT is a methylbenzenesulfonamide.

**Adverse Reactions:** In a controlled field study, 285 dogs were evaluated for safety when given either GALLIPRANT or a vehicle control (tablet minus grapiprant) at a dose of 2 mg/kg (0.9 mg/lb) once daily for 28 days. GALLIPRANT-treated dogs ranged in age from 2 yrs to 16.75 years. The following adverse reactions were observed:

Adverse reaction*	GALLIPRANT (grapiprant tablets) N = 141	Vehicle control (tablets minus grapiprant) N = 144
Vomiting	24	9
Diarrhea, soft stool	17	13
Anorexia, inappetence	9	7
Lethargy	6	2
Buccal ulcer	1	0
Immune mediated hemolytic anemia	1	0

\*Dogs may have experienced more than one type or occurrence during the study.

GALLIPRANT was used safely during the field studies with other concurrent therapies, including antibiotics, parasiticides and vaccinations.

To report suspected adverse drug events and/or obtain a copy of the Safety Data Sheet (SDS) or for technical assistance, call 1-888-545-5973.

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>

**Information for Dog Owners:** Owners should be advised of the potential for adverse reactions and be informed of the clinical signs associated with drug intolerance. Adverse reactions may include vomiting, diarrhea, decreased appetite, and decreasing albumin and total protein. Appetite and stools should be monitored and owners should be advised to consult with their veterinarian if appetite decreases or stools become abnormal.

**Effectiveness:** Two hundred and eighty five (285) client-owned dogs were enrolled in the study and evaluated for field safety. GALLIPRANT-treated dogs ranging in age from 2 to 16.75 years and weighing between 4.1 and 59.6 kgs (9-131 lbs) with radiographic and clinical signs of osteoarthritis were enrolled in a placebo-controlled, masked field study. Dogs had a 7-day washout from NSAID or other current OA therapy. Two hundred and sixty two (262) of the 285 dogs were included in the effectiveness evaluation. Dogs were assessed for improvements in pain and function by the owners using the Canine Brief Pain Inventory (CBPI) scoring system.<sup>1</sup> A statistically significant difference in the proportion of treatment successes in the GALLIPRANT group (63/131 or 48.1%) was observed compared to the vehicle control group (41/131 or 31.3%). GALLIPRANT demonstrated statistically significant differences in owner assessed pain and function. The results of the field study demonstrate that GALLIPRANT, administered at 2 mg/kg (0.9 mg/pound) once daily for 28 days was effective for the control of pain and inflammation associated with osteoarthritis.

**Storage Conditions:** Store at or below 86° F (30° C)

**How Supplied:** 20 mg, 60 mg, 100 mg flavored tablets in 7, 30 and 90 count bottles.

NADA 141-455, Approved by FDA  
US Patents: 6,710,054; 7,960,407; 9,265,756  
Made in New Zealand Manufactured for: Aratana Therapeutics, Inc., Leawood, KS 66211  
Reference: 1. [http://www.vet.upenn.edu/docs/default-source/VIC/canine-bpi\\_userguide.pdf?sfvrsn=0](http://www.vet.upenn.edu/docs/default-source/VIC/canine-bpi_userguide.pdf?sfvrsn=0)  
Additional information is available at 1-888-545-5973.  
GALLIPRANT is a trademark of Aratana Therapeutics, Inc.  
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Brief Summary: AT1-040-16

## IMPORTANT SAFETY INFORMATION

Not for use in humans. For use in dogs only. Keep this and all medications out of reach of children and pets. Store out of reach of dogs and other pets in a secured location in order to prevent accidental ingestion or overdose. Do not use in dogs that have a hypersensitivity to grapiprant. If Galliprant is used long term, appropriate monitoring is recommended. Concomitant use of Galliprant with other anti-inflammatory drugs, such as COX-inhibiting NSAIDs or corticosteroids, should be avoided. Concurrent use with other anti-inflammatory drugs or protein-bound drugs has not been studied. The safe use of Galliprant has not been evaluated in dogs younger than 9 months of age and less than 8 lbs (3.6 kg), dogs used for breeding, pregnant or lactating dogs, or dogs with cardiac disease. The most common adverse reactions were vomiting, diarrhea, decreased appetite, and lethargy. Please see brief summary to the left for full prescribing information.

1. Kirkby Shaw, K., Rausch-Derra, L., and Rhodes, L. 2016. “Grapiprant: an EP4 prostaglandin receptor antagonist and novel therapy for pain and inflammation.” Vet. Med. Sci. 2: 3-9.
2. Rausch-Derra, L., Huebner, M., and Rhodes, L. 2015. “Evaluation of the safety of long-term, daily oral administration of grapiprant, a novel drug for treatment of osteoarthritis pain and inflammation, in healthy dogs.” Am. J. Vet. Res. 76.10: 853-859.





and play recordings of people using either dog-directed speech or adult-directed speech. In phase one of their experiment, the researchers matched content and prosody (the rhythmic pattern of intonation of the speech) for both types of speech. In other words, they used words and phrases people would naturally say to dogs in the dog-

directed speech and words and phrases people would naturally use with adult humans in the adult-directed speech.

The result? Dogs of all ages showed a distinct preference for naturalistic dog-directed speech (matched prosody and content) over adult-directed speech, as demonstrated by their attention to the speaker and willingness to ap-

proach the speaker after the speech was concluded. No effect was seen for the dogs' proximity to the speaker, the identity of the speakers or the appearance of the speakers.

Next, the experimenters wanted to determine what factors were driving the dogs' preference for dog-directed speech—was it the words and phrases

being used, the speakers' intonation and inflections, or a combination of the two that made the difference? So they paired dog-directed speech prosody with adult content and adult-directed speech prosody with dog content. This time, the dogs showed no preference for either type of speech. It seems as though both prosody and content matter when it comes to dogs attending to naturalistic dog-directed speech.

The authors conclude that dogs of all ages prefer naturalistic dog-directed speech when a person is present and theorize that this preference may be related to the improved attention and social bonding that occurs when people use dog-directed speech.

The authors give three possible explanations for why dogs prefer dog-directed speech. One possibility is that high-pitched sounds are associated with affiliation and submission across many different types of mammal species. Another is that as dogs were being domesticated, they were attracted to and felt a greater degree of safety with human social groups that used high-pitched speech with them. The third possibility is that the high-pitched speech is often paired with positive events such as play, toys or treats.

Whatever the reason, it does seem as though talking "baby talk" to dogs can result in an increased response and tighter social bond between you and your dog. But keep in mind that there can be too much of a good thing. Constant communication with dog-directed speech may result in habituation to the sound, resulting in a reduction in response. So restricting the use of dog-directed speech to periods of play or training may help maintain the effect for longer periods.

Overall, this study was well-structured and reinforced what many may have anecdotally suspected. Animated interactions with dogs seem to get a more active response from our trusty canine companions.

#### References

1. Benjamin A, Slocumbe K. 'Who's a good boy?!' Dogs prefer naturalistic dog-directed speech. *Anim Cognition* 2018;21(3):353-364.
2. Ben-Aderet T, Gallego-Abenza M, Reby D, et al. Dog-directed speech: Why do we use it and do dogs pay attention to it? *Proc R Soc B* 2017;284(1846):2016-2429.

*John Ciribassi, DVM, DACVB, is with Chicagoland Veterinary Behavior Consultants in Carol Stream, Illinois.*

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## INDICATION

Galliprant is indicated for the control of pain and inflammation associated with osteoarthritis in dogs.





Experts say there are not enough veterinarians in West Texas to care for the region’s livestock. Texas Tech and Texas A&M are both taking steps to reduce that shortage.

# Proposed Texas Tech veterinary school gets a \$69 million boost

In the meantime, Texas A&M moves forward with its own plans for veterinary education in West Texas.

NADA 141-297, Approved by FDA

## ProZinc® (protamine zinc recombinant human insulin)

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

**Description:** ProZinc® insulin is a sterile aqueous protamine zinc suspension of recombinant human insulin.

Each mL contains:

recombinant human insulin	40 International Units (IU)
protamine sulfate	0.466 mg
zinc oxide	0.088 mg
glycerin	16.00 mg
dibasic sodium phosphate, heptahydrate	3.78 mg
phenol (added as preservative)	2.50 mg
hydrochloric acid	1.63 mg
water for injection (maximum)	1005 mg

pH is adjusted with hydrochloric acid and/or sodium hydroxide.

**Indication:** ProZinc (protamine zinc recombinant human insulin) is indicated for the reduction of hyperglycemia and hyperglycemia-associated clinical signs in cats with diabetes mellitus.

**Dosage and Administration:** USE OF A SYRINGE OTHER THAN A U-40 SYRINGE WILL RESULT IN INCORRECT DOSING.

FOR SUBCUTANEOUS INJECTION IN CATS ONLY.

DO NOT SHAKE OR AGITATE THE VIAL.

**ProZinc insulin should be mixed by gently rolling the vial prior to withdrawing each dose from the vial.** Once mixed, ProZinc suspension has a white, cloudy appearance. Clumps or visible white particles can form in insulin suspensions: do not use the product if clumps or visible white particles persist after gently rolling the vial. Using a U-40 insulin syringe, the injection should be administered subcutaneously on the back of the neck or on the side of the cat.

Always provide the Cat Owner Information Sheet with each prescription.

The initial recommended ProZinc dose is 0.1 – 0.3 IU insulin/pound of body weight (0.2 – 0.7 IU/kg) every 12 hours. The dose should be given concurrently with or right after a meal. The veterinarian should re-evaluate the cat at appropriate intervals and adjust the dose based on both clinical signs and glucose nadirs until adequate glycemic control has been attained. In the effectiveness field study, glycemic control was considered adequate if the glucose nadir from a 9-hour blood glucose curve was between 80 and 150 mg/dL and clinical signs of hyperglycemia such as polyuria, polydipsia, and weight loss were improved.

Further adjustments in the dosage may be necessary with changes in the cat’s diet, body weight, or concomitant medication, or if the cat develops concurrent infection, inflammation, neoplasia, or an additional endocrine or other medical disorder.

**Contraindications:** ProZinc insulin is contraindicated in cats sensitive to protamine zinc recombinant human insulin or any other ingredients in the ProZinc product. ProZinc insulin is contraindicated during episodes of hypoglycemia.

**Warnings: User Safety:** For use in cats only. Keep out of the reach of children. Avoid contact with eyes. In case of contact, immediately flush eyes with running water for at least 15 minutes. Accidental injection may cause hypoglycemia. In case of accidental injection, seek medical attention immediately. Exposure to product may induce a local or systemic allergic reaction in sensitized individuals.

**Animal Safety:** Owners should be advised to observe for signs of hypoglycemia (see Cat Owner Information Sheet). Use of this product, even at established doses, has been associated with hypoglycemia. An animal with signs of hypoglycemia should be treated immediately. Glucose should be given orally or intravenously as dictated by clinical signs. Insulin should be temporarily withheld and, if indicated, the dosage adjusted.

Any change in insulin should be made cautiously and only under a veterinarian’s supervision. Changes in insulin strength, manufacturer, type, species (human, animal) or method of manufacture (rDNA versus animal-source insulin) may result in the need for a change in dosage.

Appropriate diagnostic tests should be performed to rule out other endocrinopathies in diabetic cats that are difficult to regulate.

**Precautions:** Animals presenting with severe ketoacidosis, anorexia, lethargy, and/or vomiting should be stabilized with short-acting insulin and appropriate supportive therapy until their condition is stabilized. As with all insulin products, careful patient monitoring for hypoglycemia and hyperglycemia is essential to attain and maintain adequate glycemic control and to prevent associated complications. Overdosage can result in profound hypoglycemia and death. Progestogens, certain endocrinopathies and glucocorticoids can have an antagonistic effect on insulin activity. Progestogen and glucocorticoid use should be avoided.

**Reproductive Safety:** The safety and effectiveness of ProZinc insulin in breeding, pregnant, and lactating cats has not been evaluated.

**Use in Kittens:** The safety and effectiveness of ProZinc insulin in kittens has not been evaluated.

**Adverse Reactions:**

**Effectiveness Field Study**

In a 45-day effectiveness field study, 176 cats received ProZinc insulin. Hypoglycemia (defined as a blood glucose value of <50 mg/dL) occurred in 71 of the cats at various times throughout the study. Clinical signs of hypoglycemia were generally mild in nature (described as lethargic, sluggish, weak, trembling, uncoordinated, groggy, glassy-eyed or dazed). In 17 cases, the veterinarian provided oral glucose supplementation or food as treatment. Most cases were not associated with clinical signs and received no treatment. One cat had a serious hypoglycemic event associated with stupor, lateral recumbency, hypothermia and seizures. All cases of hypoglycemia resolved with appropriate therapy and, if needed, a dose reduction.

Three cats had injection site reactions, which were described as either small, punctate, red lesions; lesions on neck; or palpable subcutaneous thickening. All injection site reactions resolved without cessation of therapy.

Four cats developed diabetic neuropathy during the study as evidenced by plantigrade stance. Three cats entered the study with plantigrade stance, one of which resolved by Day 45. Four cats were diagnosed with diabetic ketoacidosis during the study. Two were euthanized due to poor response to treatment. Five other cats were euthanized during the study, one of which had hypoglycemia. Four cats had received ProZinc insulin for less than a week and were euthanized due to worsening concurrent medical conditions.

The following additional clinical observations or diagnoses were reported in cats during the effectiveness field study: vomiting, lethargy, diarrhea, cystitis/hematuria, upper respiratory infection, dry coat, hair loss, ocular discharge, abnormal vocalization, black stool, and rapid breathing.

**Extended Use Field Study**

Cats that completed the effectiveness study were enrolled into an extended use field study. In this study, 145 cats received ProZinc insulin for up to an additional 136 days. Adverse reactions were similar to those reported during the 45-day effectiveness study and are listed in order of decreasing frequency: vomiting, hypoglycemia, anorexia/poor appetite, diarrhea, lethargy, cystitis/hematuria, and weakness. Twenty cats had signs consistent with hypoglycemia described as: sluggish, lethargic, unsteady, wobbly, seizures, trembling, or dazed. Most of these were treated by the owner or veterinarian with oral glucose supplementation or food; others received intravenous glucose. One cat had a serious hypoglycemic event associated with seizures and blindness. The cat fully recovered after supportive therapy and finished the study. All cases of hypoglycemia resolved with appropriate therapy and if needed, a dose reduction.

Fourteen cats died or were euthanized during the extended use study. In two cases, continued use of insulin despite anorexia and signs of hypoglycemia contributed to the deaths. In one case, the owner decided not to continue therapy after a presumed episode of hypoglycemia. The rest were due to concurrent medical conditions or worsening of the diabetes mellitus.

To report suspected adverse reactions, or to obtain a copy of the Material Safety Data Sheet (MSDS), call 1-866-638-2226.

**Information for Cat Owners:** Please refer to the Cat Owner Information Sheet for more information about ProZinc insulin. ProZinc insulin, like other insulin products, is not free from adverse reactions. Owners should be advised of the potential for adverse reactions and be informed of the associated clinical signs. Potential adverse reactions include: hypoglycemia, insulin antagonism/resistance, rapid insulin metabolism, insulin-induced hyperglycemia (Somogyi Effect), and local or systemic reactions. The most common adverse reaction observed is hypoglycemia. Signs may include: weakness, depression, behavioral changes, muscle twitching, and anxiety. In severe cases of hypoglycemia, seizures and coma can occur. Hypoglycemia can be fatal if an affected cat does not receive prompt treatment. Appropriate veterinary monitoring of blood glucose, adjustment of insulin dose and regimen as needed, and stabilization of diet and activity help minimize the risk of hypoglycemic episodes. The attending veterinarian should evaluate other adverse reactions on a case-by-case basis to determine if an adjustment in therapy is appropriate, or if alternative therapy should be considered.

**Effectiveness:** A total of 187 client-owned cats were enrolled in a 45-day field study, with 176 receiving ProZinc insulin. One hundred and fifty-one cats were included in the effectiveness analysis. The patients included various purebred and mixed breed cats ranging in age from 3 to 19 years and in weight from 4.6 to 20.8 pounds. Of the cats included in the effectiveness analysis, 101 were castrated males, 49 were spayed females, and 1 was an intact female.

Cats were started on ProZinc insulin at a dose of 0.1-0.3 IU/lb (0.2-0.7 IU/kg) twice daily. Cats were evaluated at 7, 14, 30, and 45 days after initiation of therapy, and the dose was adjusted based on clinical signs and results of 9-hour blood glucose curves on Days 7, 14, and 30.

Effectiveness was based on successful control of diabetes, which was defined as improvement in at least one blood glucose variable (glucose curve mean, nadir, or fructosamine) and at least one clinical sign (polyuria, polydipsia, or body weight). Based on this definition, 115 of 151 cases (76.2%) were considered successful. Blood glucose curve means decreased from 415.3 mg/dL on Day 0 to 203.2 mg/dL by Day 45, and the mean blood glucose nadir decreased from 407.9 mg/dL on Day 0 to 142.4 mg/dL on Day 45. Mean fructosamine values decreased from 505.9 µmol/L on Day 0 to 380.7 µmol/L on Day 45.

Cats that completed the effectiveness study were enrolled in an extended use field study. The mean fructosamine value was 342.0 µmol/L after a total of 181 days of ProZinc therapy.

**How Supplied:** ProZinc insulin is supplied as a sterile injectable suspension in 10-mL multidose vials. Each mL of ProZinc product contains 40 IU recombinant human insulin.

**Storage Conditions:** Store in an upright position under refrigeration at 36-46°F (2-8°C). Do not freeze. Protect from light.

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The Amarillo, Texas, City Council recently approved a decision by the Amarillo Economic Development Corp. (AEDC) to fund up to \$69 million to ensure the construction of a proposed Texas Tech University School of Veterinary Medicine in Amarillo, according to a release from the organization.

“The veterinary school will provide our community and our region with decades of economic growth,” says AEDC board chairman Brian Heinrich. The release states that the Texas Tech School of Veterinary Medicine “directly addresses the critical shortage of veterinarians serving rural communities in a cost-effective manner by eliminating the creation of a teaching hospital and partnering with local and regional veterinarians.”

In 2016, the Texas Higher Education Coordinating Board issued a report stating that the state could not support another traditional veterinary school but highlighting shortages of large animal and rural veterinarians in Texas—a shortage that needs to be corrected in efficient and cost-effective ways. Texas Tech has used those statements to design its proposed veterinary school.

In the meantime, Texas A&M University is moving forward with its own plans for veterinary education in West Texas, announcing in March that a \$22.8 million facility for veterinary education and research will be built on the campus of West Texas A&M University in Canyon, Texas.

“With these three new facilities in Canyon, the Texas A&M System has invested nearly \$90 million in the future of agriculture and animal health in this region,” says A&M Chancellor John Sharp, in a university release. “We have created a two-way super-highway of veterinary education and research activity from Canyon to College Station, and it runs right through these new structures.”

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**References:** **1.** Nelson RW, Henley K, Cole C; PZIR Clinical Study Group. Field safety and efficacy of protamine zinc recombinant human insulin for treatment of diabetes mellitus in cats. *J Vet Intern Med.* 2009;23(4):787–793. **2.** Nelson RW. Disorders of the endocrine pancreas. In: Nelson RW, Cuoto CG, eds. *Small Animal Internal Medicine*. 4th ed. St. Louis, MO: Mosby Elsevier; 2008:764–802. **3.** Rucinsky R, Cook A, Haley S, Nelson R, Zoran DL, Poundstone M; American Animal Hospital Association (AAHA). AAHA diabetes management guidelines for dogs and cats. *J Am Anim Hosp Assoc.* 2010;46(3):215–224.



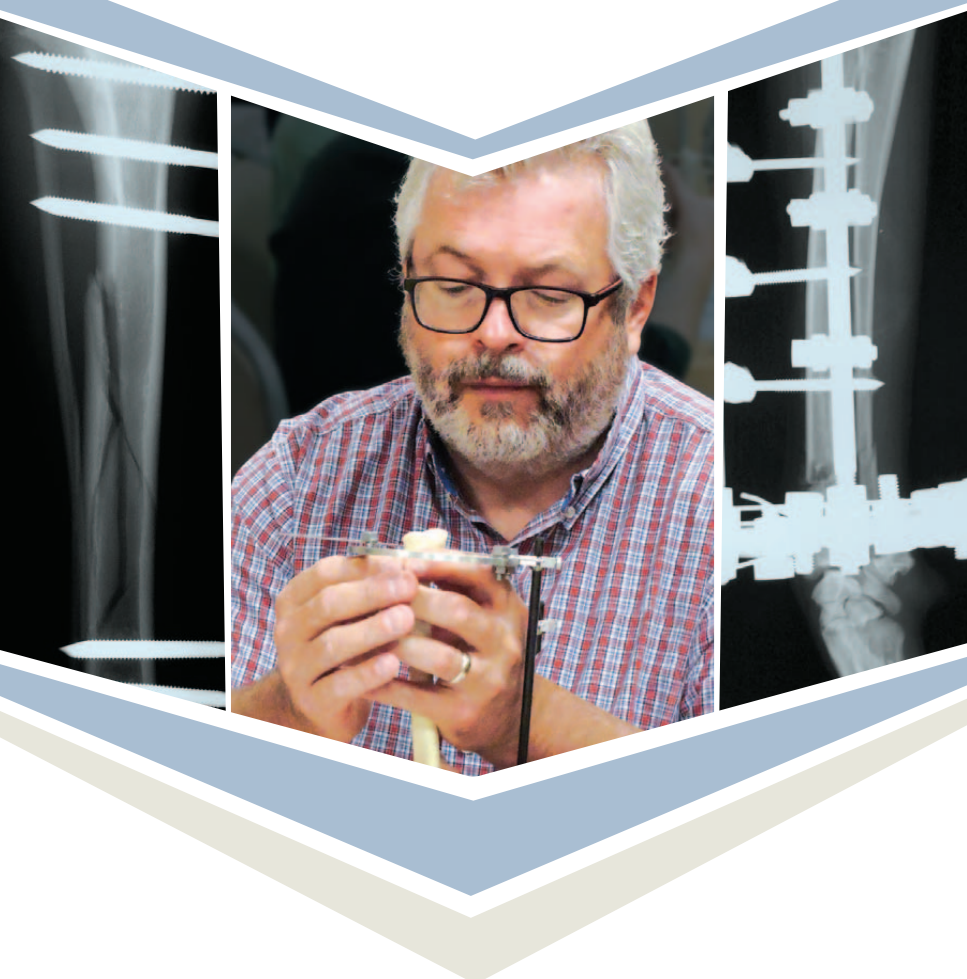
# Stomping out equine herpesvirus



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Animal Health Trust is ready to stop horsing around with equine herpesvirus and begin development of a vaccine to protect against abortigenic and neurological equine herpesvirus.

**N**ew vaccine development to protect against equine herpesvirus (EHV) has begun, according to the Animal Health Trust (AHT), an independent charity in the United Kingdom, employing more than 250 scientists, veterinarians and support workers.

In a press release, Neil Bryant, BSc, PhD, of the AHT, who leads the research, said, “EHV is a major welfare concern for horses and foals and causes emotional, as well as financial, strains on horse owners and breeders around the world. It can strike any horse at any time, so a vaccine will be of global welfare benefit to all horses, including the thoroughbred and sports horse breeding industries, and would help control this serious and sometimes fatal disease.”

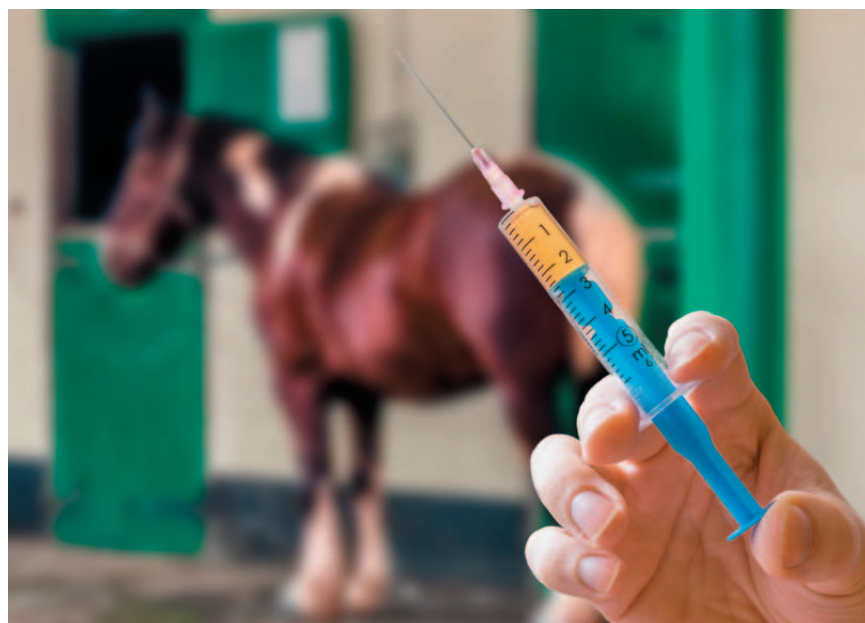
A quick refresh on the disease: It’s a viral infection that can cause respiratory disease, abortion and fatal illness in newborn foals, the press release states. The extra bummer—it can also cause neurological disease in adult horses, which may manifest as only a slight wobble up to complete paralysis.

The release further states that the

disease can strike any horse, any time. For our equine buddies, this virus can lay dormant until the horse gets stressed. Then the horse owner transports the horse or mixes him with new horses, and bam! Neurologic signs manifest out of nowhere.

But isn’t there a vaccine for EHV already? Yes. But, according to the AHT release, “there is still no vaccine licensed to protect against the neurologic form of the disease, and abortions still occur in highly vaccinated horse populations.” The release points to a high number of abortions in fully vaccinated animals in Hertfordshire in 2016 as evidence that a more effective vaccine is needed.

“We’re at the beginning of a very exciting and potentially groundbreaking vaccine development,” Dr. Bryant said in the release. “Through our research, we will construct different viruses with attenuating mutations and assess their suitability as MLVs (modified live viruses). We hope our findings will enable further development by vaccine manufacturers in creating an effective vaccine to protect against the serious clinical signs induced by EHV-1.”







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# The extra shift that transformed my outlook on medicine

As a veterinarian, I firmly believed only in what science could prove. Until I met Rachel. *By Karena Joung, VMD*

The alarm sounded at 4:30 a.m. and I hit the snooze button for the third time with a sleepy, uncoordinated fist. Why did I agree to work this extra shift? I stumbled out of bed and then headed to work, black coffee in my veins fighting a losing battle against exhaustion.

Along the way my left eyelid started twitching—a sign of foreboding, according to my superstitious mother. I sighed. I’ve never been a morning person, but I’ve found ways to cope. I knew what I needed.

As I headed into work at the Blue-Pearl Veterinary Partners hospital in Rockville, Maryland, I walked toward a cage in the ICU and was greeted by the gracious meow of a large gray cat. I offered my hand and he returned the favor by pressing the side of his face into my palm as I scratched behind his ear. Better than a Starbucks venti triple shot. I was now ready for the day.

The shift started as any other. I saw the usual variety of emergency cases: a dog with fetid burgundy diarrhea, an overweight blocked cat, a playful kitten with an upper respiratory infection.

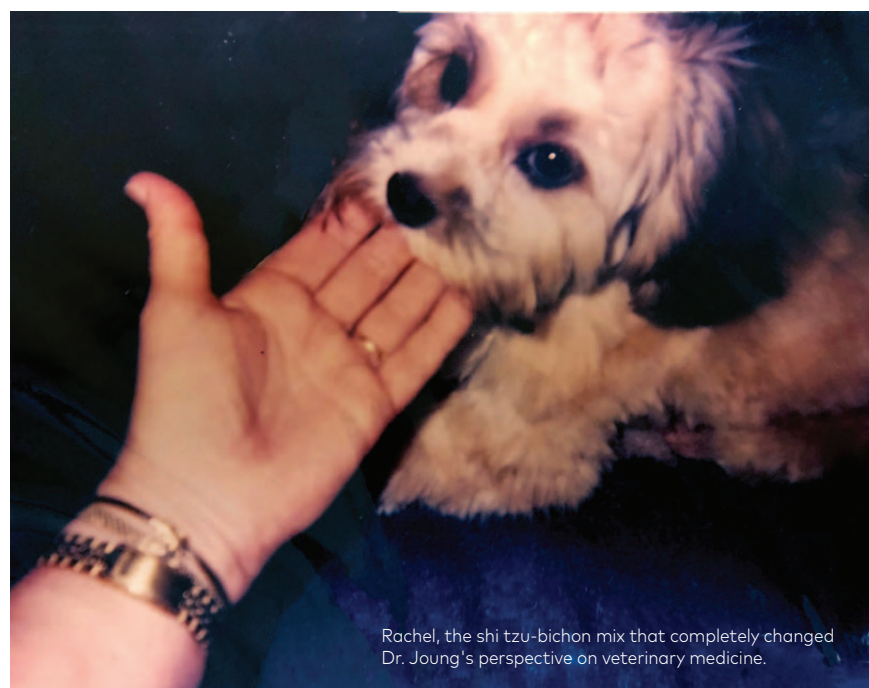
And then I saw my next patient.

Her name was Rachel, a beautiful 13-year-old spayed female brindle shih tzu-bichon mix that presented for mild dyspnea. An initial physical exam revealed a heart murmur and fine crackles. I placed her in an oxygen cage and we locked eyes through the Plexiglas. She breathed more comfortably in oxygen and “smiled” at me while panting, excited to get any attention.

The veterinary nurses and I stopped for a minute to adore Rachel’s sweet demeanor and the lashes that fluttered above her dark eyes.

I met Ms. Emily Fahey, the owner, in the exam room. She was a warm woman with peppered gray hair, a kind face and a gentle personality. She expressed concern for Rachel, but there was a tranquility about her that I admired. I felt easily connected to her.

I discussed my plan for Rachel:



Rachel, the shi tzu-bichon mix that completely changed Dr. Joung’s perspective on veterinary medicine.

oxygen, furosemide and an echocardiogram. As we chatted, we shared stories of our former pets, and she enlightened me on Rachel’s story. “The breeder called her the ugly one, so I picked her,” she told me.

Ms. Fahey glanced down at her watch. “You know, I’m the type of person who believes in signs and that divine force is inevitable. Things happen for a reason.”

She held out her wrist and pointed. “My watch stopped last night at 5:55 p.m., and I feel it’s a sign. I don’t want to lose Rachel, but I have a feeling I will today.”

I answered, “Interestingly, my eye has been twitching today and my mother would say that’s a sign. But I don’t really believe in signs and I’m hopeful for Rachel. Her prognosis depends on the diagnosis, but she seems stable at this point with only mild signs.” To prove my point, I escorted her to the oxygen cage to show her Rachel’s improved comfort.

On the way out, Ms. Fahey chuckled. “She does look better. But just in case, I’m going to pick up a new watch battery on the way home.”

To my dismay, Rachel’s clinical status declined quickly. Within three

hours, we had a diagnosis of severe pulmonary hypertension and, despite treatment, Rachel progressed to severe dyspnea. She became recumbent and her mucous membranes turned a dark muddy pink. I called Ms. Fahey. “We’re doing everything we can, but Rachel is having much more difficulty breathing. I want you to have the opportunity to visit with her in case she declines further.” Ms. Fahey rushed back to the hospital.

I met her at the front door; her eyes red and brow furrowed. Amazingly, Rachel, who had been recumbent, conserving her energy for respiration, recognized Ms. Fahey through the Plexiglas, sat up and panted, showing that familiar “smile.” With flow-by oxygen, Rachel sat in Ms. Fahey’s arms and licked her face with delight despite her respiratory distress. It was an emotional moment between pet and guardian, and the love and devotion were heartbreaking. I recognized the sorrow in Ms. Fahey’s eyes.

After a few moments she said with resolve, “I know she’s suffering. It’s time to let her go. We’ve said goodbye.” We let Rachel rest back in the oxygen cage as I escorted Ms. Fahey to our comfort room and set up an oxygen line.



I couldn't take her pain and sadness away, but I needed to say something. "Ms. Fahey, thank you for loving Rachel and giving her a wonderful life. You're making the right decision." She sobbed harder, unable to speak, but smiled and squeezed my hand.

I walked back to the ICU and cleared my head with a deep breath. I looked inside the oxygen cage and found Rachel agonal, barely conscious. The room around me seemed to dim. Sound faded into low echoes. My heart sank as I scooped up her limp body and raced to the comfort room. With each step I whispered, "No, no, no." Twenty steps felt like a nightmare.

When I opened the door to the comfort room, color returned to my vision. I vividly recall Ms. Fahey's red blouse, the orange couch in the comfort room, and warm lighting. Rachel took her last breath just as I gently placed her on her owner's lap. Ms. Fahey caressed the soft head as we both wept, hand in hand. Breaking the silence, Ms. Fahey

said, "Look at the time."

Through blurry tears I checked the clock. 5:55 p.m.

I gasped. I wasn't supposed to work today, and I'd awakened with my eye twitching. And exactly 24 hours after her owner's watch stopped, an angel

*"Ms. Fahey, thank you for loving Rachel and giving her a wonderful life. You're making the right decision." She sobbed harder, unable to speak, but smiled and squeezed my hand.*

took her last breath. I did not believe in signs, but I could not deny this extraordinary moment.

As veterinarians, we are often immersed in science, convinced by evidence, programmed by facts. But 5:55 p.m. will now forever remind me that I need to take the time to notice and appreciate the marvels that occur outside of logic.

Early in my career I was often fraught with the burden of sorrow, pain

and loss. I suffered the misery of compassion fatigue, which plagues many in the veterinary field. My remedy? Take the time to connect with clients and accept their wonderful memories as an antidote. Our focus should be on the goodness of what we do. Though

Ms. Fahey and I were saddened by the loss of Rachel, we were grateful to have experienced the moment together. We were connected by the bond between her and her dog.

Rest in peace, sweet Rachel. Rest in peace, beautiful angel.

*Dr. Karena Joung is a senior clinician in emergency medicine and the medical director at BluePearl Veterinary Partners in Rockville, Maryland.*

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**From the outside looking in:** The team at Care Animal Hospital of Pleasant Prairie designed a building that reflected their high-quality standards for surgery and medicine -- inside and out. "Using less expensive materials not only, in the long run, makes for more expense as they wear out, but doesn't [accurately] portray what you do in the building," says co-owner Dr. Rebecca Wilsey-Brewer. This is why you can find natural stone surrounding the building and two different types of exterior signage. "As I always say to our surgery staff, 'Make sure the shaving is even on the outside [of the patient] because the client can't see the great job you did on the inside,'" Rebecca says. "The same goes for your building. If it looks fantastic, your clients will know that you're fantastic with your medicine and surgery, too."

# They care a lot!

We don't want to be corny, but the team at Care Animal Hospital of Pleasant Prairie, Wisconsin, opted for high-quality materials and carefully planned details that show they care about clients when it came to their new hospital's design. *By Ashley Griffin*

**R**ebbecca Wilsey-Brewer, DVM, and Russell Brewer, DVM, knew they wanted to team up as practice owners after they married and graduated from veterinary school two decades ago. What they didn't know was how quickly they would outgrow their original 4,950-square-foot building in Pleasant Prairie, Wisconsin.

The new 11,836-square-foot space was worth the wait. Care Animal Hospital of Pleasant Prairie earned a Merit Award in the 2018 dvm360 Hospital Design Competition.

Check out three reasons the judges thought this hospital was a winner—and steal these strategies for your own veterinary hospital ...

## 1. No time to wait

As Care Animal Hospital's square footage increased, client wait times decreased. How'd they do it? More exam rooms! Nine total—and add in an efficient floor plan—and you've got the recipe to exceed client expectations.

"The last building had the front desk away from the action of the back half of the clinic, which left the staff feel-

ing disconnected," Rebecca says. "We wanted the hospital flow to incorporate all of our team members, including assistants, technicians, doctors and front-office staff."

Both owners also wanted the front-desk staff to help all clients—those on the phone and those in front of them. That's why the phoneless front desk

and the designated phone room came into fruition. Now, staff members can easily divide and conquer, and no client feels left behind.

## 2. High-quality materials for high-quality care

"Using less expensive materials not only, in the long run, makes for more expense as they wear out, but doesn't [accurately] portray what you do in the building," Rebecca says.

This is why their team opted for durable materials that would set them apart from the competition and make them an asset to the community, including:

- > Medical-grade steel cabinetry in the exam rooms
- > Natural stone on the lobby fireplace and building exterior
- > Corian and quartz heavy-use work surfaces.

"As I always say to our surgery staff, 'Make sure the shaving is even on the outside [of the patient] because the client can't see the great job you did on the inside,'" Rebecca says. "The same goes for your building. If it looks



**Want more hospital design content?**

Visit [dvm360.com/HDwinners](https://dvm360.com/HDwinners) 2018 for a list of winners of this year's competition and a schedule of when to keep an eye out for them to be featured in print and on dvm360.com. Visit [dvm360.com/PeoplesChoice](https://dvm360.com/PeoplesChoice) to find out the 2018 People's Choice Award competition winner and see images of all 16 of this year's entrants.

## By the numbers

**Care Animal Hospital of Pleasant Prairie—Pleasant Prairie, Wisconsin**

**Owners:** Drs. Russell Brewer, Rebecca Wilsey-Brewer

**Number of doctors:** 6

**Exam rooms:** 10

**Total cost:** \$4,472,758

**Cost per square foot:** \$268

**Square footage:** 11,836

**Structure type:** Freestanding, new

**Architect:** Steve Klessig, Keller Inc.

**Secondary architect:** Edward

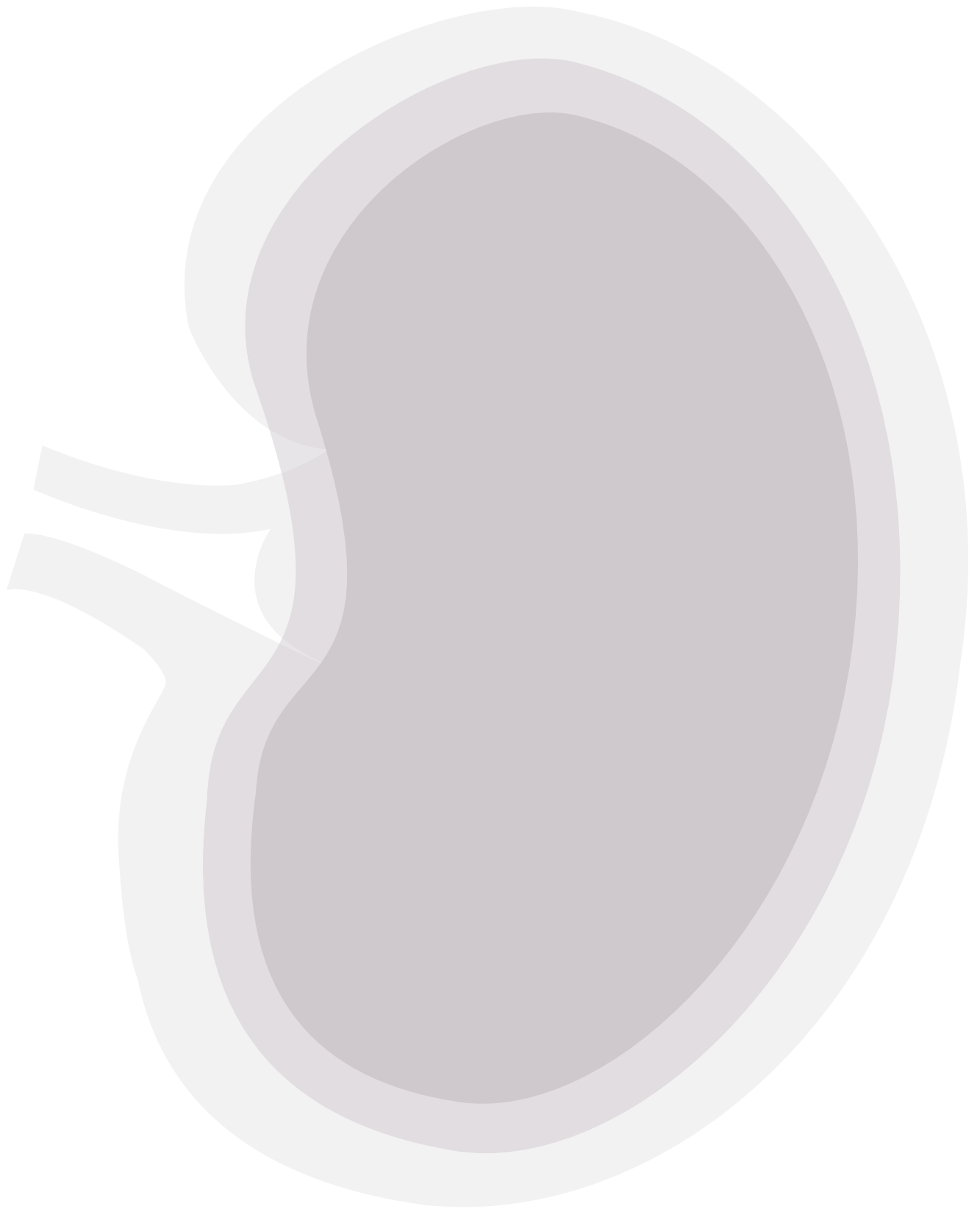
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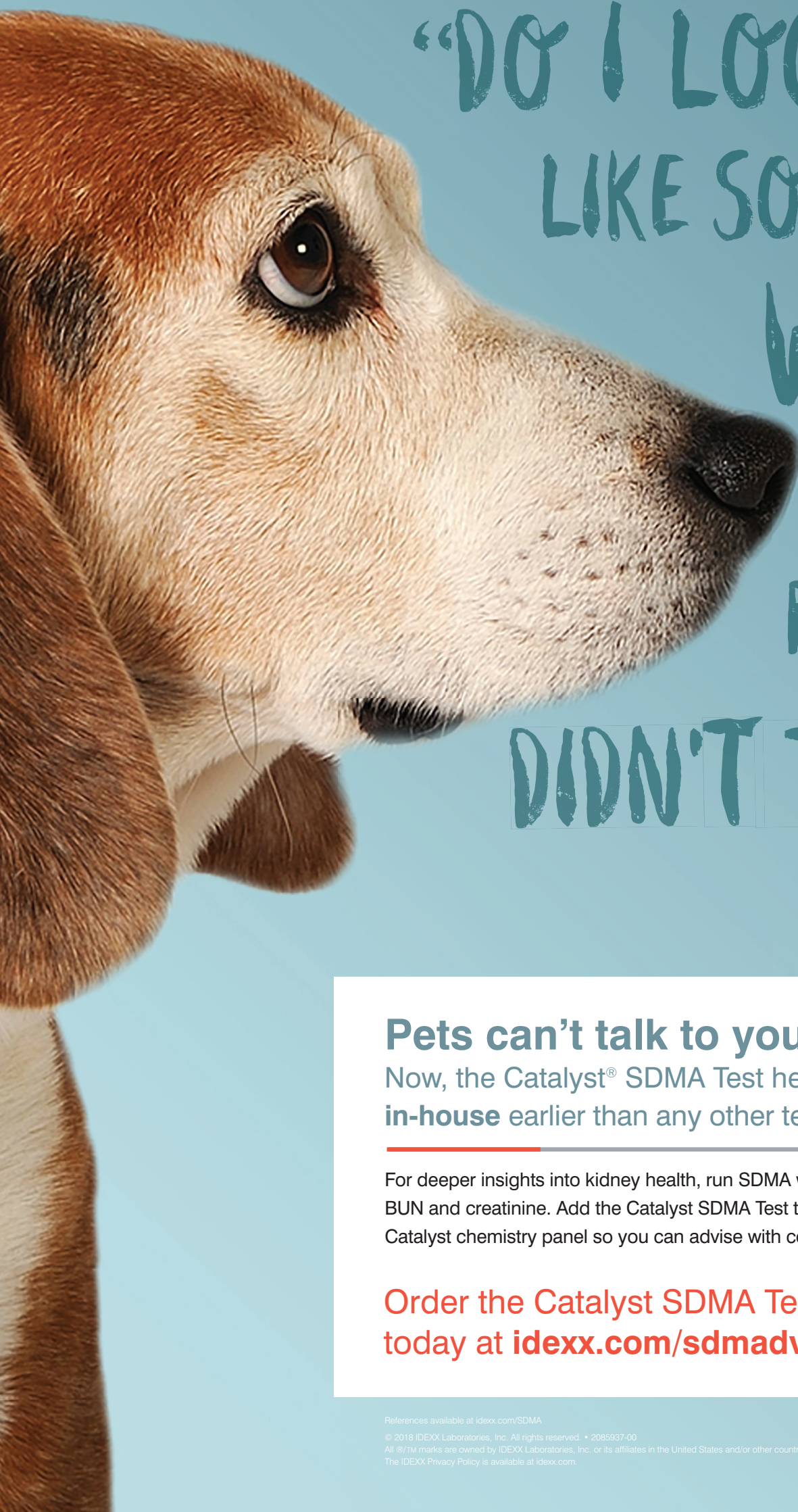
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## Third time's the charm

Practice co-owners of this facility attended the HospitalDesign360 conference (previously the Veterinary Economics Hospital Design Conference) in 2008, 2013 and 2015. "Not only did we learn something new and different each time," they wrote in the Hospital Design Competition entry, "but [the speakers] kept up with the time as to what flow and changes veterinary medicine was taking." What were their most notable takeaways from conversations with experts at the show?

> Architect Mark Hafen explained that they'd outgrow their new addition sooner than they thought.

> Architect Dave Gasser showed how the restaurant building they were considering for a remodeled new location would cost more than building new.

> Accountant Gary Glassman talked them into the right choice: building more than 10,000 square feet.

> Architect Wayne Usiak questioned how the new building would sit on the lot and improved some spots of workflow in the design.

"We have our current Merit Award-winning building because of all of their personal suggestions and invaluable information," they wrote.

Learn more about the conference at [fetchdvm360.com/hd](http://fetchdvm360.com/hd).

"We spent almost 10 years planning what we wanted in a new building," Dr. Rebecca Wilsey-Brewer says. "It had to continue our mission of providing high-quality care and increase comfort and efficiency for our staff, clients and patients."



**Phone-free zone:** This is one reception desk where the clients in the clinic won't be competing with the phone lines. "Phones aren't answered at the front desk, which allows for complete attention to the face-to-face [interaction of] client and pet," the team wrote in the Hospital Design Competition entry. The hospital's natural stone front reception desk matches the outdoor stonework, and wood beam awnings, with built-in lighting, hang overhead. The hospital's blue backlit logo behind the reception desk is a center point for the space. An in-floor scale and storage cubbies for clients' pre-filled medications, pet food and supplies help promote stress-free check-ins.

fantastic, your clients will know that you're fantastic with your medicine and surgery, too."

### 3. A special place to say goodbye

When planning for the new hospital, the Care Animal Hospital team thought through the entire client experience—from start to finish.

"As much as the first visit is important, the last visit to say goodbye to a lifelong friend is just as important," Rebecca says.

Complete with a custom stained-glass window crafted by Rebecca's dad, the bereavement room provides a space for staff, clients and patients to share some time alone. The room has a private door and patio making outdoor euthanasia an option for clients.

Russell is the one who had the vision to continue the attention to detail in the sidewalk outside the bereavement room.

"When the procedure is done, paw prints of cats, dogs, birds, rabbits and ferrets guide clients back to their car," Russell wrote in their Hospital Design Competition entry. "This gives clients the feeling that their pet is still with them."

*Ashley Griffin is a freelance writer based in Kansas City and a former content specialist for dvm360.*



**Retail nook:** The client hospitality area, featuring soda, water and a Keurig machine, is conveniently located next to retail. With trendy tile backsplash and sconce lighting, the corner has a welcoming feel, inviting clients to treat themselves or their pets. "The retail area is evolving into a space where clients can pick up a favorite treat or toy for their canine, feline or exotic pet," the team wrote in the Hospital Design Competition entry.



**Let's take a look:** As Care Animal Hospital's square footage increased, client wait times decreased. How'd they do it? More exam rooms! Nine total—and each one features a fold-up, wall-mounted exam table to free up floor space for large dogs and services such as acupuncture and spinal manipulation. With a central vacuum system installed throughout the hospital and foot-controlled sweep outlets in every exam room, cleanup between patients is a breeze. Plus, built-in bench seating with storage drawers is a double win for clients and patients. "Extra towels and toys for children are found in these drawers," the team wrote in the Hospital Design Competition entry. The judges also praised Care Animal Hospital for the use of high-quality materials, including Midmark medical-grade cabinetry.



**Wait a minute:** With separate cat and dog waiting areas and a spa-like atmosphere, the lobby welcomes all species that walk in the door. Complete with a gas-burning fireplace, laminate wood benches and photos of staff pets, the space feels less like a waiting room and more like a living room. There's even an outdoor waiting patio for clients and pets who need fresh air.



**What a treat:** The treatment room was designed to be the main hub of the hospital, with several rooms coming off it and a large X-shaped treatment island at the center of it all. The powder-coated metal island was custom made by Midmark with three dry tables and one wet table. Along the sidewall of the treatment area is a Shor-line lift table for staff comfort and ergonomics. The owners love the "fish bowl" effect of this room, with windows into the doctors' office, surgery and the great outdoors.





**Saying goodbye:** The bereavement room provides a space for staff, clients and patients to share some time alone. The room has a private door and patio, making outdoor euthanasia an option for clients.



**Calling all team members:** The phone room is a designated space for hospital staff to distribute and answer phone calls in a quiet place away from the bustle of the front desk. Why? "To better make one-on-one contact with clients on the phone," the team explains in the Hospital Design Competition entry.



**A sweet surgery suite setup:** The surgery suites are attached to the large treatment room to help increase patient-technician-doctor contact. Both suites have similar LED lights, anesthetic machines, CO<sub>2</sub> laser, large-monitor screens and a pass-through window to pack prep. The team added a vinyl grid to the window into the treatment room for an easy way to organize surgery patients. "There's also a set of full pass-through drawers that contain packs—the drawers actually pass all the way through the wall from pack prep to surgery," the team writes in their Hospital Design Competition entry.



**A quiet place:** The canine ICU and cat ward are patient areas connected to treatment for critical and surgery patients. The canine ICU features a bank of cages with built-in storage cubbies above them. The practice owners say the sliding door to this area and glass walls are great for patient comfort and noise control.



**Lab work:** The lab is located across from dental, allowing easy access from treatment and into the hall-way pharmacy. It houses a full IDEXX lab, including SediVue, ProCyte, Catalyst, Catalyst DX and SNAP readers, plus two microscopes. An under-the-counter glass door fridge and freezer house all outgoing samples and slides for the equipment. A large pass-through window allows communication with the pharmacy hall, allowing samples to be delivered quickly and efficiently. A range hood is located over the centrifuge to eliminate stool smells.



**A place for the dogs:** The hospital's canine runs are glass and stainless steel by Shor-line. Subway tile coats the walls, and a covered trough allows for drainage. Each run features its own dog-height window. Down the hall you'll find a unique space: a roof-covered, brick enclosure with K9Grass artificial turf. "The commercial development we're in will not allow fences, and winter is a long, cold, wet season in Wisconsin," the team wrote in the Hospital Design Competition entry. "So we took part of the roof area and created a secure enclosure for pets."



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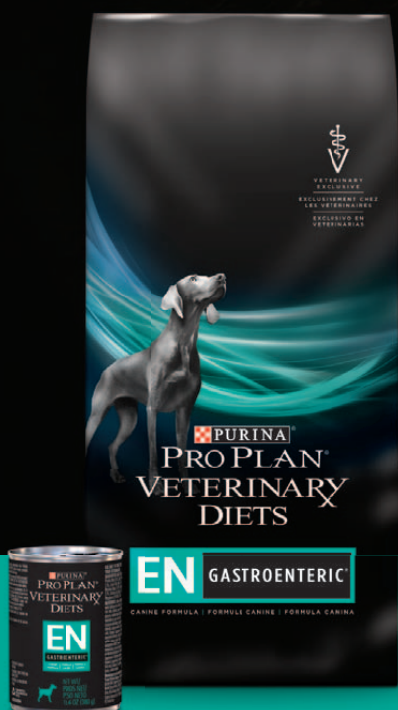
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# What's in a wacky pet name?)

Learn about the motley monikers that took top honors in Nationwide's Wackiest Pet Name contest this year.

By Sarah Mouton Dowdy

**P**ablo Purrcasso and Isabella Miss Worldwide Boo Boo top Nationwide's 2018 Wackiest Pet Names lists for cats and dogs, respectively, according to a recent company release. The names were chosen out of Nationwide's database of more than 700,000 insured pets. As you might expect, there's more to these names than meets the ear, and these adoring pet owners are happy to share the backstories.

## The top 10 wacky cat names of 2018

### 1 Pablo Purrcasso

Pablo Purrcasso took the top prize in the cat category. You probably won't be surprised to learn that her owner, Christina Palmer of Charlotte, North Carolina, is an artist and art instructor with a flair for naming her furry friends after famous painters (previous cat names include Vincent van Kitty and Leonardo da Katty).

Pablo Purrcasso is a regular feature in Palmer's art class. "When I'm teaching my students, he likes to hang out," she says, according to Nationwide's website. "It's like he's part of the class. He'll follow the brush strokes of the students and stare at them while they're painting."

### 2 Sir Pounce a Lot

What do *Game of Thrones* and "Baby Got Back" have in common? They both played a role in the creation of the noble name chosen by San Francisco couple Mark May and Kim Kamitaki. First, inspired by a feline from HBO's hit show, May wanted to name the British shorthair kitten Ser Pounce, but Kamitaki wasn't sold.

"I liked Pounce as a nickname in case he was a frequent pouncer, which led Mark to his suggestion of Sir Pounce a Lot as his name," Kamitaki says. "I loved that name because of the rapper, Sir Mix-a-Lot, but Mark didn't connect the dots until I sang his song 'Baby Got Back.' We both immediately started to laugh, and we knew Sir Pounce a Lot was his name."

Sir Pounce a Lot does indeed pounce a lot. But his talents don't end there. May taught him how to use the toilet. "There



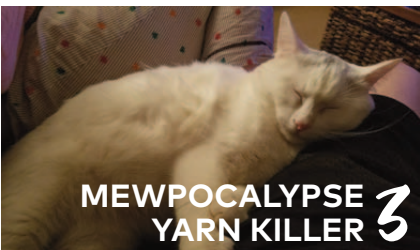
PABLO PURRCASSO 1



2 SIR POUNCE A LOT



BOBCAT THE BUILDER 7



MEWPOCALYPSE YARN KILLER 3



COLONEL PUFF PUFF 8



4 EDWARD SCISSORPAWS



9 MAJESTICCOONS CAREFREE DIOR BLUE KNIGHT



SIR REGINALD FLUFFYBUTT 5



BANANA PAWZ 10



6 PRINCESS CONSUELA BANANAHAMMOCK



are times when I'm home alone and get scared because I can hear someone using the toilet. Then I look over and see it's Pounce and laugh," says Kamitaki.

**3 Mewpocalypse Yarn Killer**  
Despite his ominous name, the story of how Mewpocalypse Yarn Killer was adopted by Ken and Kristina Elder-Flores of Hollister, California, is snuggly sweet. "I picked up the little guy and he nuzzled his way into my chest so peacefully. There was no way we were leaving without him," says Ken.

The decision to keep the kitty was instantaneous, but landing on a name was a process. Ken was first inspired by a T-shirt he'd seen online before adopting the 4-week-old kitten. It featured a white cat next to a ball of yarn with the following words: "I am the unraveler of worlds." With this context in mind, the kitten's faint meow led the couple to think of the name Mewpocalypse, and Kristina's work with embroidery and yarn helped them come up with the finishing touch—Yarn Killer.

**4 Edward Scissorpaws**  
When Loretta Majoy of Huron, Ohio, found an American shorthair kitty to join her family (including two other cats named Jinga and Bola Taiwo), the name of an old acquaintance (Edward) and his cinematic nickname (Edward Scissorhands) came to Majoy's mind and never left. "I liked the name Edward, and I liked the name Edward Scissorhands," says Majoy. "I thought it would be funny to change Scissorhands to Scissorpaws. The name has stuck ever since."

**5 Sir Reginald Fluffybutt**  
One week. That's how long it took Samantha Bent and Paulo Vieira of North Hollywood, California, to come up with a "regal yet ridiculous" name for their then-6-year-old domestic shorthair kitty, according to Nationwide's website. Bent and Vieira started to get some traction with the name Reggie but wanted something with a bit more prestige, which is how they settled on Sir Reginald. The last part of the name was inspired by the cat's ... ahem ... physique. "Reggie has a fluffy face and butt, so we jokingly called him Fluffybutt," says Bent. "When we verbalized the name, it sounded really silly, but Reggie's a silly cat so we knew it was perfect for him."

## 6 Princess Consuela Bananahammock

Fans of the show *Friends* will have no problem zeroing in on this cat's namesake. New York City resident Rachel Simpson and her roommate adopted the kitten in college. "We were broke college students at the time, so we didn't have cable TV," says Simpson,

according to Nationwide's website. "We would watch the series *Friends* over and over on DVD, which helped us in choosing a name. We first considered Smelly Cat as a name, which reminded us of Phoebe, and then we remembered her name Princess Consuela Bananahammock. Immediately we knew that was our kitten's name."

Princess Consuela Bananahammock has developed a love of feather boas over the years and leaves a path of feathery destruction wherever she goes.

**7 Bobcat the Builder**  
Jennifer Tollar of Newark, California, wanted to name her new kitten something that would resonate with

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her then-3-year-old son. Luckily, inspiration came quickly and musically. “My son is obsessed with the cartoon *Bob the Builder*, and [the theme song] happened to be playing while I was thinking of a name,” says Tollar. “It came to me in no time and I decided on naming him Bobcat the Builder. My son was thrilled.”

**8 Colonel Puff Puff**  
For Colonel Puff Puff and his owner, Amy Dresner of West Hollywood, California, it was name at first sight. “His hair was puffy and he had this white mustache that reminded me of Colonel Sanders. In that moment I knew his name had to be Colonel Puff Puff,” says Dresner. Dresner was surprised to later learn that her father had given a toy soldier the same name as a child.

**9 Majesticoons Carefree Dior Blue Knight**  
First, one of owner Debra Shannon’s grandsons wanted to name the Maine Coon after his favorite color, blue. Shannon wanted a longer name, so she looked to her kitten’s origins for more inspiration. As a nod to his home country, England, Shannon wanted to give him a title, so Blue became Blue Knight. Next, Shannon added Majesticoons as a play on the kitten’s breed, and Carefree, as she lives in Carefree, Arizona. Lastly, after learning that the kitten’s grandpa, Dior Blue, was a former breeder world champion, the final piece of the naming puzzle fell into place.

**10 Banana Pawz**  
Banana Pawz looks nothing like a banana (he’s a tuxedo cat), but owner Akudo McGee of Philadelphia, Pennsylvania, who was only 12 years old when she received her beloved kitty as a gift, was never able to come up with a name that fit him better. Perhaps, given his foodie name, he can be forgiven for his food-stealing habit?

The top 10 wacky dog names of 2018

**1 Isabella Miss Worldwide Boo Boo**  
Madison Lee of San Jose, California, drew from both popular culture and the calendar to come up with this award-winning name for her then-newborn pit bull, beginning with the



*Twilight* series. “Pit bulls are often misunderstood and believed to be aggressive and unfriendly,” Lee says, according to Nationwide’s website. “In *Twilight*, Bella is seen as awkward and somewhat of a misfit. I saw the similarities and knew Isabella would be part of her name.”  
Next, Lee turned to the rapper Pitbull, who also goes by the name Mr. Worldwide (though she tweaked it to have a feminine salutation). Lastly, Lee was inspired by the day on which her pup was born—Halloween. Hence, the Boo Boo addition.

**2 Franklin Woofsevelt**  
What do you name a puppy who’s joining a home that’s already occupied by a dog named Winston Furchill? Owner Britney Colantonio of Charlotte, North Carolina, and her boyfriend Corey turned to history and puns for inspiration. “We wanted Winston and the newest addition to be best of friends,” says Colantonio. “We looked to history and recalled the relationship between Winston Churchill and Franklin Roosevelt. It took us a while but eventually we came up with the perfect name, Franklin Woofsevelt.”

**3 Ruffy the Vampire Slayer**  
Ruffy the Vampire Slayer has been slaying the hearts of her owners, Abby Podratz and Robert Brooks of Baltimore, Maryland, since the day the married couple visited a local foster home and the tiny pup crawled onto Brooks’ lap and fell asleep. Television served up the inspiration they needed for a name. “I’m terrible at puns but my husband and I both love them, so we knew that her name had to be a pun,” says Podratz. “We love the show *Buffy the Vampire Slayer* and we were thinking in dog terms and immediately we thought of her name, Ruffy the Vampire Slayer.” Ruffy is a bit of a performer herself, as she accidentally learned how to whine to the tune of “Good King Wenceslas.”

**4 Vladimir Pochin**  
When Mia Hanson and her husband, Zach Werner, of Everett, Washington, brought home their then-8-week-old North American village dog, they knew they’d landed on the perfect fit. When soul-searching for the perfect name, Hanson drew from her childhood. She’d grown up with cats named



after former dictators, and she wanted her puppy to follow suit. “Zach and I were joking about the name Vladimir Poochin because it had a nice ring to it,” Hanson says. “It’s made us laugh ever since and it suits him well.”

### 5 Sir Lix a Lot

When Rebecca Macias of Davis, California, set out to get another dog, she wanted it to be big. The local rescue group, however, had only one dog to offer—a tiny Chihuahua-Jack Russell mix. Macias ditched her former plans and brought the pint-sized pup home to her other pint-sized pup, a Chihuahua named Pink Floyd. “I love all genres of music, including old school rap,” says Macias on the website. “He’s always giving kisses and licking everyone so I knew that had to be part of his name. I thought of an old school rap artist I like, Sir Mix-a-Lot, and combined it with his love of licking and came up with Sir Lix a Lot.”

### 6 Chauncey Von Poops a Lot

Twyla and Ryan Sitrine of Salem, Oregon, made the decision that they wanted a dog together, but it was Twyla who took the initiative to seek out a particular pup and bring it home while

her husband was out of town. “We came across the name Chauncey Von Poops a Lot before we adopted him,” Twyla says, according to Nationwide’s website. “We wanted a unique name for our puppy. When we first heard the name, we loved it and knew that would be a perfect and proper name for our newest member.”

### 7 Madame Squishy Van Wrinkleface

Cassandra George of Cumming, Georgia, was eight months pregnant when she and her husband, Michael, unexpectedly lost their beloved dog. After reaching out to a rescue group in Atlanta, the Cummings were able to welcome a new member to their growing family—a 2-year-old English bulldog with a decidedly squishy face. When it came to a name, the couple wanted it to be both English and fun. “I think pet names should reflect your pet’s personality,” Cassandra says. “It’s OK to have fun with the name and love it, but your pet will definitely tell you their name in some way.” The first words that came to the Cummings’ minds when looking at their new dog was “squishy face,” and with a few proper tweaks

and additions, they landed on a name that ticked all of their boxes: Madame Squishy Van Wrinkleface.

### 8 Lord Stanley the Pup

Sometimes, the first name just doesn’t stick, which was the case with Lisa McDowell of Wyandotte, Michigan, and her Brittany spaniel. “In the photos I saw of him, he had a mark on the side of his face in the shape of a duck, so I decided to name him Ducky,” says McDowell, even though her original plan was to name him something that would bring to mind her favorite sport: hockey. But after watching him play in the yard, she felt Ducky wasn’t right. The way he played with his littermates reminded her of a hockey player, so McDowell put on her thinking cap again. “He’s so spoiled, and being an only dog, he’s the king of the house,” says McDowell. “I went back to the idea of naming him after the Stanley Cup and the man who donated the cup, Lord Stanley. Eventually, Lord Stanley the Pup was derived and it’s fit ever since!”

### 9 Little Bunny Foo Foo

Lisa and Stewart Colovin of Kansas City, Missouri, may have traveled to Texas to get their pharaoh hound, but

they had to travel back in time to get the name (well, sort of). “When she was born, her ears shot straight up,” says Lisa. “One night I woke up out of a sound sleep and her name came to me—Little Bunny Foo Foo. It’s the name of an old children’s song I know. We had the name picked out before we had her, but once we picked her up, we saw how accurate the name fit.” Little Bunny Foo Foo is as gentle as her name and enjoys playing mom to two kitties, Cow and Chicken.

### 10 Sylvester Stud Puddin’ Pop

Name inspiration didn’t come as easily for Danielle Morgan of Commerce Township, Michigan. Knowing she wanted to incorporate “Stud” in some way, Morgan first named her pug Stud Muffin. This eventually morphed into Sylvester Stud, which wasn’t quite right either. “I was looking at him one day and thought he looked like the popsicle treats Pudding Pops,” Danielle says. “He loves to eat, and I knew that had to be a part of his name. I put everything together and came up with Sylvester Stud Puddin’ Pop.” Morgan calls Sylvester her “partner in crime,” as he’s used his devastatingly good looks to get her out of a speeding ticket.

## ASPCA sees dramatic rise in health insurance for kittens

Cat and kitten enrollment for ASPCA Pet Health Insurance has increased 62 percent in four years, with feline veterinary services growing as well.

Kitten enrollment in ASPCA Pet Health Insurance has increased 62 percent between 2012 and 2016, according to Crum & Forster Pet Insurance Group, providers of the ASPCA plan, in a recent release. Along with more enrollments, cat owners are also closing the gap on claims submissions for pets less than 1 year old.

“So many pet owners rely on misperceptions,” says Jane Brunt, DVM, director of the feline health awareness group CATalyst, in the release. “Cats are independent; cats don’t need as much medical care; cats don’t look sick, so they’re not sick. We must continue to educate the public about what

healthcare cats need and deserve.”

Now, it seems, cats are getting more of the attention they need. “While dogs still outnumber cats in terms of overall enrollments,” says Dennis Rushovich, senior vice president of Crum & Forster, “this new analysis demonstrates the growing popularity of pet health insurance amongst feline pet parents.”

According to the release, 41 percent of kitten owners filed claims in 2016, compared with 26 percent in 2012. Non-wellness items made up the majority of kitten claims submitted, which means more medical services for veterinarians.

“This growing interest presents veterinarians with many opportunities

to provide improved pet care while increasing revenue,” Rushovich says in the release. “Pet health insurance makes it easier for clients to adhere to

veterinary recommendations. Practicing veterinarians should know it’s never too early to start talking with cat owners about pet health insurance.”





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# Treating stress with sweat: A top prescription for veterinary students

Studies suggest that regular exercise can help us handle not only the grueling years of veterinary school but the stresses we'll face throughout our professional lives. *By Peyton Bree Aaronson*

I will never forget the day I received the call that I was accepted to UC Davis School of Veterinary Medicine. I started crying so loudly that the lady on the other end of the line asked if I was OK. I was only able to choke out a “thank you” in response.

When the first day of school arrived, I met 147 other students who I could tell all felt the same way. Many of us had dreamed of this day from the time we went on our first school trip to the zoo or adopted our first family pet. But after two weeks of orientation, when classes finally began, reality set in.

Now that I was here, I didn't know if I was equipped to deliver what was expected of me in order to succeed in this new environment—expectations I largely put on myself. New challenges, new school, new city—was this my new identity? I wanted to run.

So that's exactly what I did. On the treadmill, on the track, around my neighborhood, anywhere. As it turns out, that's what I've been doing ever since. Having experienced firsthand the benefits of exercise in adapting to stressful situations and maintaining overall health, I want to share with my veterinary student colleagues so they can realize these same benefits for their own mental and physical health.

## Stress: Bad for the brain

According to the National Institute of Mental Health, stress is “the brain's response to any demand.” It's important to note that not all stress is bad. The stress response is mediated by the sympathetic nervous system and has evolved to accentuate utility, shuttling our resources to only the most vital organs needed to help us escape from the perceived threat.

As our environment has changed, though, so have its demands. The

need to hunt or risk starvation has been replaced by the need to drive to the local market—but the stress response has remained the same. When we feel as though a demand can't be met or our desires can't be satisfied, our stress response turns from useful to debilitating. Chronic stimulation of the body's survival mechanism can lead to mental health disorders and other detrimental effects.

In short, chronic stress is bad for the brain. The stress response is a complex cascade of events involving the stimulation and response of many brain structures, ultimately leading to the release of hormones that elicit physical changes such as increased breathing or heart rate. An important component of the stress response is activation of the HPA axis, a complex system composed of the hypothalamus, pituitary gland and adrenal glands.

In response to a stressor, the hypothalamus releases corticotropin-releasing hormone (CRH) and vasopressin, activating the HPA axis and resulting in the secretion of glucocorticoids—namely cortisol. With repeated exposure to stressors, prolonged HPA axis activation will drive elevated levels of cortisol in the body along with its catabolic effects.

While a normal glucocorticoid level can facilitate neurogenesis by supporting neuronal connections, an abnormally high level resulting from chronic stress will produce effects in our neuronal synapses linked to the onset of depression. Glucocorticoid resistance can lead to chronic activation of the inflammatory response,<sup>1</sup> which has been associated with such symptoms as fatigue and sleep impairment,<sup>2,3</sup> along with loss of sociability, poor memory and impaired cognitive capability.<sup>4</sup> These

are only a few of the neurobiological connections between chronic stress and psychiatric disorders.

## Exercise: Good for the brain

This is where exercise comes in! Physical activity helps offset the buildup of stress while also acting as a mood-enhancing agent. Exercise puts stress on the body by activating the sympathetic nervous system and inducing glucocorticoid secretion. Sounds familiar, right? The difference is that this stress response is acute—it involves a brief elevation of glucocorticoid levels followed by a swift return to physiologic levels. In fact, physically active individuals have a notably altered tissue sensitivity to glucocorticoid secretion.

In one study, rats given voluntary access to cardio for four weeks showed an attenuated glucocorticoid response to psychologically stressful stimuli when compared with the non-exercise group—a response that corresponded to less anxious behavior.<sup>5</sup> As veterinarians, having the ability to maintain hormonal balance during a stressful event could be the key to maintaining our composure and efficacy in the face of a clinical emergency.

Exercise can also be used as a tool to build mental toughness. In a study that assessed more than 100 healthy men and women, those who exercised regularly showed less of a decline in positivity after exposure to an acute psychosocial stressor than sedentary individuals.<sup>6</sup> Exercisers also scored higher on measures of friendliness after completing stressful tasks. And subjects who exercised regularly were able to maintain greater positive mood during and after the exposure to stress than those who did not. This ability to recover quickly from adversity is often



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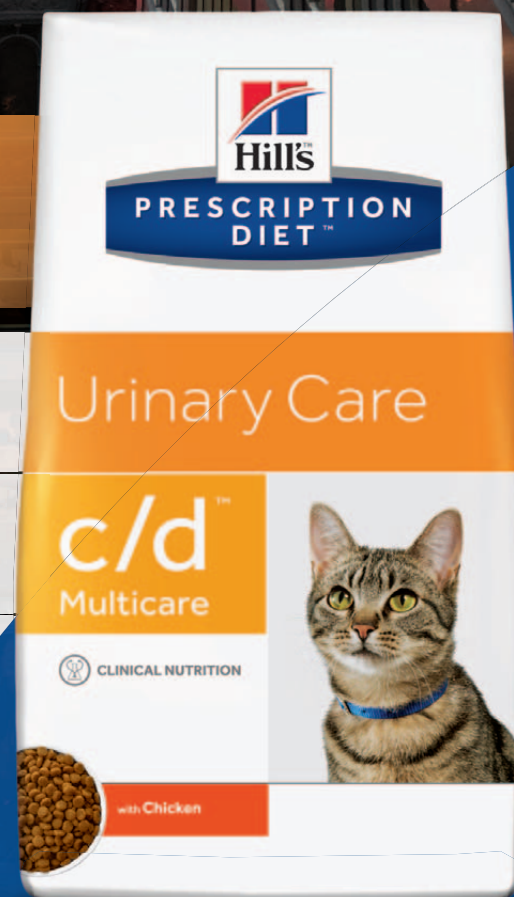


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termed “resilience.”

Since exercise is a stressor itself, it’s possible that it helps us adapt over time to respond to stressful events more efficiently. This “crossed-stressor adaptation hypothesis” explains how adaptation to exercised-induced stress may modify our physiological response to stressors that don’t involve exercise.<sup>7</sup> In a vet school context, studying helps us learn information, and exercising may help us recollect that information in the more pressing situations we’ll encounter as care providers.

**Stress: Bad for the body**

Stress is bad for our bodies too—not the kind of stress we put on ourselves by running a 5k but the kind associated with worrying about remembering

*Exercise as an acute form of stress can boost immune system function and therefore make a huge difference in veterinary students under conditions of prolonged stress.*

the steps in the dorsal column medial lemniscus pathway or the anatomic location of beta-2 adrenergic receptors. Have you ever gotten sick before or directly after a stressful event? This is a physical response to chronic stress. Mind and body are entities that operate in coordination with one another—what affects mind also affects body.

As it turns out, the rise in cortisol resulting from HPA axis activation that affects our neuronal synapses also affects our immune system. While cortisol reduces inflammation in the body when it’s released acutely, it has the opposite effect when it reaches levels too high for the body to respond to appropriately. Sustained HPA axis activation and glucocorticoid resistance cause an increase in proinflammatory cytokines, leading to inflammation.

The duration of stress has been shown to be proportional to the severity of immune system damage. Inflammation leads to a heightened risk for developing cancer, cardiovascular disease and diabetes. More directly, chronic stress can lead to increased expression of genes that induce cell death, leading to apoptosis of lymphocytes and an overall decrease in the total number of these cells in the body.<sup>8</sup> This depletes us of the armor we need to fight off the enemy surrounding us during cold and flu season.

**Exercise: Good for the body**

Unlike the chronic stress we feel when we’re approaching finals or preparing for our first week of clinics, stress from exercise can be turned on and off to allow prolonged periods of rest and recovery. One study of lab animals showed that acute stress is immunoenhancing, as demonstrated by the results of a delayed-type hypersensitivity (DTH) test to assess cell-mediated immune response. Increasing the intensity of the acute stress led to an even greater increase in DTH response.<sup>9</sup>

These results suggest that exercise may help the body mount a response to antigen that’s quicker and greater in magnitude than it would be in the absence of exercise. Exercise as an

acute form of stress can boost immune system function and therefore make a huge difference in veterinary students under conditions of prolonged stress.

**The rundown: Why all of this is important for veterinary students**

A study performed by Merck Animal Health this year found that veterinarians align with the general population in mental illness statistics but are below average in maintaining adequate well-being.<sup>10</sup> The study defines mental health as “psychological distress” and well-being as “the way individuals think and feel about their lives compared to the best/worst possible lives they can imagine.” The study also found that many of those who are suffering from psychological distress are not receiving treatment.

As is true of any community, each veterinary school has its own distinct culture. I can only speak about my own experience as a first-year veterinary student at UC Davis when I share how the conversation about mental health and well-being has always been very transparent and even encouraged. Faculty members have been immensely brave in opening up about their personal hardships, inspiring peers in my class to do the same.

Before applying to veterinary school, I had never heard of “compassion fatigue” or “imposter syndrome.” But sensitive topics such as these were discussed within our first week of orientation. And during our first semester, Barry Kipperman, DVM, DACVIM, led an ethics course that explained veterinarians’ role as advocates for beings that cannot advocate for themselves. I began to see why so many veterinarians are consumed by this responsibility and how easily one can feel unable to meet this demand—cue the stress response!

Recommendations made by Merck at the end of its study include setting healthy expectations for work-life balance. James Clark, DVM, MBA, a teacher and mentor to veterinary students at UC Davis as well as a multi-practice owner, focuses on practical steps we can take to address the mental health challenges we may face in our careers, or even now as students. He has instituted a “21-day challenge” whereby students do one thing every day for 21 days that they believe will make them more happy and productive. His goal is to help us establish “healthy habits that persist.” I chose to fit at least 20 minutes of sweat into my day every day, and over half the class decided to set similar goals.

Dr. Clark has put forth this challenge to each UC Davis vet school class for the past five years, and he said that more than half the class has chosen to participate every year. This commitment to wellness is inspiring and gives me hope that I’m witnessing a shift in our profession toward greater self-care.

As veterinary students, we’re challenged every day to be adaptable and to be problem-solvers. We’re confronted with cases involving species we didn’t even know existed let alone know how to treat. I echo many of my colleagues when I say we’re overwhelmed by the knowledge we don’t yet possess and may not have the time to learn in these four short years. But rather than feeling burdened by this responsibility, I often consider how we may benefit from it. How can we respond to stressors in a way that’s productive and conducive to our growth as professionals? While exercise may not be the only answer, I’m convinced that it’s a start.

Exercise has allowed me to view stressors in my life in a similar way to how I view the beginning of my workouts. When I start my run, I worry

that I won’t be able to finish or that I’ll fatigue quickly. But as I keep putting one foot in front of the other, I know that I’m closer to finishing, and I don’t worry about how many paces I have left because I’m constantly progressing. I try to use this as a model for my four years as a veterinary student. And hopefully once I begin my career, I won’t be envisioning the finish line anymore because I’ll be consumed by the satisfaction of moving forward—one foot in front of the other.

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*Peyton Bree Aaronson is a first-year veterinary student at UC Davis School of Veterinary Medicine. As an undergraduate*

*at UCLA, she completed two years of research with the David Geffen School of Medicine on exercise and physiology and had her research featured in Shape magazine in 2016.*



# Letter to *dvm360*: Dr. Rosenberg's column describes a failure to report

*dvm360* reader suggests situation should have been handled differently.

**M**onths ago (see the January issue of *dvm360*), Dr. Marc Rosenberg wrote a column describing a sad and disturbing account of an older female client of 25 years and her repeated pleas for help regarding abuse from her husband, which she described as being directed at her and her dog.

The attitude and response of Dr. King, the practice owner in the scenario, were all too common, but they actually may have crossed legal and ethical boundaries in the wrong way.

Veterinarians, along with other professionals such as teachers and doctors, are legally obligated to report any signs of animal or human abuse to authorities. In the column, Dr. King is not an MD or psychiatrist, so he cannot make determinations either way in examining or diagnosing the woman. He and his staff must take the client's pleas at face value and contact appropriate authorities, perhaps requesting the involvement of specific officers trained in mental health or abuse cases, or at the least requesting a "wellness check" for the woman. If feasible, Dr. King and his staff should actually keep her in the office until an officer can interview her.

If the claims are baseless, at least this process initiates a dialogue that may provide an innocent spouse a fortuitous early intervention. If they're not, Dr. King's complacency might jeopardize lives and his license could be revoked. When it comes to sorting paranoia from truth, veterinarians are unqualified to determine either.

—E. Aldrich  
Boulder, Colorado



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# Study shows tramadol has no effect on osteoarthritis pain scores

Experts vary on whether the commonly prescribed drug should still have a place in pain management. *By Kristi Reimer Fender*

University of Georgia researchers have found that tramadol is ineffective in alleviating signs of pain associated with osteoarthritis in dogs, according to a release from the Morris Animal Foundation (MAF), which funded the study. The team published their results in the Feb. 15 issue of the *Journal of the American Veterinary Medical Association*.

“The data shows conclusively that tramadol is not an effective drug in treating the pain associated with arthritis in the dog, despite its common recommendation,” says Steven Budsberg, DVM, MS, DACVS, professor of surgery and director of clinical research at the University of Georgia College of Veterinary Medicine, in the MAF release. “This use of tramadol is a classic example of failing to acknowledge and control for bias when evaluating a potential treatment.”

The team at the University of Georgia, led by Dr. Budsberg, com-

pared the use of tramadol with both a placebo and the nonsteroidal anti-inflammatory drug carprofen in client-owned dogs in a randomized, blinded, placebo- and positive-controlled crossover study, according to the study abstract.

Dogs with osteoarthritis of the elbow or knee were assigned to receive each of the three treatments in a random order, with each treatment arm lasting 10 days. Improvement was measured using vertical impulse, peak vertical force and Canine Brief Pain Inventory scores to assess gait and pain levels. The results showed no improvement when tramadol was given compared to either baseline or placebo. Carprofen was associated with significant improvement in results.

We reached out to several veterinary pain experts who contribute to *dvm360* and the Fetch *dvm360* conferences for their thoughts on the study. As experts often do, they



diverge in their assessment of whether tramadol has a role in veterinary practice going forward.

## Opinion No. 1: 'Why would you use it?'

Michael Petty, DVM, CVPP, CVMA, CCRT, CAAPM, owner of Arbor Pointe Veterinary Hospital and Animal Pain Center in Canton, Michigan, comes down squarely on the “don’t use it” end of the spectrum. He says

veterinary pain experts have known for a number of years that orally administered tramadol doesn’t work well for the treatment or prevention of acute pain, “and those of us with pain practices have suspected for several years that tramadol doesn’t work for chronic pain either,” he continues.

“This is based on personal experience—not always the best measure—and on some pharmacokinetic studies showing that the active metabolite is not detectable in many dogs receiving tramadol, even those receiving several hundred milligrams per dose,” he says. “The study by Budsberg and his colleagues is a good one and underlines that tramadol is not a drug that can

be depended on for chronic pain issues.”



Dr. Mike Petty

Dr. Petty says tramadol is a serotonin reuptake inhibitor, which can help with mood, and this could account for what

some people see as a positive result when giving it. But it also has a history of causing serotonin syndrome, even at small doses and upon the first administration to a particular dog or cat.

“You have a drug that is a controlled substance, has the potential for human abuse, has no studies showing it works in either acute or chronic pain, and might kill your patient,” Dr. Petty concludes. “Everyone who wants to prescribe it to a patient needs to imagine

**Brief Summary:** Before using please consult the product onsert, a summary of which follows:  
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### Carprieve® (carprofen) Chewable Tablets

**Non-steroidal anti-inflammatory drug**

**For oral use in dogs only**

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

**INDICATIONS:** Carprieve is indicated for the relief of pain and inflammation associated with osteoarthritis and for the control of postoperative pain associated with soft tissue and orthopedic surgeries in dogs.

**CONTRAINDICATIONS:** Carprieve should not be used in dogs exhibiting previous hypersensitivity to carprofen.

**WARNINGS:** Keep out of reach of children. Not for human use. Consult a physician in cases of accidental ingestion by humans. **For use in dogs only.** Do not use in cats.

All dogs should undergo a thorough history and physical examination before initiation of NSAID therapy. Appropriate laboratory tests to establish hematological and serum biochemical baseline data prior to, and periodically during, administration of any NSAID should be considered. **Owners should be advised to observe for signs of potential drug toxicity.**

**PRECAUTIONS:** As a class, cyclooxygenase inhibitory NSAIDs may be associated with gastrointestinal, renal, and hepatic toxicity. The most frequently reported effects have been gastrointestinal signs. Events involving suspected renal, hematologic, neurologic, dermatologic, and hepatic effects have also been reported. Patients at greatest risk for renal toxicity are those that are dehydrated, on concomitant diuretic therapy, or those with renal, cardiovascular, and/or hepatic dysfunction. Concomitant administration of potentially nephrotoxic drugs should be approached cautiously, with appropriate monitoring. Concomitant use of carprofen with other anti-inflammatory drugs, such as other NSAIDs or corticosteroids, should be avoided because of the potential increase of adverse reactions, including gastrointestinal ulcerations and/or perforations.

Carprieve is not recommended for use in dogs with bleeding disorders (e.g., Von Willebrand's disease), as safety has not been established in dogs with these disorders. The safe use of Carprieve in animals less than 6 weeks of age, pregnant dogs, dogs used for breeding purposes, or in lactating bitches has not been established. Due to the liver flavoring contained in Carprieve chewable tablets, store out of the reach of dogs and in a secured area.

#### INFORMATION FOR DOG OWNERS:

Carprieve, like other drugs of its class, is not free from adverse reactions. Owners should be advised of the potential for adverse reactions and be informed of the clinical signs associated with drug intolerance. Adverse reactions may include decreased appetite, vomiting, diarrhea, dark or tarry stools, increased water consumption, increased urination, pale gums due to anemia, yellowing of gums, skin or white of the eye due to jaundice, lethargy, incoordination, seizure, or behavioral changes. **Serious adverse reactions associated with this drug class can occur without warning and in rare situations result in death (see Adverse Reactions). Owners should be advised to discontinue Carprieve therapy and contact their veterinarian immediately if signs of intolerance are observed.**

**ADVERSE REACTIONS:** During investigational studies for the caplet formulation with twice daily administration of 1 mg/lb, no clinically significant adverse reactions were reported. Some clinical signs were observed during field studies (n=297) which were similar for carprofen caplet- and placebo-treated dogs. Incidences of the following were observed in both groups: vomiting (4%), diarrhea (4%), changes in appetite (3%), lethargy (1.4%), behavioral changes (1%), and constipation (0.3%). The product vehicle served as control. There were no serious adverse events reported during clinical field studies with once daily administration of 2 mg/lb. The following categories of abnormal health observations were reported. The product vehicle served as control.

#### Percentage of Dogs with Abnormal Health Observations Reported in Clinical Field Study (2 mg/lb once daily)

Observation	Carprofen (n=129)	Placebo (n=132)
Inappetence	1.6	1.5
Vomiting	3.1	3.8
Diarrhea/Soft stool	3.1	4.5
Behavior change	0.8	0.8
Dermatitis	0.8	0.8
PU/PD	0.8	--
SAP increase	7.8	8.3
ALT increase	5.4	4.5
AST increase	2.3	0.8
BUN increase	3.1	1.5
Bilirubinuria	16.3	12.1
Ketonuria	14.7	9.1

Clinical pathology parameters listed represent reports of increases from pre-treatment values; medical judgment is necessary to determine clinical relevance. During investigational studies of surgical pain for the caplet formulation, no clinically significant adverse reactions were reported. The product vehicle served as control.

#### Percentage of Dogs with Abnormal Health Observations Reported in Surgical Pain Field Studies with Caplets (2 mg/lb once daily)

Observation*	Carprofen (n=148)	Placebo (n=149)
Vomiting	10.1	13.4
Diarrhea/Soft stool	6.1	6.0
Ocular disease	2.7	0
Inappetence	1.4	0
Dermatitis/Skin lesion	2.0	1.3
Dysrhythmia	0.7	0
Apnea	1.4	0
Oral/Periodontal disease	1.4	0
Pyrexia	0.7	1.3
Urinary tract disease	1.4	1.3
Wound drainage	1.4	0

\* A single dog may have experienced more than one occurrence of an event.

During investigational studies for the chewable tablet formulation, gastrointestinal signs were observed in some dogs. These signs included vomiting and soft stools.  
Post-Approval Experience:  
Although not all adverse reactions are reported, the following

adverse reactions are based on voluntary post-approval adverse drug experience reporting.

The categories of adverse reactions are listed in decreasing order of frequency by body system.

**Gastrointestinal:** Vomiting, diarrhea, constipation, inappetence, melena, hematemesis, gastrointestinal ulceration, gastrointestinal bleeding, pancreatitis.

**Hepatic:** Inappetence, vomiting, jaundice, acute hepatic toxicity, hepatic enzyme elevation, abnormal liver function test(s), hyperbilirubinemia, bilirubinuria, hypoalbuminemia. Approximately one-fourth of hepatic reports were in Labrador Retrievers.

**Neurologic:** Ataxia, paresis, paralysis, seizures, vestibular signs, disorientation.

**Urinary:** Hematuria, polyuria, polydipsia, urinary incontinence, urinary tract infection, azotemia, acute renal failure, tubular abnormalities including acute tubular necrosis, renal tubular acidosis, glucosuria.

**Behavioral:** Sedation, lethargy, hyperactivity, restlessness, aggressiveness.

**Hematologic:** Immune-mediated hemolytic anemia, immune-mediated thrombocytopenia, blood loss anemia, epistaxis.

**Dermatologic:** Pruritus, increased shedding, alopecia, pyotraumatic moist dermatitis (hot spots), necrotizing panniculitis/vasculitis, ventral ecchymosis.

**Immunologic or hypersensitivity:** Facial swelling, hives, erythema.

In rare situations, death has been associated with some of the adverse reactions listed above.

To report a suspected adverse reaction call 1-866-591-5777.

**DOSAGE AND ADMINISTRATION:** Always provide Client Information Sheet with prescription. Carefully consider the potential benefits and risk of Carprieve and other treatment options before deciding to use Carprieve. Use the lowest effective dose for the shortest duration consistent with individual response. The recommended dosage for oral administration to dogs is 2 mg/lb of body weight daily. The total daily dose may be administered as 2 mg/lb of body weight once daily or divided and administered as 1 mg/lb twice daily. For the control of postoperative pain, administer approximately 2 hours before the procedure.

**See product insert for complete dosing and administration information.**

**STORAGE:** Store 25 mg and 75 mg Carprieve chewable tablets at 59-86°F (15-30°C). Store 100 mg Carprieve chewable tablets at controlled room temperature, 68-77°F (20-25°C). Use half-tablet within 30 days.

**HOW SUPPLIED:** Carprieve chewable tablets are scored, and contain 25 mg, 75 mg, or 100 mg of carprofen per tablet. Each tablet size is packaged in bottles containing 30, 60, or 180 tablets.

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101 March 2017







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**IMPORTANT SAFETY INFORMATION:** As a class, NSAIDs may be associated with gastrointestinal, kidney and liver side effects. These are usually mild, but may be serious. Dog owners should discontinue therapy and contact their veterinarian immediately if side effects occur. Evaluation for pre-existing conditions and regular monitoring are recommended for dogs on any medication, including Carprive. Use with other NSAIDs or corticosteroids should be avoided. See full product labeling for full product information.

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Please see Brief Summary on page 30.



the courtroom scenario where you're trying to defend your decision to use it on an animal that came to harm."

**Opinion No. 2:  
'My patients benefit'**

Like Dr. Petty, Dani McVety, DVM, founder and CEO of the Lap of Love Veterinary Hospice network, says the study results are not unexpected. "I looked at the study, but I didn't really have to," she says. "It's truly no surprise to me or anyone else who's been using tramadol for years that it's not the perfect pain medicine."

But she says hospice practitioners occasionally need to push the boundaries on medical comfort measures, and for her, tramadol will continue to have a role in managing veterinary pain.

"When I prescribe tramadol, I tell my clients that it's not used directly for pain reduction, but more like a glass of wine," she says. "Sometimes you need one; sometimes you need two or three to get calmed down a bit. But if we're leaning on a very high dose for more than one to two nights, we have a quality of life issue and need to have a separate conversation."

In other words, Dr. McVety uses tramadol in a limited capacity to get a very specific reaction from the pet:



Dr. Dani McVety

calmness. "Sometimes just reducing the emotional wind-up that occurs with pain is helpful to our clients and their pets," she says. "This is why we will not stop using this medication, combined with adequate pain relief."

**Opinion No. 3:  
'The jury is still out'**

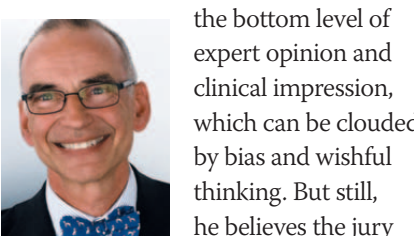
Ralph Harvey, DVM, MS, DACVAA, is associate professor of anesthesiology at the University of Tennessee College of Veterinary Medicine. He says trying to understand all the nuances of how living things experience pain—and how various drugs affect that experience—is like trying to answer the question "What is truth?"

"I have a great deal of faith in Budsberg and the validated models he uses," Dr. Harvey says. "The work he has done is meaningful and useful, while not surprising. But many veterinarians far more well-known and expert than I am continue to advocate for the use of tramadol. And veterinarians continue to have the impression that it's beneficial."

When Dr. Harvey gives talks on pain management, he asks participants to raise a hand if they've heard experts say there's little to no evidence supporting the use of tramadol in veterinary patients. Many hands go up. "Then I ask how many of them are using tramadol anyway," Dr. Harvey says. "And many hands go up or stay up."

In the pyramid model of evidence-

based medicine, Dr. Harvey continues, double-blind placebo-controlled studies such as Dr. Budsberg's rank higher than



Dr. Ralph Harvey

the bottom level of expert opinion and clinical impression, which can be clouded by bias and wishful thinking. But still, he believes the jury is out on whether tramadol has value in mitigating the experience of pain in veterinary patients.

The problem, he proposes, lies in thinking of tramadol as an analgesic. "We do better to think of it as an emotion-modifying drug—at least in those animals that produce the right metabolite," he says. "Dogs are extremely variable in their ability to produce that mu-receptor-binding metabolite. Some dogs do; others don't."

Dr. Harvey refers to the work of psychologist Ronald Melzack, who several decades ago presented a theory differentiating between two aspects of pain. The discriminative aspect of pain, Melzack says, is localized, specific and sharp—it's what you would experience if you touched a hot stove. The affective aspect of pain is not how it feels but how it makes us feel—it's the suffering or emotional component of pain.

"The affect of pain is less distinct and slower to come across, and it degrades engagement with life," Dr. Harvey says. "It's what Freud was talk-

ing about when he said a man with a toothache cannot be in love."

Of course, no validated assay exists for the emotional experience of animal pain, so it's extremely difficult to provide evidence that a drug like tramadol is efficacious in relieving it. Another confounding factor is that tramadol is best used as a complementary therapy, Dr. Harvey says, which muddies the waters in terms of knowing which drug is causing which effect.

"But absence of evidence is not evidence of absence," Dr. Harvey says. "Our greatest limitation in evaluating pain is our ability to recognize and quantify it, especially when it comes to validated models for the suffering aspect of pain. This is a new frontier we are only just beginning to explore."

Issues surrounding tramadol use—its status as a controlled substance, the potential for human abuse and diversion, the risk of adverse effects such as serotonin syndrome, and patients' varied ability to metabolize the drug—must all play a role in an individual veterinarian's decision to use it or not. But is this study the last word on the subject? No, Dr. Harvey says.

"My impression is that, while I have great respect for this study, the metric is limited to the sensory rather than the emotional component of pain," he says. "But Dr. Budsberg has elevated the conversation, and this is a rich area for continued discussion."

Stayin' alive with RECOVER

> Continued from the cover

**Question:** What is the RECOVER initiative?

**Dr. Fletcher:** RECOVER was started in 2011 to bring together about 100 veterinary specialists to develop the first set of evidence-based veterinary guidelines using the same process used to develop human CPR guidelines. We developed a series of about 70 questions about CPR, which we answered after reviewing more than 1,000 journal articles of primary literature. From those questions and answers, we created a set of 101 clinical guidelines. These were published in a special open-access issue of the Journal of Veterinary Emergency and Critical Care in June of 2012. Since then, we've had three main priorities:

1. Education: training people to do CPR according to the guidelines.
2. Research: pushing the limits of veterinary resuscitation science.
3. Guidelines: evaluating and updating the guidelines as science progresses.

**Q:** What inspired you to found this?

**Dr. Fletcher:** I was mostly interested in developing standardized CPR training for veterinarians and veterinary technicians like they have in human medicine. I contacted my colleague Manuel Boller, Dr. med. vet., DACVECC, who was at the University of Pennsylvania at the time working in a high-power CPR research lab, to see if he would be interested in collaborating with me. He said he would but that no one had

actually tried to figure out how best to do CPR in dogs and cats. We decided that the first step was to develop the guidelines, and RECOVER was born.

**Q:** What do you hope to accomplish?

**Dr. Fletcher:** We want every veterinary professional to know how to do CPR. For dogs and cats that arrest in the perianesthetic period, survival to discharge rates are quite high—50 percent—and this was true even before we had good guidelines!

**Yagi:** There is now a certification process in place to become a RECOVER-certified rescuer, which certifies your knowledge and skills in performing RECOVER CPR. This involves taking an online course for knowledge, then

following it up with a simulation-based, in-person training. Then, individuals may move on to be certified as RECOVER-certified instructors through another in-person course.

**Q:** How did you two join forces?

**Yagi:** I first met Dr. Fletcher at the Evidence-Based Veterinary Medicine Symposium held in June 2012, right when the new guidelines were being published. I went home energized, thinking we needed to implement RECOVER CPR at my practice, because at Adobe Animal Hospital we had variable experiences with CPR. We had no standardized protocol so it could go well or poorly depending on the doctor on shift, the team members on shift, and whether our versions of



“CPR” were similar enough. It all led to frustration and feelings of helplessness when we didn’t feel like we did a good job or gave our patient the best chance.

We had some hurdles, but we did implement widescale CPR training that involved more than 60 people the first round. One thing we did was track outcomes. The next time I met Dr. Fletcher was at the International Evidence-Based Veterinary Medicine Congress in the U.K. He presented the RECOVER guidelines creation process, and I followed with a presentation on how we implemented the guidelines into practice with preliminary data on the outcomes since. We continued to discuss RECOVER and our experiences with CPR over fish and chips.

Dr. Fletcher and Dr. Boller also let me take part in the very first RECOVER CPR labs at the International Veterinary Emergency and Critical Care Symposium (IVECCS) as an instructor helper, and we discussed how veterinary technicians could play a role in RECOVER. I remember both so warmly saying, “We’re very happy to have you and the vet techs on board with RECOVER” as we shook hands after the lab.

I was over the moon. Since then I’ve just been a nuisance to both Dr. Fletcher and Dr. Boller, asking about the next cycle of guidelines creation and where vet techs can play a role, trying to balance my excitement with respect for the process.

Luckily they didn’t get fed up with me through all of it, and to keep an already long story short, they asked me onto the RECOVER team. When the program director position became available, it was evident that an opportunity like this would fill my cup. I am eternally grateful that they’re giving me a shot at it.

**Q:** Tell me about your recent trip to Japan—how it was organized, what you hoped to accomplish, what you actually accomplished and next steps.

**Dr. Fletcher:** Ken, who is our RECOVER program director, has many connections in Japan, and he organized this trip. It was a collaboration between emergency and critical care veterinarians in private practice in Japan and some folks in academia who are interested in RECOVER. The goal was to train a core group of champions in Japan who could form the foundation of a Japanese RECOVER task force to



Dr. Daniel Fletcher, one of the founders of the RECOVER initiative to standardize veterinary CPR protocols, works with a group of Japanese veterinarians who recently became certified instructors.

spread the training throughout Japan and also to get involved in RECOVER’s research initiatives and the next round of guidelines development.

**Yagi:** Emergency and critical care (ECC) is at the cusp of blossoming in Japan. There’s been talk of establishing an ECC society and there’s a lot of excitement surrounding emergency care. I thought learning from a world-renowned expert in ECC and CPR like Dr. Fletcher would serve as a catalyst for the advancement of ECC in Japan.

**Q:** What other recent events are associated with RECOVER?

**Dr. Fletcher:** We did RECOVER certification labs and instructor sessions at IVECCS 2017, and Ken did RECOVER workshops at the Southwest Veterinary Symposium and the Ontario Veterinary Conference. I went to St. Kitts to train some of the faculty and staff at Ross University to be instructors as well as run some labs for students. We were both at the Western Veterinary Conference in March for rescuer and instructor certifications and will also be doing some training at the European Veterinary Emergency and Critical Care Symposium in Venice in June.

**Yagi:** As I alluded to earlier, from an organizational and structural end, we have coined the terms “RECOVER-certified rescuer” for veterinary professionals certified in RECOVER CPR

and “RECOVER-certified instructor” for those approved to certify more rescuers. We are establishing a network of instructors who will drive the certification process internationally.

We have a set of rescuer and instructor certifications planned at IVECCS 2018, and we’re also excited about a “CPR battle”—a simulation-based CPR competition inviting CPR teams to compete against each other. IVECCS 2018 is going to be awesome! RECOVER rescuer and instructor certification sessions are also planned at VMX 2019 and WVC 2019.

**Q:** What are your greatest needs?

**Dr. Fletcher:** We’re trying to grow our instructor network so people who take our online training courses can then attend in-person workshops. We’d like to see an international network of trainers who can offer this at practices everywhere.

**Q:** Do you have an online presence?

**Yagi:** Our Facebook page is [facebook.com/RECOVERInitiative](https://facebook.com/RECOVERInitiative). Our new website will be launching very soon: [recoverinitiative.org](https://recoverinitiative.org). That’s where folks will be able to sign up for our online certification courses and keep up with other events and initiatives.

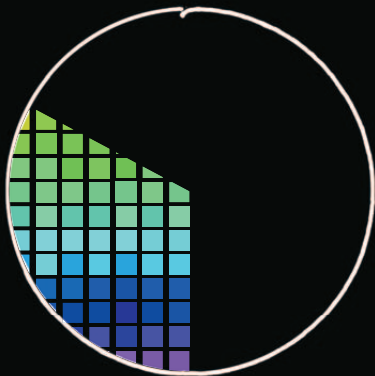
*Dr. Sarah Wooten is an associate veterinarian in Greeley, Colorado, a frequent dvm360.com contributor and a Fetch dvm360 speaker.*



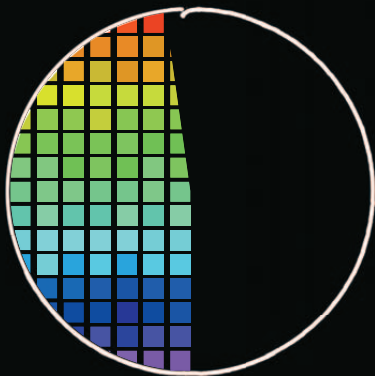
# B-Lyme-y!

Data shows pets aren't getting complete protection against fleas, ticks and Lyme disease.

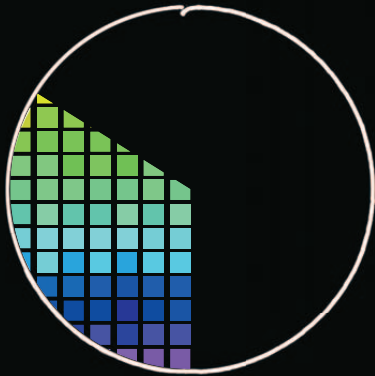
With the Centers for Disease Control and Prevention (CDC) sounding the alarm that flea- and tick-borne illnesses have more than tripled since 2004, you might think that pet owners might be paying closer attention to Bella's and Tiger's parasite preventives. Not so, according to a new study conducted by The Harris Poll on behalf of Merck Animal Health. The online study surveyed more than 1,300 dog and cat owners in the United States. Here's a snapshot of the data:



33% of pet owners do not give their pets regular flea and tick medication



48% of pet owners reported they don't bring their pets to the veterinarian for routine exams to protect against parasites



34% of pet owners admit they could not identify a tick on their pet



## Don't hate, educate

Young pet parents are passionate pet advocates, and the data shows they may need more education and guidance from veterinary professionals to dispel myths about parasite prevention.

**Myth 1:** Fleas and ticks are only active in the spring and summer months

34% of 18- to 34-year-old pet parents believe this myth

24% of pet owners 35 years old or older believe this myth

**Myth 2:** Ticks can only be found in heavily wooded areas

36% of 18- to 34-year-old pet parents believe this myth

19% of pet owners 35 years old or older believe this myth

**Myth 3:** Dogs and cats living in urban areas don't need flea and tick protection

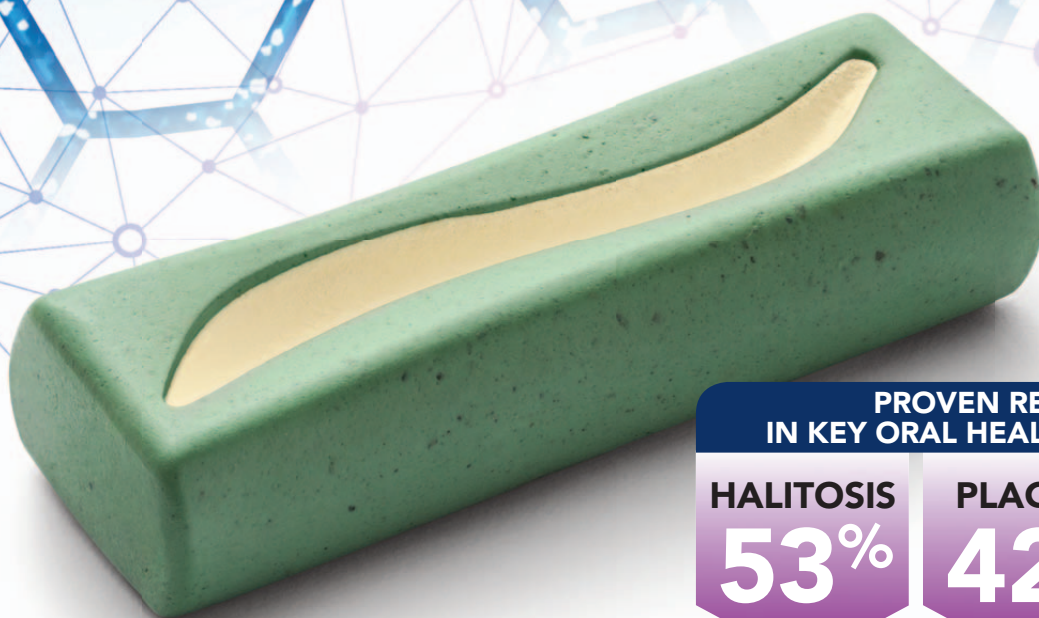
15% of 18- to 34-year-old pet parents believe this myth

4% of pet owners 55 years old or older believe this myth

**The good news:** Pet parents of all ages want to protect their pets from parasites, with 90% of pet owners reporting they would "do anything" to protect their pets from fleas and ticks.

YEAH!





PROVEN REDUCTION  
IN KEY ORAL HEALTH INDICATORS<sup>1\*</sup>

HALITOSIS

53%

PLAQUE

42%

CALCULUS

54%

# Defend against plaque, calculus, and halitosis



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# Are you ready for your veterinary practice to leave the nest?

If you're thinking of retiring or selling your practice, here are some words of advice on making sure you set up your 'baby' to have a happy new life on its own.

**F**rom time to time, I hear veterinary clinic owners refer to their practices as their "baby." Their business, which they may either have started from scratch or adopted from some other practitioner and then nurtured and invigorated, is important to them in an emotional way. Their clinic, for many years, has been like a member of the family, not merely a revenue stream or a reliable source of employment.

From where I sit as a lawyer who

works with longtime practice owners approaching retirement or contemplating a practice sale, this analogy is still apt, but in this case "the baby" has grown up and is ready to move on to find its own way in the world with a new partner and family.

## No suitor is good enough

A clinician who is preparing to sell a practice faces an imminent and dramatic life change. A sale means relinquishing authority over employ-

ees as well as losing the opportunity to watch them learn and develop professionally. The seller no longer will control the hospital's curb appeal or decide which drugs and products will be ordered and which don't measure up to standards.

Then, of course, comes the new "marriage." Buyers are hovering outside the door, sending letters, calling on the phone. It seems like everybody with a spare nickel wants to court your healthy, attractive practice!



Of course, in the old days it was far easier to size up a person who seemed interested in a veterinary clinic that was “eligible” to be purchased. That’s because in the old days, all those people were actually, well, people. During sale negotiations, the practice owner could look the buyer in the eye—hear her talk about her plans for the facility, her enthusiasm about the future and perhaps her intention to further train and promote staff members.

Today, the folks who come calling might be individuals, but they are just as likely to be venture capitalists, money managers or corporate acquisitions officers. It’s much tougher to determine what businesspeople and MBAs have in mind for your sweet little practice than if the counterparty were a flesh-and-bones DVM with a dream.

So to practitioners contemplating the sale of a veterinary hospital, I offer these questions to help assess whether the buyer who is interested in your offspring is truly the right catch.

### ‘Will you be a good provider?’

Without some substantial due diligence, it can be difficult for a practice seller to know whether a potential purchaser is financially sound enough to operate the clinic in the manner to which it had become accustomed. Particularly when corporate buyers come calling, it can be hard to know whether clinic profits will be reinvested to improve the quality of services provided to the public or the facility will merely become a source of cash to be drained and “redeployed” elsewhere.

Also, a practice seller is well-advised to obtain as much information as she can about the financial health of a potential buyer in order to be sure it can pay any “holdback” amount (a portion of the purchase price not paid at closing but rather retained to guarantee that the seller will remain as an employee for a set amount of time—usually one to three years—after the closing of the practice sale).

### ‘Are you committed to my child?’

Veterinary corporations and other acquiring entities don’t just buy clinics; they also sell them. And they sell themselves. They merge, they expand and they become subsidiaries. It’s no different than what happened to your local drugstore: When it opened up it was an Eckerd. Then it was a Rite-Aid. In a few months it may morph into a Walgreens.

While it may not be possible for a veterinary practice seller to know exactly what a potential acquirer has planned for her clinic, it never hurts to ask. And it can also be helpful to reach out to other DVMs who’ve sold to a given practice consolidator. It’s interesting to find out whether the company made an effort to retain the culture that existed under the old

owner or made dramatic or draconian changes to facilitate the process of “flipping” the hospital to yet another buyer.

### ‘Will I end up supporting you?’

If you’re thinking of selling your veterinary hospital, think clearly about how much you really know about any particular buyer. Here are a couple of traps in which you might find yourself after sale of your clinic to a cash-strapped individual or corporation:

#### Long-term mandatory seller employment.

Many veterinary hospital purchasers hedge their bets by requiring selling doctors to remain employed for long periods in exchange for a generous sale price offer. They want the seller to stay on (often on a production-only basis) for two, three or more years after closing. A selling doctor needs to remember that after the sale, she is no longer the captain of the ship, notwithstanding her new “medical director” title. Those three postsale years can become underpaid torture if the purchaser steps in and makes the work environment unpleasant or excessively stressful.

**The new in-law cries “poverty.”** Nowadays, individuals, partnerships and corporations make veterinary practice acquisitions using creative financing involving significant amounts of debt (or through the granting of purchaser’s stock to the seller). A cornucopia of potential complications can follow the closing of a deal so structured:

➤ If the seller takes back stock in the acquiring entity as partial payment, she has entrusted her money to another with little or no knowledge of how the acquirer will perform.

➤ If the buyer is heavily in debt, it can be forced to close locations. If one of those locations happens to occupy a building owned by the veterinarian who sold that clinic, the doc may be stuck with an empty commercial site that is not suited for an alternative tenant.

➤ If the seller “partners” with the purchaser by retaining, say, 25 percent of the clinic stock, the deal may be touted by the acquirer as a chance to “keep a hand in management.” In reality, there’s a good chance the seller will end up having little or no say over major decisions, including his own hours, salary or when or how much of a dividend the practice will pay to him.

So be aware, practice sellers: there are a lot of fish in the ocean. Before you sign your clinic’s marriage certificate, do your best to answer that critical question: Is my buyer going to prove to be true blue? Or am I dealing with a dud?

*Dr. Christopher Allen is president of Associates in Veterinary Law PC, which provides legal and consulting services to veterinarians. Call (607) 754-1510 or e-mail [info@veterinarylaw.com](mailto:info@veterinarylaw.com).*

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# Age is just a number—or is it?

## Pitting discrimination against practice needs

This veterinary hospital owner says his 67-year-old associate is slowing down and needs to consider retiring. Is he out of line?

**L**ouis Hart, DVM, has owned the Hart Veterinary Center for 22 years. He started the practice from scratch with his initial patients being his two dogs and his mother-in-law's cat. Today, he employs five veterinarians, 14 technicians and four receptionists. He has always felt that compromise does not lead to true success—he chooses to succeed or fail based on his decisions and his alone.

All of Dr. Hart's veterinarians have been with him for at least 14 years. They are highly skilled clinically, well-compensated monetarily and devoted to the practice's culture of excellence. Dr. Gleason, the practice's longest-tenured staff member, is 67 years old. For the past 18 years he has enjoyed performing surgery, interacting with clients and not having the headaches of ownership.

Dr. Hart has noticed that Dr. Gleason is slowing down as the years creep by. His surgeries and exam room tasks are taking longer. He asks staff to assist him

when lifting small pets. In addition, he seeks help with fine-motor tasks, such as separating microscope slide cover slips and placing them in precise positions on slides. Still, Dr. Gleason has a devoted client following and is a beloved community veterinarian.

Dr. Hart, 11 years younger than Dr. Gleason, asks for a sit-down meeting. He tells his colleague he's noticed that the years are catching up to him. As difficult as it is for him to say it, Dr. Hart feels Dr. Gleason should consider retiring or at least semi-retiring from the practice. He says that at age 67, Dr. Gleason is not performing at the level of the younger veterinarians. And as the years go on, he'll certainly not improve.

Dr. Gleason asks if his performance is meeting the clinic standards of care. Dr. Hart agrees it is but that progressive age-related inefficiency will soon drop him below clinic standards and Dr. Hart doesn't want that to happen. Both men are professional in their demeanor, but neither is happy with the discussion.

Two days later Dr. Gleason tells Dr. Hart that he feels he should not have been asked to leave or downsize his role in the practice based on his age. It's true he's altered some of his techniques with the passing years. On the other hand, he is wiser, is more experienced and has greater overall perspective than some of his younger colleagues. Dr. Gleason adds that he certainly does not want to think he's being singled out in his workplace because of his age.

Dr. Hart listens and respects Dr. Gleason's self-advocacy, but he also hears the veiled threat of an age discrimination lawsuit in the conversation. He does not believe that age is the issue per se, but rather the way Dr. Gleason is aging.

Even if he's not being discriminatory, though, the time, money and distraction would not be worth the formal defense in a civil case.

Dr. Hart withdraws his suggestion of retirement in lieu of scheduling the doctor for fewer hours. He's not happy to have his hands tied; nevertheless, even with this setback, he will continue to pursue his level of performance excellence in his practice.

Is Dr. Hart being intolerant and discriminatory, or is he just working to make his practice the best it can possibly be? Let us know what you think at [dvmnews@ubm.com](mailto:dvmnews@ubm.com).

### Rosenberg's response

A wise practice owner looks at a staff member and determines if he or she is an asset or a liability. There may be many considerations that lead to this conclusion. In our profession, it's not fair or productive to throw age alone into the mix. In the veterinary workplace, rigid rules and inflexible schedules lead to staff turnover.

In all honesty, well-trained doctors are easy to find. Our veterinary institutions turn out highly qualified graduates. But when you find a staff member with integrity, compassion and charisma, young or old, big or small, make the necessary concessions to hold onto them for dear life. After all, I have been in the exam room for half a century—and I still think I'm an asset.

*Dr. Rosenberg is director of the Voorhees Veterinary Center in Voorhees, New Jersey. Although many of his scenarios in "The Dilemma" are based on real-life events, the veterinary practices, doctors and employees described are fictional.*





■ ■ ■ ■

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Please see Brief Summary on page 40.



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Soft Chew

For oral use in dogs only.

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

**Description:** IVERHART MAX<sup>®</sup> Soft Chew is a combination of three anthelmintics (ivermectin/pyrantel pamoate/praziquantel). The soft chews are available in four sizes in color-coded packages for oral administration to dogs according to their weight (**see Dosage and Administration**).

**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 roundworms (*Toxocara canis*, *Toxascaris leonina*), hookworms (*Ancylostoma caninum*, *Uncinaria stenocephala*, *Ancylostoma braziliense*), and tapeworms (*Dipylidium caninum*, *Taenia pisiformis*).

**Dosage and Administration:** IVERHART MAX Soft Chew should be administered orally at monthly intervals and the recommended minimum dose level of 6 mcg of ivermectin per kilogram (2.72 mcg/lb), 5 mg of pyrantel (as pamoate salt) per kg (2.27 mg/lb), and 5 mg of praziquantel per kg (2.27 mg/lb) of body weight, as follows:

Dog Weight Pounds	Soft Chew per Month	Soft Chew Size	Ivermectin Content	Pyrantel Pamoate Content	Praziquantel Content
6.0 to 12	1	Toy	34 mcg	28.5 mg	28.5 mg
12.1 to 25	1	Small	68 mcg	57 mg	57 mg
25.1 to 50	1	Medium	136 mcg	114 mg	114 mg
50.1 to 100	1	Large	272 mcg	228 mg	228 mg

IVERHART MAX Soft Chew is recommended for dogs 8 weeks of age or older. For dogs over 100 lbs, use the appropriate combination of these soft chews.

Remove only one dose at a time from the packaging. Return the remaining soft chew(s) to their box to protect from light. The soft chew can be offered to the dog by hand or added, intact, to a small amount of dog food. Care should be taken to ensure that the dog consumes the complete dose. The treated dog should be observed for a few minutes after administration to confirm that none of the dose has been lost or rejected. If it is suspected that any of the dose has been lost, redosing is recommended.

IVERHART MAX Soft Chew 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 preventative product in a heartworm disease prevention program, the first dose of IVERHART MAX Soft Chew must be given within a month (30 days) of the last dose of the former medication. A heartworm test should be performed prior to switching heartworm preventative products.

If the interval between doses exceeds a month (30 days), the effectiveness of ivermectin can be reduced. Therefore, for optimal performance, the soft chew 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 IVERHART MAX Soft Chew and the recommended dosing regimen will minimize the opportunity for the development of adult heartworms.

**Warnings:**  
**For use in dogs only. Keep this and all drugs out of reach of children and pets. In safety studies with ivermectin/pyrantel pamoate/praziquantel tablets, testicular hypoplasia was observed in some dogs receiving 3 and 5 times the maximum recommended dose monthly for 6 months (see Animal Safety).**

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.

**Precautions:** Use with caution in sick, debilitated, or underweight animals and dogs weighing less than 10 lbs (**see Animal Safety**). The safe use of this drug has not been evaluated in pregnant or lactating bitches.

All dogs should be tested for existing heartworm infection before starting treatment with IVERHART MAX Soft Chew, which is not effective against adult *Dirofilaria immitis*. Infected dogs should be treated to remove adult heartworms and microfilariae before initiating a heartworm prevention program.

While some microfilariae may be killed by the ivermectin in IVERHART MAX Soft Chew at the recommended dose level, IVERHART MAX Soft Chew 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.

**Adverse Reactions:** In a field study with IVERHART MAX Soft Chew, self-limiting adverse reactions, including vomiting, diarrhea, lethargy, difficulty swallowing, excessive salivation, increased water consumption, and coughing were reported. Self-limiting adverse reactions, including lethargy, limpness, salivation, shaking, diarrhea, decreased appetite, licking lips, and belching were reported between 20 minutes and 72 hours following treatment in a field study with ivermectin/pyrantel pamoate/praziquantel tablets.

In field studies with ivermectin/pyrantel pamoate tablets, vomiting or diarrhea within 24 hours of dosing was rarely observed (1.1% of administered doses). The following adverse reactions have been reported in dogs following the use of ivermectin products: depression/lethargy, vomiting, anorexia, diarrhea, mydriasis, ataxia, staggering, convulsions, and hypersalivation.

To report suspected adverse events, for technical assistance, or to obtain a copy of the Safety Data Sheet (SDS), contact Virbac AH, Inc. at 1-800-338-3659 or us.virbac.com. For additional information about adverse drug experience reporting for animal drugs, contact the FDA at 1-888-FDA-VETS or online at <http://www.fda.gov/AnimalVeterinary/SafetyHealth>.

**Effectiveness:** Prevention of the tissue larval stage of heartworm (*Dirofilaria immitis*) and the elimination of the adult stage of hookworm (*Ancylostoma caninum*, *Uncinaria stenocephala*, *Ancylostoma braziliense*), roundworm (*Toxocara canis*, *Toxascaris leonina*), and tapeworm (*Dipylidium caninum*, *Taenia pisiformis*) infections in dogs was demonstrated in well-controlled laboratory studies.

**Palatability:** In a field study of 132 dogs, IVERHART MAX Soft Chew was offered once monthly for 3 months. The dogs voluntarily consumed 86.3% of the doses from the owner’s hand or from a bowl within 5 minutes, 13.0% accepted the dose when it was offered in food or administered by placing onto the back of the dog’s tongue (pilling), and 0.7% of the doses were unable to be administered.

**Animal Safety:** 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 dose level of 6 mcg/kg) than dogs of other breeds. At elevated doses, sensitive dogs showed more adverse reactions, which included mydriasis, depression, ataxia, tremors, drooling, paresis, recumbency, excitability, stupor, coma, and death. No signs of toxicity were seen at 10 times the recommended dose (27.2 mcg/lb) in sensitive Collies. Data from these studies support the safety of ivermectin products in dogs, including Collies, when used at the label recommended dose.

Because ivermectin and praziquantel are approximately 30% more bioavailable in the IVERHART MAX Soft Chew than in the ivermectin/pyrantel pamoate/praziquantel tablets used in the following target animal safety studies, the margin of safety is narrower than reported in these studies. The potential for adverse reactions may be greater in individual dogs administered IVERHART MAX Soft Chew than ivermectin/pyrantel pamoate/praziquantel tablets.

In a target animal safety study using ivermectin/pyrantel pamoate/praziquantel tablets, doses were administered to 8-week-old Beagle puppies at one, three, and five times the maximum recommended dose of 12.5 mcg/kg ivermectin, 10.47 mg/kg pyrantel, and 10.47 mg/kg praziquantel. The dogs were treated every 30 days for 6 months. Vomiting within 6 hours of dosing and soft or watery feces within 24 hours of dosing were observed. Other observations during the study were: ano-genital swelling, lethargy, head movements, shallow, audible or difficult breathing, and salivation. One dog in the 5X group had tremors and decreased activity. All of these signs were transient. No treatment was required. Histopathology showed testicular hypoplasia in the 3X and 5X groups (**see Warnings**).

In a laboratory safety study using ivermectin/pyrantel pamoate/praziquantel tablets, 12-week-old Beagle puppies receiving 3 and 5 times the recommended dose once weekly for 13 weeks demonstrated a dose-related decrease in testicular maturation compared to controls. In this study, all treated puppies had significantly higher cholesterol levels compared to untreated controls.

In a reproductive safety study, adult males were treated at 37.5 mcg/kg ivermectin, 31.4 mg/kg pyrantel, and 31.4 mg/kg praziquantel every 14 days during two full spermatogenic cycles (112 days). The quality of semen and reproductive health were not affected by treatment. Treatment-related vomiting and soft feces were reported during this study.

In a study of the effectiveness of ivermectin/pyrantel pamoate/praziquantel tablets for the treatment of *Toxocara canis*, one 8.1 lb, 72-day-old puppy died 6 days after administration of the label dose. This puppy and many other puppies in the study had high worm burdens and were reported to have diarrhea, sometimes bloody, frequently before and after treatment. Dehydration and signs of anemia (pale mucous membranes) were the only abnormal gross necropsy finding observed. No definitive cause was determined. In a 90-day field study using ivermectin/pyrantel pamoate/praziquantel tablets, the most serious adverse reactions (lethargy, limpness, and salivation) were seen in dogs weighing less than 10 lbs (**see Precautions**).

**Storage Information:** Store at 20°C to 25°C (68°F to 77°F), excursions permitted between 15°C and 30°C (59°F to 86°F).

**How Supplied:** IVERHART MAX Soft Chew is available in four dosage strengths (**see Dosage and Administration**) for dogs of different weights. Each strength comes in a package of 6 soft chews.

NADA 141-441, Approved by FDA.

Manufactured by:

Virbac AH, Inc.  
Fort Worth, TX 76137 USA  
Phone: 1-800-338-3659

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# Why 'time management' is actually impossible

You have a finite amount of time in this life—why are you spending it on other people's priorities? Sit down, write out these two lists, and rejigger your commitments.

In the words of Kimberly Wilkins, otherwise known as Sweet Brown in a 2012 meme, "Ain't nobody got time for that!"

Time. It's the one resource that we all use constantly and we all use differently—with varying degrees of success. And no matter who you are, you still have just 24 hours in a day. Therefore, the mere concept of time management is a fantasy.

What can you do? Spend your available hours wisely.

## Don't let urgency keep you from doing what's really important

In my years, I too often allowed myself to fall into the rut of doing what seemed urgent but in fact was not important. There was never a shortage of squeaky wheels needing grease. We are all at risk of allowing urgent things to take away from the things that truly matter to us.

### List 1: What are your priorities?

Rank the things you consider most important. If this were your last week on earth, what would you consider your priorities? Most of us would list family and friends, spiritual harmony. Again—this is your last week! How important would work be? Would golf rank above family? Would community or professional involvement rank above friends? Is that meeting you really don't

want to attend really more important than your spiritual harmony?

Agreements involving time and commitments are often made with little thought of importance—often proof of the old adage, "If you want something done, ask a busy person." They just become urgent because there are so many of them. Don't allow the urgency of others to take you away from the things that are important.

### List 2: What do you do?

Next, you'll need to make a list of the things you're doing with your

time. Are you happy with it? There's never a shortage of things to do, so could you focus on priorities and turn down things that take away from—rather than add to—what's really important?

Now, rank these activities in terms of importance to you. If any items on your list aren't worth your level of investment, do less. Maybe you can remove these items from your list entirely! If you don't do that thing you don't want to do, someone else will. Or maybe it doesn't need doing.

Set priorities based on your own

priorities, not anyone else's. Learn to say "no" to things you don't value so you can say "yes" to things you do. Remember ... this is all the time you really have.

*Dr. Paul is the former executive director of the Companion Animal Parasite Council and a former president of the American Animal Hospital Association. He is currently the principal of MAGPIE Veterinary Consulting. He is retired from practice and lives in Anguilla, British West Indies.*



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# What I learned from Franklin Covey

Veterinary economics isn't always about big financial trends. Sometimes it's about drilling down to what you're trying to do in your practice and trying out a new process, like this one, to get there.

Last month, I wrote about how a focus on short-term wins while pursuing long-term change will help improve veterinarians' lives today and will also—over time—improve the economic dynamics of the profession. (Read it at [dvm360.com/debt-phant](http://dvm360.com/debt-phant).) So, whether you're looking to grow market share, boost revenue, reduce employee turnover or enhance the client experience, improving your business requires changing behavior—your own or someone else's. But behavioral change isn't easy, especially amid the many pressing needs of a busy day.

One framework I've used and found helpful is an idea from Franklin Covey called the "Four Disciplines of Execution," or 4DX. These are four steps to doing things in a new way to achieve goals, even while contending with the urgent and competing priorities of a demanding practice. 4DX defines four key disciplines that lay out a straightforward path to achieving your goals and executing a successful strategy.

## Discipline 1: Focus on 'wildly important goals'

Start by setting a small number of goals (just one or two) to focus energy on—these are your "wildly important goals." This might be difficult to do—it

goes against our basic wiring to be ambitious and manage many things at once—but it's important to successful execution of a strategy. An economics principle called the law of diminishing marginal returns explains why this is critical: The more you agree to do, the less you can actually get done.

Be clear on what you want to achieve, and by when. A good format for goal setting is "from x to y by z." For example, "Increase practice revenue by 20 percent by the end of the year." This approach to establishing your wildly important goal recognizes where you are today, where you want to go, and by when.

## Discipline 2: Measure success better

Now you need to measure success. There are two types of metrics for this: lag measures and lead measures.

**Lag measures** describe the thing you're trying to change or improve—where you're falling behind. For example, if you want to reduce the number of single-visit clients, your lag measure would track this. The problem with lag measures is that they come too late—it's like looking in the rearview mirror.

**Lead measures** focus on the activities most critical to success that help drive lag measures. How might you apply this in practice? If your goal is to increase practice revenue, one of your lead measures could be to increase the number of follow-up phone calls you make to discuss patient progress.

Surveying clients about their customer experience could help you identify other lead measures to drive the increased business you're looking for.

## Discipline 3: Keep score to inspire

Next, create a scoreboard to engage and motivate your team. If your lead measure is the number of follow-up appointments made, track and show your progress with a visible display that re-

minds team members of that important goal—and motivates them to follow through with their own commitments.

Make your scoreboard big, and hang it prominently on a wall where everyone will see it in your back office. When people see how their efforts contribute to a goal, they're more vested in success. It's amazing how people behave differently when keeping score.

## Discipline 4: Hold everyone (including yourself) accountable

The fourth discipline is the most crucial: accountability. Schedule brief but regular team meetings to discuss the scoreboard, reflect on how and why the number has changed, and make individual commitments for further action.

The activity of formally examining progress and making decisions together creates accountability and supports teamwork. Team members become accountable not only to the boss, but also to the team as a whole. This dramatically increases performance when working for a common goal.

Remember, no matter which tools you choose, the point is to work purposefully and actively on translating your strategy into action. By doing so, you transform your goals into tangible wins—and bring small improvements to your practice, which build into broader success.



*Dr. Matthew Salois is chief economist and Veterinary Economics Division director at the AVMA. He has worked in private industry, government and academia, recently serving as director of global scientific affairs and policy at Elanco Animal Health. Before that he was chief economist with the Florida Department of Citrus. He earned his PhD in food and resource economics from the University of Florida.*





## MEDICINE | Renal disease

# Feline CKD therapeutic goals: Do not throw away your shot

The therapeutic goals in managing chronic kidney disease in feline patients have changed. Are you hitting the target? *By Sarah J. Wooten, DVM*

Are you on target with CKD treatment in cats?



**W**hen managing cats with chronic kidney disease (CKD), yes, you still monitor and manage azotemia, blood pressure and urine protein, but there's a whole new realm of client-centered care that dictates how you set your goals. These days, quality of life and maintaining the human-animal bond are the primary focus.

In real life, this looks like:

- > Ensuring normal interactions with the family
- > Ensuring normal day-to-day behavioral patterns
- > Providing pain management
- > Avoiding polypharmacy (see "The fallacy of polypharmacy in CKD" sidebar on M2).

Advice from Fetch dvm360 speaker Kelly St. Denis, DVM, DABVP (feline), owner of Charing Cross Cat Clinic in Brantford, Ontario, is on deck, harmonized with lyrics from my current favorite musical obsession, *Hamilton*, to help you achieve these goals in your practice. Put your mind at work and rap along, if you can.

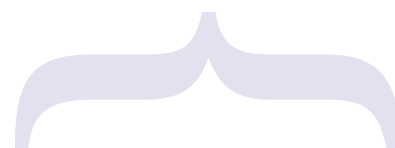
### Don't be like Aaron Burr and wait for it

Early intervention is key, Dr. St. Denis says, and starting conversations about therapy when cats are in the early stages of CKD will help pave the way to successful management. These early stages are a good time to talk about nutritional changes. For example, if the client is feeding Fancy Feast, which is high in phosphorus, then talk about switching to a high-quality senior diet. This is a good time to plant the seeds about regular follow-up too and explain that it's important to track changes over time. These simple conversations will help guide your client and avoid overwhelming them, which erodes the human-animal bond.

Early CKD is also a good time to talk about doing some additional diagnostics to determine if there's identifiable disease that can be treated, such as imaging to look for kidney stones or urine cultures to look for chronic infection, says Dr. St. Denis. If there are money constraints, then you can plan to test over time to help soften the financial impact. Utilize the phrase "If not today, how about next month?" to direct your client's actions.

### Therapeutic kidney diets get the job done

The most important thing to ponder about nutrition in feline CKD is whether the cat is eating enough, Dr. St. Denis says. This is more important than what the cat is eating. Maintaining adequate caloric intake and muscle mass is critical to avoid protein malnutrition. But, as you already know, ensuring adequate intake in a cat can be very challenging. Working with the client and providing education in this area is an im-



### DENTISTRY

M4

The ABCs of veterinary dentistry: 'O' is for oral tumors of the benign kind

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## The fallacy of polypharmacy in chronic kidney disease

Polypharmacy refers to the use of many drugs at the same time to treat one condition. Just because you can prescribe more medication to manage CKD doesn't mean you should, Dr. Kelly St. Denis says. This is because prescribing multiple medications may interfere with your primary therapeutic goals of maintaining the client-cat bond and quality of life.

Pick treatments based on evidence-based medicine and known outcomes and those the client is willing to give. Avoid empirical treatments. Before adding a medication into a CKD cat's daily regimen, ask the client, "How do you feel about this? How are you doing with your medicating?" When you're working with a client to design a treatment plan for their CKD kitty, talk less and listen more.

portant therapeutic strategy. If the cat isn't eating enough or is underweight, then Dr. St. Denis recommends feeding 1.2 to 1.4 times the resting energy requirement (RER). Most geriatric cats need at least 1.1 times RER.

We all know that switching diets on a CKD cat that's experiencing decreased appetite can be challenging (understatement of the century). Dr. St. Denis recommends changing the diet earlier rather than later. Cats with CKD should be eating a diet that contains restricted phosphorus and highly digestible protein that meets or exceeds minimum standards. A therapeutic kidney diet that meets protein needs and contains complete amino acid profiles, plus omega-3 fatty acids, which have renal protective properties, will help ensure that your clients' cats will get everything they need.

### Old, scrappy and not hungry

If your CKD patient isn't eating, determine if the inappetence or nausea is due to a contributing disease, dehydration or azotemia and treat that first, Dr. St. Denis says, before starting appetite stimulants. Maropitant is safe to use in cats with CKD, and it's labeled for oral, subcutaneous and intravenous administration. Ondansetron is also effective for nausea, either orally or intravenously. Mirtazapine also works well for nausea and inappetence. If the cat won't eat or is severely malnourished, don't hesitate to place a feeding tube to ensure caloric intake and medication administration.

What about uremic gastritis and ulcers? Historically, we prescribed antacids in CKD cats to prevent gastritis, but a new study has found that cats with CKD may not have elevated stomach acidity as compared with healthy cats.<sup>1</sup> Dr. St. Denis hypothesizes that the inappetence associated with uremia is more likely due to chemoreceptors in the brain and less likely to be associated with elevated gastric acidity, making antacid treatment in cats with CKD less likely to help with nausea and inappetence. Avoid polypharmacy! Don't reach for the antacid unless you are seeing melena or bloody vomitus.

If nausea is under control, then appetite stimulants are helpful. In fact, the FDA recently approved a transdermal formulation of mirtazapine for cats. Mirtazapine can be used daily, Dr. St. Denis says, but if you're noticing serotonin syndrome with administra-

tion ("hyperactive meowing," as Dr. St. Denis calls it), then dial down the dose and use cyproheptadine as an antidote.

### Pain management: The world turned upside down

When I graduated from vet school, we didn't automatically associate pain with feline CKD, but now we know that these cats are hiding pain, due not only to CKD but also to occult degenerative joint disease (DJD), which is prevalent and underreported in senior cats and a serious obstacle to a good quality-of-life goal. Dr. St. Denis recommends talking to your clients about subtle signs of stress and pain from DJD and getting these cats on pain management sooner rather than later.

Here are Dr. St. Denis' favorite pain medications for cats:

- > Buprenorphine, as a sustained release formulation or given intravenously for hospitalized patients
- > Gabapentin (Dr. St. Denis recommends starting with evening administration because of initial ataxia and sedation and says to be sure to advise clients of initial side effects)
- > Nonsteroidal anti-inflammatory drugs (NSAIDs): robenacoxib (Onsior—Elanco) and meloxicam have good studies that show safe long-term administration, provided that the cat is hydrated and properly monitored and that the client understands the risks and benefits.
- > Ketamine intravenous constant-rate infusion for hospitalized patients
- > Polysulfated glycosaminoglycan (Adequan—Luitpold Animal Health)
- > Duralactin (PRN Pharmacal)
- > Prescription Diet k/d + Mobility (Hill's Pet Nutrition).

### High blood pressure: Who lives, who dies, who blows their retinas off

Amlodipine is the most effective drug for high blood pressure in cats. But don't use it unless there's direct evidence of target organ damage, says Dr. St. Denis. Clinicians should also be certain the cat is hypertensive, following recommendations from the International Society of Feline Medicine (ISFM) guidelines for managing hypertension. She starts with 0.625 mg every 24 hours and reassesses in three to five days, and if blood pressure is higher than 160 mm Hg, she increases the dosage by 0.5 mg/kg/day. She

maxes out amlodipine dosages at 2.5 mg/cat. Monitor blood pressure every three to four months.

If amlodipine is not controlling blood pressure, first check adherence with the client. If everything checks out and you've maxed out your amlodipine dosage, Dr. St. Denis recommends adding in telmisartan (Semintra), a new angiotensin receptor blocker from Boehringer Ingelheim. Anecdotally, Dr. St. Denis finds it is a nice adjunct to amlodipine administration in uncontrolled hypertensive cases.

### Rise up! Rise up! What to do about phosphorus and calcium concentrations

Therapeutic kidney diets are the first line of defense against abnormal calcium and phosphorus concentrations. If you find that phosphorus is still increasing or unacceptably high even if a cat is on a therapeutic diet, then a phosphate binder, such as aluminum hydroxide, is in order, Dr. St. Denis says. She advises avoiding any aluminum hydroxide products that contain calcium, splitting the daily dose, and giving with food because phosphate binders bind to phosphate in food.

Renal secondary hyperparathyroidism is due to deficiency of calcitriol, which causes calcium dysregulation and increased ionized blood calcium in the bloodstream. If you notice hypercalcemia, it's important to measure parathyroid hormone (PTH) and ionized calcium concentrations. If the PTH is normal or low, then hypercalcemia is not due to renal secondary hyperparathyroidism, Dr. St. Denis says.

If you elect to prescribe calcitriol to manage calcium concentrations, Dr. St. Denis says to give twice weekly, ensure that phosphorus concentrations are less than 6 mg/dl in the blood, and monitor regularly. Check ionized calcium and PTH concentrations every four to six weeks until they normalize, then check them every three to six months, depending on what your client is willing to do.

#### Reference

1. Tolbert MK, Olin S, MacLane S, et al. Evaluation of gastric pH and serum gastrin concentrations in cats with chronic kidney disease. *J Vet Intern Med* 2017;31(5):1414-1419.

*Dr. Sarah Wooten is an associate veterinarian in Greeley, Colorado, a frequent dvm360.com contributor and a Fetch dvm360 speaker.*

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# The ABCs of veterinary dentistry: 'O' is for oral masses of the benign kind

Observing a growth in a dog or cat's mouth doesn't have to be an 'Oh, no!' moment. With careful planning, cytology, histopathology and proper surgical margins, removing benign masses carries an excellent prognosis. *By Jan Bellows, DVM, DAVDC, DABVP, FAVD*

A long time ago, dogs and cats roamed outside the homestead, guarding against invaders and controlling vermin. Pets were eventually invited into the home, and now most caregivers affectionately interact with their dogs and cats every day. Some caregivers even dutifully handle their pets' mouths to control plaque. This societal shift in humans' proximity to animals means it's now common for owner observations, coupled with exam room findings, to reveal abnormal oral masses in your patients.

**Benign or malignant?**  
Perhaps the most important concern for owners is to determine if the growth

is benign or malignant. Benign masses are generally smooth enlargements of the gingiva (Figure 1), while malignant ones are exuberant outcroppings that often cause maxillary or mandibular deformities (Figure 2).

**Set your sights on cytology**  
The clinical exam can go only so far in identifying oral masses. Touch impression with a cotton applicator swab for cytology or fine-needle aspiration under sedation or anesthesia can help

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Figure 1. A benign peripheral odontogenic fibroma.



Figure 2. A malignant fibrosarcoma.



Figure 3A. Obtaining a fine-needle aspiration of a maxillary mass; intraoral radiograph revealed marked tooth resorption.

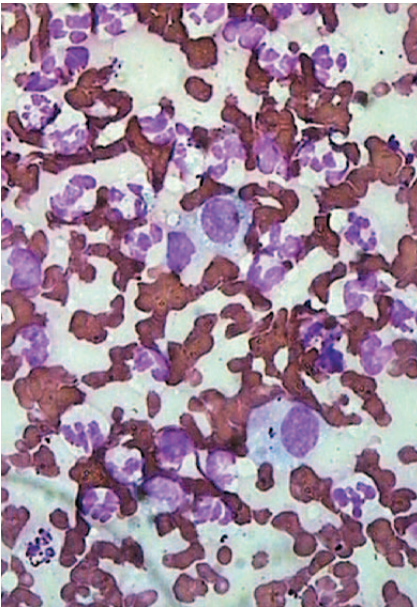


Figure 3B. Cytology consistent with inflammation (mesothelial cells and neutrophils) in the patient from Figure 3A.



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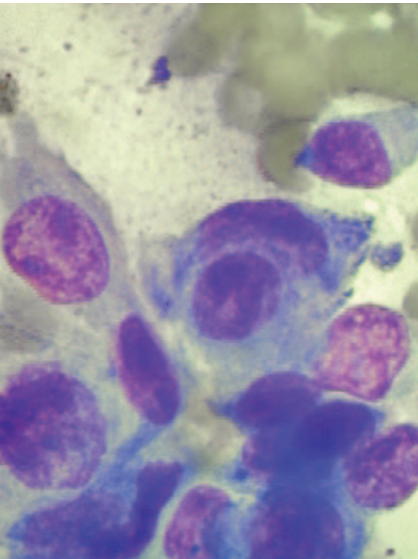


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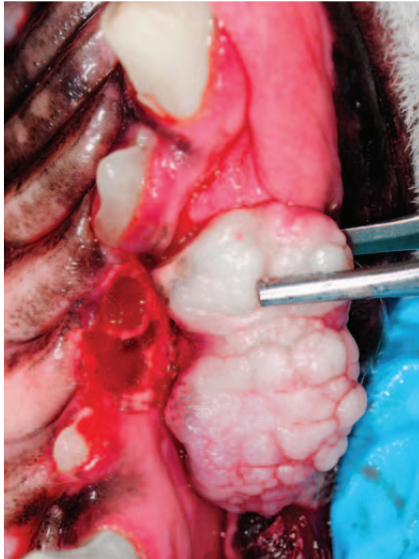
**Figure 4.** Cytology consistent with malignancy (prominent, different-sized nuclei and nucleoli, nuclear molding, high nuclear-to-cytoplasm ratio); histological diagnosis of squamous cell carcinoma.



**Figure 5A.** A right maxillary mass that appears to be emanating from the periodontal ligament spaces rostral and caudal to the second premolar.



**Figure 5B.** A marginal excision using a water-cooled bur before extracting the second premolar in the patient from Figure 5A.



**Figure 5C.** A caudal pedicle of tissue still attached subgingivally after the second premolar extraction in the patient from Figure 5A.



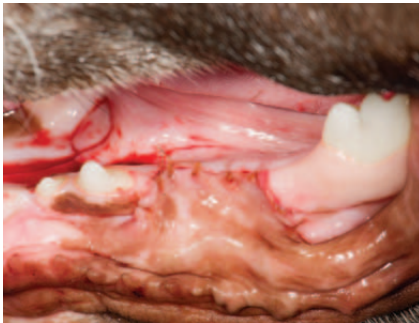
**Figure 5D.** The healed area in the patient from Figure 5A six months after the operation.



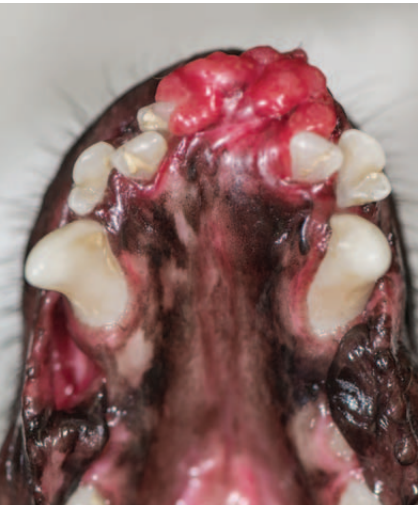
**Figure 6A.** Mass noted on the buccal attached gingiva.



**Figure 6B.** Gingival flap and en bloc excision of the tooth and mass.



**Figure 6C.** Sutured surgical site; histopathology showed acanthomatous ameloblastoma completely excised.



**Figure 7A.** Large, apparently invasive rostral mandible mass.



**Figure 7B.** Incision planning.



**Figure 7C.** The radically excised area.



**Figure 7D.** Sutured surgical site; histologic diagnosis of acanthomatous ameloblastoma.

you distinguish between cystic, inflammatory, benign and malignant growths (Figures 3A and 3B). The caveat with cytology is that some neoplasms don't exfoliate, resulting in a nondiagnostic sample or a false negative result. With aspirates, the sample is only as good as where the tip of the needle sampled.

Carcinomas appear as round or oval cells arranged in sheets or acinar patterns, while sarcomas are spindle-shaped cells. Samples showing at least five cytological signs of malignancy

(e.g. high nuclear to cytoplasm ratio, multiple nucleoli, variable nuclear and nucleoli sizes, coarse chromatin, pleomorphism, anisocytosis) are generally diagnostic (Figure 4). False negatives are common. You can generally trust a positive cytology result, but you can't trust a negative one.

If you develop confidence in reading real-time cytology, you can save a significant amount of time in treatment staging. If the lesion appears malignant, you can perform

excisional surgery with wide margins at the time of the initial procedure. If the lesion does not appear malignant cytologically but does appear so clinically, you have four options: (1) obtain a deep biopsy and wait a week for the histopathology before deciding what to do, (2) refer, (3) remove it with minimal margins with a plan to revisit the lesion if the histopathology is malignant, or (4) excise the mass with wide surgical margins during the initial procedure.

**Surgical options for benign oral masses**

Your surgical options include:

**Marginal excision** removes the lesion visually but may be poorly suited for lesions that are not well demarcated from surrounding healthy tissues. Marginal excision may leave remnants of the tumor in place, resulting in regrowth (Figures 5A-5D).

**En bloc excision** removes the tumor, pseudocapsule and reactive zone, as well as a narrow margin of





Figure 8. Gingival enlargement.



Figure 9A. Eosinophilic granulomas in a dog.



Figure 9B. Eosinophilic granulomas in a cat.



Figure 10. Focal fibrous hyperplasia in a dog.



Figure 11A. Peripheral odontogenic fibroma in a dog.

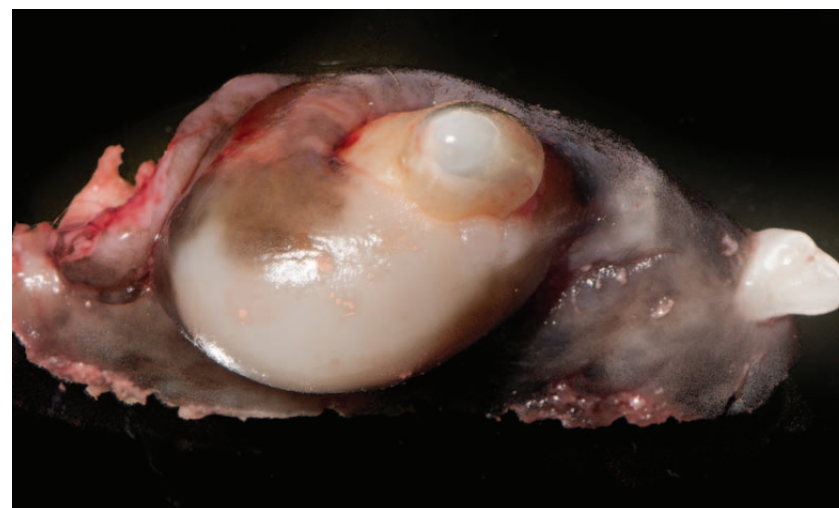


Figure 11B. Excised peripheral odontogenic fibroma.

normal tissue. En bloc excision is usually reserved for malignant or aggressive benign lesions that are not known to extend deep into surrounding tissues (Figures 6A-6C).

**Radical resection** removes large portions of the maxilla or mandible and is indicated in the treatment of large benign (as well as malignant) tumors that invade the mandible or maxilla (Figures 7A-7D).

### Commonly diagnosed benign oral masses

Here are the benign oral masses you're most likely to see in your practice:

**Gingival enlargement** is a clinical term referring to the overgrowth or thickening of gingival tissues in the absence of a histological diagnosis (Figure 8). Gingival hyperplasia refers histologically to an abnormal increase in the number of normal cells in a normal arrangement, resulting in gingival enlargement. If you see a boxer, bulldog or cocker spaniel with focal gingival growths, identify the masses as gingival enlargement until you have a histological diagnosis. Patients

receiving cyclosporin, anticonvulsants or blood pressure medication are susceptible to developing gingival enlargement. Treatment is usually surgical removal of the abnormal tissues. The condition may recur.

**Eosinophilic granuloma complex** affects dogs and cats and causes raised, ulcerated lesions on the tongue, lips and palate (Figures 9A and 9B). These lesions are commonly called indolent or rodent ulcers and are typically slow-growing. In cats, the condition is thought to be connected to flea infestation or food-based allergies. These lesions respond well to corticosteroids, but they may spontaneously regress. Surgical removal is also an option.

**Focal fibrous hyperplasia** secondary to chronic irritation stemming from subgingival calculus is often seen in brachycephalic breeds including boxers and bulldogs. The clinical appearance is a domelike growth with a smooth mucosal surface of normal coloration (Figure 10). Treatment of these lesions is gingivectomy of the hyperplasia with a scalpel, diode laser or electroscalpel. This reestablishes the normal gingival

contour and sulcus depth as long as at least 2 mm of attached gingiva remains. Any calculus on the tooth or root surfaces that is covered by the excessive hyperplasia should be scaled and polished away. Daily home plaque control is critical to prevent recurrence.

**Peripheral odontogenic fibromas** (formerly called fibromatous and ossifying epulides) are quite common in dogs but not in cats (Figure 11A). They can be pedunculated or sessile and may contain osseous material. Complete excision is usually curative (Figure 11B). One study found that 44% of histologically examined epulides in dogs could be classified as focal fibrous hyperplasia, 17% as peripheral odontogenic fibroma and 18% as peripheral ameloblastoma.<sup>1</sup>

**Acanthomatous ameloblastoma** is a benign tumor of odontogenic origin that behaves like a malignant neoplasm but does not metastasize. The most common invasive jaw tumor in dogs, acanthomatous ameloblastoma is locally aggressive and often infiltrates bone. The rostral mandible is the most common location, and

the mean age at presentation is 7 to 10 years. This tumor is curable with resection, so 1- to 2-cm margins are ideal whenever functionally possible.

Now that you have the tools to identify and treat benign masses, the next article will explore malignant lesion diagnosis and management.

#### Reference

1. Verstraete FJ, Ligthelm AJ, Weber A. The histological nature of epulides in dogs. *J Comp Pathol* 1992;106(2):169-182.

#### Further reading

Fiani F, Verstraete FJ, Kass PH, et al. Clinico-pathologic characterization of odontogenic tumors and focal fibrous hyperplasia in dogs: 152 cases (1995-2005). *J Am Vet Med Assoc* 2011;238:495-500.

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**Reference:** 1. Mirataz™ (mirtazapine transdermal ointment) [package insert], Kindred Biosciences, Inc. (Burlingame, CA). Rev. 5/2018. 2. Buhles W, Quimby JM, Labelle D, et al. Single and multiple dose pharmacokinetics of a novel transdermal ointment in cats. J Vet Pharmacol Ther. In press 2018.



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# 6 savvy tips for the surgical suite

From autoclavable shoes to less-mess cautery, veterinary surgeon Dr. Jennifer Wardlaw shares a few of her favorite surgical solutions. *By Sarah Mouton Dowdy*

**W**ith 15 years of veterinary surgery under her belt, Jennifer Wardlaw, DVM, MS, DACVS-SA, of Gateway Veterinary Surgery in St. Louis, Missouri, has collected a few tips and tricks (many of which are DIY) that make surgery safer and smoother for all involved. Lucky for us, she's generous with her genius.

**1 Shoes that shine**  
“In this profession, shoes matter,” says Dr. Wardlaw. She wears Calzuro shoes in the operating room, which were designed with surgeons in mind. These deceptively simple shoes have a small heel to keep the body anatomically correct (which cuts down on fatigue), side ventilation for breathability, and massaging bumps to stimulate blood flow. But one of the main reasons Calzuro shoes are so attractive to Dr. Wardlaw is that they can be sterilized in an autoclave. Danko clogs are high on her list as well, but they can't go in the autoclave.

**2 Light the way**  
Whenever Dr. Wardlaw posts pictures of herself wearing her favorite headlamp, everyone wants to know what it is. Answer: the Icon Headlamp from Black Diamond. This lightweight, mobile and super-bright headlamp (500 lumens for under \$100) was made for climbers and spelunkers and the like, but Dr. Wardlaw thinks it's perfect for surgical explorers too. “It gives off a really nice uniform light (so you don't have a halo), and the strap that sits on top of my head helps keep the lamp in place,” she says. “If you're not going to be anchored or tethered to a fiber optic light source, this AA-battery option is amazing.”

**3 Veterinary Windex?**  
Dr. Wardlaw has a DIY trick up her surgical sleeve—and it looks like a bottle of Windex. The self-made spray is like a liquid version of Avaguard or Sterillium hand sanitizers that she uses for final surgical patient prep in



Dr. Jennifer Wardlaw says that this headlamp, though designed for outdoor explorers, is perfect for surgical explorers too.

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**HUMAN WARNINGS:** Not for human use. Keep out of reach of children. **Wear disposable gloves when handling or applying Mirataz™ to prevent accidental topical exposure.** After application, dispose of used gloves and wash hands with soap and water. After application, care should be taken that people or other animals in the household do not come in contact with the treated cat for 2 hours because mirtazapine can be absorbed transdermally and orally. However, negligible residues are present at the application site and the body of the cat at 2 hours after dosing. In case of accidental skin exposure, wash thoroughly with soap and warm water. In case of accidental eye exposure, flush eyes with water. If skin or eye irritation occurs seek medical attention. In case of accidental ingestion, or if skin or eye irritation occurs, seek medical attention.

**PRECAUTIONS:** Do not administer orally or to the eye. Use with caution in cats with hepatic disease. Mirtazapine may cause elevated serum liver enzymes (See **Animal Safety** in the product insert). Use with caution in cats with kidney disease. Kidney disease may cause reduced clearance of mirtazapine which may result in higher drug exposure. Upon discontinuation of Mirataz™, it is important to monitor the cat's food intake. Food intake may lessen after discontinuation of mirtazapine transdermal ointment. If food intake diminishes dramatically (>75%) for several days, or if the cat stops eating for more than 48 hours, reevaluate the cat. Mirataz™ has not been evaluated in cats < 2 kg or less than 6 months of age. The safe use of Mirataz™ has not been evaluated in cats that are intended for breeding, pregnant or lactating cats.

**ADVERSE REACTIONS:** In a randomized, double-masked, vehicle-controlled field study to assess the effectiveness and safety of mirtazapine for the management of weight loss in cats, 115 cats treated with Mirataz™ and 115 cats treated with vehicle control were evaluated for safety. The vehicle control was an ointment containing the same inert ingredients as Mirataz™ without mirtazapine. The most common adverse reactions included application site reactions, behavioral abnormalities (vocalization and hyperactivity), and vomiting. **See Product Insert for complete Adverse Reaction information.** To report suspected adverse events, for technical assistance or to obtain a copy of the SDS, contact Kindred Biosciences, Inc. at 888-608-2542. 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>.

**EFFECTIVENESS:** The effectiveness of Mirataz™ (mirtazapine transdermal ointment) was demonstrated in a randomized, double-masked, vehicle-controlled, multi-site field study involving client-owned cats of various breeds. Enrolled cats were ≥ 1 year of age and had existing documented medical history of ≥ 5% weight loss deemed clinically significant. The most common pre-existing conditions included renal insufficiency, vomiting, and hyperthyroidism. Some cats had more than one pre-existing condition. Cats were randomized to treatment groups in a 1:1 ratio of Mirataz™ to vehicle control. A total of 230 cats were enrolled and received either Mirataz™ (115 cats) or a vehicle control (115 cats) containing the same inert ingredients without mirtazapine. The cats were 2.8-24.6 years of age and weighed 2.1-9.2 kg. The dosage was a 1.5-inch ribbon (approximately 2 mg/cat) mirtazapine or vehicle ointment administered topically to the inner pinna of the cat's ear. A total of 177 cats were determined to be eligible for the effectiveness analysis; 83 cats were in the Mirataz™ group and 94 cats were in the vehicle control group. The primary effectiveness endpoint was the mean percent change in body weight from Day 1 to the Week 2 Visit. At Week 2, the mean percent increase in body weight from Day 1 was 3.94% in the mirtazapine group and 0.41% in the vehicle control group. The difference between the two groups was significant (p<0.0001) based on a two-sample t-test assuming equal variances. A 95% confidence interval on the mean percent change in body weight for the Mirataz™ group is (2.77, 5.11), demonstrating that the mean percent change is statistically different from and greater than 0.

**STORAGE:** Store below 25°C (77°F). Multi-use tube. Discard within 30 days of first use.

**HOW SUPPLIED:** Mirataz™ is supplied in a 5 gram aluminum tube.

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most surgeries. “Instead of a sterile scrub with povidone-iodine, chlorhexidine, etc., I use a spray that I make by combining ethyl alcohol 99% with chlorhexidine (2% or 4%), using a 3-to-1 ratio,” she says. “The idea is to keep the alcohol concentration well above 66%, while the chlorhexidine provides long-lasting residual antibiotic activity.” The concentrations are very similar to what’s in commercially available Avaguard, Dr. Wardlaw says.

To use, Dr. Wardlaw does her rough prep, and then once the patient’s ready, she sprays the area she intends to operate on and lets it dry.

Dr. Wardlaw admits that the spray does have a few issues worth noting—all of which are normal concerns when using alcohol. “You don’t want to get it on your cautery plate because you’ll ignite your patient, you don’t want to use it on a mucous membrane due to irritation, and you don’t want to use it on tiny patients because the alcohol can make them cold,” she says.

## 4 Bring the heat

“One heating option during surgery isn’t adequate,” says Dr. Wardlaw. “After the pet has been in surgery for 20 or 30 minutes, you’re less likely to bring their temperature back up as it comes down with just one thing. You need to start adding two or three heating elements proactively with small, young and thin patients and for longer surgeries.”

Dr. Wardlaw uses a wide range of cheaper and DIY options to keep patients cozy: hot water bottles, DIY hot water bottles (i.e. hot water in IV bags) and tube socks filled with lentils that can be warmed in the microwave. She also likes to use a fluid line warmer or wrap the fluid line around a hot water bottle. Whichever method you choose, heating the fluids close to the patient is key. “If you apply heat all the way at the end of the surgery table, the fluid cools down by the time it reaches the patient,” she says. “The closer the fluid warming element is to the patient, the warmer the fluid will be when it reaches it.”

To ensure that her patients are breathing warm air, Dr. Wardlaw often puts a warming element on the anesthesia circuit tube before it enters the pet’s airway.

“A lot of people are also loving the thermal blankets that come in emer-



Patient prep with veterinary “Windex.”

gency kits too,” says Dr. Wardlaw, “but it’s important to put it on the patient while it’s still warm. It can’t rewarm a patient. It needs body heat to start with.”

Dr. Wardlaw says she likes Bair Hugger forced air patient warming systems too. “I’ve had some clinics use them and put a pillowcase on the end or a bouffant cap,” she says. “Bair Huggers are common in the operating room but not in recovery cages because they’re so expensive. However, generic options, like BedJet, are now available, so the idea isn’t as cost-prohibitive.”

## 5 Less-mess cautery

Cautery can get a little messy when the patient’s fur meets ultrasonic gel. Because Dr. Wardlaw uses cautery on almost every patient, she’s found a way to make the process less annoying. “Traditionally, we put ultrasonic gel on the ground plate to enhance conduction. To get the same benefits without the mess, I soak paper towels, washcloths or towels in water and place them between the pet and the ground plate,” she explains. “If the pet has a really thick coat, I’ll pour water between the patient and the ground plate to give it that contact. As long as you’re not in surgery for eight hours and your plate dries out, this method gives you plenty of contact without any hot spots or sticky, matted fur.”

However, Dr. Wardlaw notes that if ultrasonic gel is your thing, it’s easiest to remove if you comb it out with alcohol later, as the alcohol will dissolve the gel.

## 6 Wrap right

Dr. Wardlaw’s DIY solutions extend to contamination control as well. “There was a really nice study in *Veterinary Surgery* that looked at infection issues with veterinary

professional wrapping the foot when the patient is undergoing surgery on the leg or the knee since we can’t shave and sterilize the foot,” she says. “The study showed that you need to have a sterile, water-impermeable layer to best prevent infection, but many veterinary professionals skip this step and simply wrap the foot in Vetrap or tape.”

This, Dr. Wardlaw explains, is a problem: “You can take 20 layers of Vetrap, place it over the top of a cup of water and tip it upside down, and that water will eventually seep through the wrap. So when the patient is bleeding or you’re using lavage, and you’re touching the foot to manipulate the leg, you’ve got free-flowing bacteria in and out of that foot wrap,” she says.

To remedy this, Dr. Wardlaw cuts a little spool of water-impermeable drape that she calls “foot wrap” and puts it in all of her orthopedic packs. It looks like a short spool of wrapping paper that she wraps around the foot after capturing it with vet wrap. “I know some veterinary professionals who autoclave aluminum foil and wrap it around the foot,” she adds. “You just need to make sure that whatever you choose to use covers all of the Vetrap.”



Creating a sterile, water-impermeable foot wrap with small pieces of drape.

## Check this out

One more item on Dr. Wardlaw’s bag of surgical tips and tricks: a surgical safety checklist. “If you don’t have one, you need one,” she says. Visit [dvm360.com/surgerychecklist](http://dvm360.com/surgerychecklist) to download a free surgical safety checklist.



Wet paper towels enhance conduction without making a mess.





Horses with colic can respond to surgery or medical intervention; the key is to evaluate pain levels, experts say.

# Equine colic:

## Still serious, but successful outcomes more likely

The team at Hagyard Equine Medical Institute gets to diagnosis and treatment quickly—and they say it makes all the difference. *By Ed Kane, PhD*

In December 2016, Kentucky Derby champion Nyquist was taken to Hagyard Equine Medical Institute in Lexington, Kentucky, after a bout of gastrointestinal discomfort and was successfully treated surgically for colic.

Today, successful outcomes are more common in colic cases due to early diagnosis, improved medical treatment, and enhanced surgical technique and experience.

“The most common type of surgical colic we see in Lexington is what Nyquist had—a large colon volvulus,” says Hagyard’s Liz J. Barrett, DVM, MS, DACVS. “Horses are predisposed to it because the majority of their large colon is free within the abdomen with no attachment to the body wall. It’s very common in postfoaling mares (a huge part of our equine population here in Kentucky), likely due to the increased room and pressure changes in their abdomen after foaling.”

The team at Hagyard also sees medical cases—

those that never have an exact diagnosis because they respond to basic medical treatment—as well as impactions, gas colics, entrapments and various causes of strangulating lesions.

### When surgery is the best choice

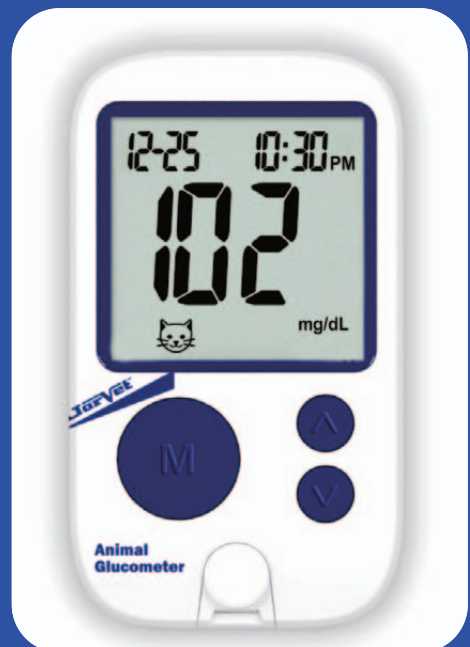
While colic surgery involves cost, prolonged recovery time and various risks associated with general anesthesia and surgery, in some cases it’s clearly the best option. Often bowel can be saved before it needs to be resected or before it contaminates the abdomen. The team at Hagyard takes most colic cases into the barn to be worked up, Dr. Barrett says, but those horses that are in significant pain—often thrashing violently in the trailer—go straight into the induction box to be considered for surgery.

Once a horse is in the induction box, the team sedates it heavily. “Those painful cases we can’t get comfortable even with heavy sedation go

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directly to surgery,” Dr. Barrett says.

Otherwise, the case proceeds through a systematic process. The team first performs a basic colic exam (physical exam, passing of a nasogastric tube, ultrasound of the abdomen and a brief rectal exam) to confirm there’s not something other than colic going on. They then assess whether the case is best handled medically or surgically.

“We try to identify certain indicators that say they require surgery immediately rather than an attempt at medical treatment,” Dr. Barrett says. “Throughout the workup these indicators move the horse’s likelihood of needing surgery either up or down, and the combination of all the factors makes the final decision for us.”

On physical exam, a finding that would move the case “down” the treatment scale is fever, as most febrile horses have some sort of medical issue. When the nasogastric tube is being passed, a finding of reflux without fever would move the case “up” the surgical chain.

“During our ultrasound exam, if we see thickened bowel wall—i.e. large colon edema greater than 9 mm—that usually fits with large colon volvulus,” Dr. Barrett explains. Those horses require surgery to correct the issue. “Also, on ultrasound exam, distended loops of small intestine ... can mean the horse needs to go to surgery immediately,” Dr. Barrett says.

“On rectal exam, if you feel distension of small intestine or certain types of cecal impaction, those are things you cannot wait on,” Dr. Barrett cautions. “That’s going to move the horse up the scale to towards requiring immediate surgery. Finally, abdominocentesis—i.e. surgical puncture of the abdominal wall to withdraw fluid, and looking at values within the fluid—can help tip the scales on a decision to take the horse to surgery or not.”

Sometimes surgical intervention is necessary to prevent necrosis of bowel and abdominal contamination, and sometimes it’s necessary because the condition causing the colic is extremely painful for the horse. “A displacement will occasionally resolve on its own, but sometimes it causes the horse too much pain,” Dr. Barrett says. “Other often-painful things like volvulus, epiploic foramen entrapment or mesenteric rent—things that cut off the blood

supply—require surgery to correct the problem and prevent necrosis.”

Some colics appear to be medical but are so painful the horse is taken to surgery anyway, and the team finds a clotting disorder or ischemic bowel as the cause of the enteritis. “Also you can find lipomas that cause obstruction of the bowel or of vasculature so that contents can’t move or blood flow is obstructed and causes pain,” Dr. Barrett says.

Sometimes stones are to blame: Enteroliths or fecaliths block intestinal transit and cause obstruction and pain. “In foals, you see small intestinal volvulus that cuts off the blood supply,” Dr. Barrett states. “You can see diaphragmatic hernias, either post-foaling, after trauma or in foals soon after birth, and all these issues require surgical intervention.”

One year Dr. Barrett’s team was seeing more tapeworm infestations than normal and saw a corresponding increase in intussusception colic cases, Dr. Barrett says.

“Small colon impactions are cases we try to manage medically, but some of the horses get so gassed up that we need relieve that distension and the impaction before we see deleterious effects of the increased pressure in the abdomen,” Dr. Barrett says.

### When medical management is the best option—with one exception

According to James N. Moore, DVM, PhD, DACVS, of the University of Georgia College of Veterinary Medicine, the most common form of colic veterinarians see is spasmodic colic.

“Presumably this type of colic occurs because the smooth muscle in the wall of the intestine spasms, or there’s an accumulation of an excessive amount of gas in the intestine,” Dr. Moore says. “Either of those could cause the horse to feel abdominal pain. I say ‘presumably’ because intestinal spasms are rarely, if ever, identified during a rectal exam. Horses with these problems are treated symptomatically with analgesics, primarily NSAIDs. With time and appropriate care, the spasm and distension subside, and those horses do perfectly well.”

Another common cause of colic is obstruction of the intestinal lumen, the most common being impaction of the large colon due to the accumulation of ingesta at the pelvic flexure.

“This is the region of the colon where its diameter decreases markedly over a short distance,” Dr. Moore explains. “If the ingesta is dry, it may cause an obstruction where the colon narrows. When that happens, the ingesta entering that part of the colon accumulates proximal to the obstruction, the colonic wall stretches and the horse feels abdominal pain.”

Horses with large colon impactions are treated with analgesics to relieve the pain, intravenous fluids to restore fluid volume, and intestinal lubricants such as mineral oil by stomach tube. “These treatments help to rehydrate the ingesta to allow it to pass through the rest of the horse’s gastrointestinal tract,” Dr. Moore says. “Horses with large colon impactions treated in this manner have an excellent prognosis for survival.”

There are two other diseases that result in obstruction of the large colon, Dr. Moore says: “One is left dorsal displacement, also known as nephrosplenic or renosplenic entrapment. In this condition, the large colon becomes displaced between the spleen and left kidney, causing obstruction of the lumen of the colon. Fortunately, the blood supply to the wall of the colon is not impaired. The other condition, right dorsal displacement, results in displacement of the large colon around the cecum. Again, the blood supply to the colonic wall is not affected. Horses

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with either of these displacements have an excellent prognosis for survival when treated appropriately.”

Horses also experience abdominal pain as a result of inflammation, either of the intestine or the lining of the abdominal cavity, Dr. Moore says. “Inflammation of the small intestine is called enteritis, inflammation of the colon is colitis, and inflammation of the lining of the abdominal cavity is peritonitis,” he elaborates. “While horses with these conditions often are very sick and re-

quire intensive medical therapy, they do not require abdominal surgery.”

According to Dr. Moore, another cause of colic to be considered is strangulating obstruction, which can affect either the small intestine or colon. In these instances, the intestine is twisted or has passed through either a natural opening in the abdomen or a defect in the intestinal mesentery. In these cases, obstruction of the intestinal lumen occurs and the blood supply to the wall of the intestine is impaired. As a result, that portion of the intestine becomes strangulated and dies. “Horses with strangulating obstructions require emergency surgery to treat them. Fortunately, if the condition is recognized and treated early, the prognosis for survival is very good,” Dr. Moore concludes.

**Pain is key to the treatment plan**

“Even with all the tests and checklists we’ve developed, I still think whether or not we can control a horse’s pain is the most critical factor in deciding if the horse requires surgery or not,” Dr. Barrett says. “The new tests are best for horses that are a little bit too stoic and don’t show us how much pain they’re in or those that are overly dramatic in response to minor pain they feel.”

Dr. Barrett recalls the words of a practitioner she worked for during veterinary school. He said, “There are two types of colic—those that respond to Banamine [flunixin meglumine] and those that don’t,” she recalls. “I finished veterinary school, an internship and a residency and that phrase still rings true. If we can control the pain the horse has, it can allow the medical issue to resolve without the horse being a danger to themselves or their handlers. Basic medical treatment includes enteral fluids to help to increase GI motility and, if it makes it to the colon, hydrate an impaction.”

Further therapy includes using intravenous fluids. “You can add motility agents to the fluid therapy, i.e. lidocaine or metoclopramide, if they have enteritis. We also provide other forms of supportive care including decompression of the stomach, electrolyte balance, antiulcer therapy or antibiotics as necessary,” Dr. Barrett says

**More successful outcomes**

Overall, Dr. Barrett says the main reason colic treatment and surgery

outcomes have improved for her team is the speed with which they can make a diagnosis and correct the problem. “Today our ability to maintain horses safely under anesthesia is much improved due to better anesthesia products and better skill,” she says. “Our surgical techniques have also improved from where we were 20 years ago. We have more skilled, more experienced surgeons, which leads to better training. ... Our collective knowledge is so much more than it used to be.”

They can also provide better postop care. “Horses are grazers, and at Hagyard we try to get them back eating as early as possible,” Dr. Barrett says. “I think this helps avoid a lot of postop problems, such as ileus and diarrhea. If only a study on this would be easy to perform!” Motility enhancers such as lidocaine, metoclopramide and similar medications are good adjuncts as well, she says, as is the ability to follow up with blood work to make sure electrolytes and everything else are in balance.

“I think something special about Hagyard Equine Medical Institute, and equine practice in general, is our excellent team approach, which is helpful, especially with a horse like Nyquist,” Dr. Barrett says. “Nyquist was admitted to our medicine department, where we have an excellent ICU and boarded internists doing the initial workup and management. And then he came down to surgery, where we have boarded surgeons and people who are trained and do a lot of anesthesia on critical cases like this, and then if necessary we have the ability to transfer those cases back to ICU. We work together through these cases as a team, similarly to the way human medicine has gone, each specialized in our particular areas and all contributing various expertise and experience to each case. I think that has allowed us to move ahead with horses having a much better prognosis after colic surgery.”

**Suggested Reading**

**1.** Moore JN. Diseases associated with colic by anatomic location. In: Aiello SE, Moses MA, eds. *Merck Veterinary Manual*. 11th ed. Whitehouse Station, New Jersey: Merck & Co., 2016.

*Ed Kane, PhD, is a researcher and consultant in animal nutrition. He is an author and editor on nutrition, physiology and veterinary medicine with a background in horses, pets and livestock. Kane is based in Seattle.*



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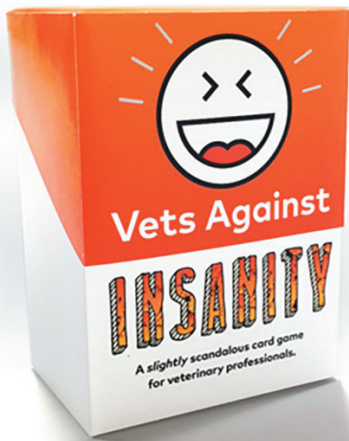
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# Fear Free contributors write the book on, you guessed it ...

*From Fearful to Fear Free*, a new book for dog owners on fear, anxiety and stress (FAS) is available now from Amazon.

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The book explains how the fear, anxiety and stress (FAS) response is the underlying cause of many concerning behaviors such as excessive barking, aggression, destructive behaviors and housesoiling. This is also the source for deterioration of the human-animal bond and can make a trip to the veterinarian, pet groomer or boarding facility miserable for pet and owner alike.

Coauthor Marty Becker, DVM, says the book is a first on the important subject and another link in the chain between dog owner and veterinarian.

"Because pets communicate nonverbally, this book will help dog owners recognize whether their pet is suffering from FAS," Dr. Becker says. "By understanding their dog's body language, vocalizations and changes in normal habits, their veterinarian will be able to make an accurate diagnosis and work with the pet owner to take action to prevent triggers or treat the fallout if they do happen."

Thoroughly explained and well guided by these three veterinary coauthors (Dr. Becker; Lisa Radosta, DVM,

DACVB; Wailani Sung, PhD, DVM, DACVB) and one highly respected pet trainer (Mikkel Becker, KPA CTP, CBCC-KA, CDBC, CPDT-KA, CTC), this team combined years of experience to help dog owners understand their pets' emotional needs.

The manual offers details on:

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To learn more about the book, visit [dvm360.com/fearfreepaths](http://dvm360.com/fearfreepaths) and visit [dvm360.com/FFcert](http://dvm360.com/FFcert) to learn more about Fear Free certification for you, your team or your entire practice.



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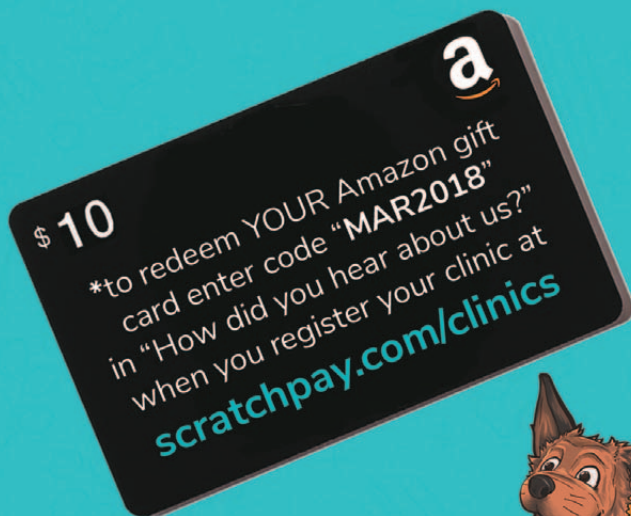
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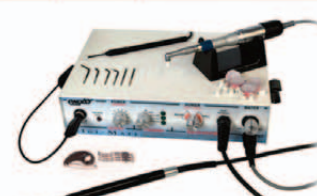
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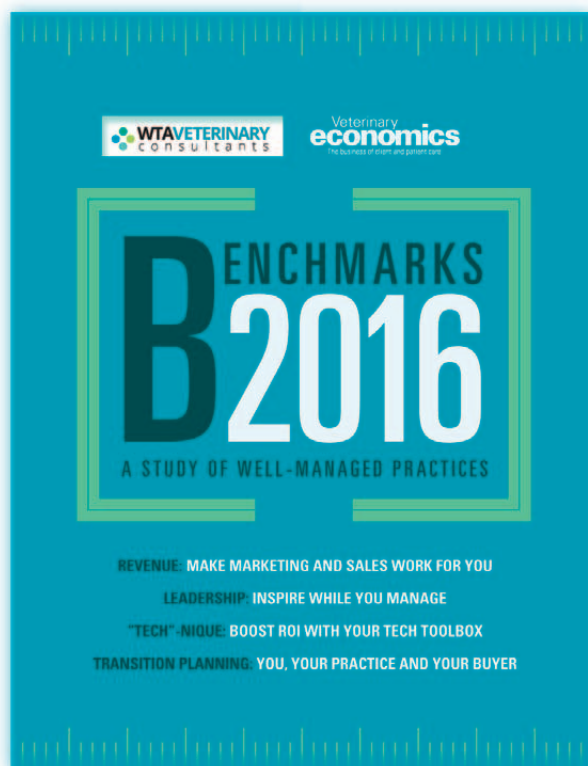
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[vmc-inc.com](http://vmc-inc.com)

**July 12-13**

VMC Financial  
Boot Camp  
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[vmc-inc.com](http://vmc-inc.com)

**July 13-15**

Animal Chiropractic  
Program through  
Parker University  
Dallas, TX  
(800) 266-4723  
[ce.parker.edu](http://ce.parker.edu)

**July 21**

Basic Soft Tissue Rigid  
Endoscopy 2018  
Athens, GA  
(706) 540-4073  
[vet.uga.edu/ce/calendar](http://vet.uga.edu/ce/calendar)

**July 21-22**

Veterinary Dental  
Extraction Course Week-  
end Dog & Cat Wet Lab  
Boston, MA  
(941) 276-9141  
[veterinarydentistry.net](http://veterinarydentistry.net)

**July 21-22**

Veterinary Dentistry for  
Technicians Weekend  
Extravaganza  
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**July 12-13**

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and Dogs 6th Interna-  
tional Symposium  
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[acc-d.org](http://acc-d.org)

**July 26-28**

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**July 27**

North Carolina  
Regional Wildlife  
Medicine Symposium  
Banner Elk, NC  
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[lmc.edu](http://lmc.edu)

**July 27-29**

30th Annual Fred Scott  
Feline Symposium  
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(607) 253-3443  
[vet.cornell.edu](http://vet.cornell.edu)

**July 28-29**

Equine Ophthalmology  
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**July 29**

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Orthopedic Surgery  
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[oquendocenter.org](http://oquendocenter.org)

**August 2-5**

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[aaha.org/adventure](http://aaha.org/adventure)

**August 3-5**

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[ce.parker.edu](http://ce.parker.edu)

**August 5**

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**August 7**

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**August 9**

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# The pathogenesis of a veterinarian

It takes years of blood, sweat and tears to get a veterinary degree. It only takes five seconds in the real world to feel clinically incompetent.

It's June, which means that all over America, brand-new veterinarians are starting their careers. This year is particularly special for me because my daughter Abbi and her husband, Zach, just graduated and have entered the realm of veterinary medicine.

Our clinic takes two interns every year, and we love their fresh outlook and zest to learn. This year's batch, Taylor and Dominique, are intelligent and excited to get started on their career paths, but I know what will happen to them—all four of them, really. Abbi, Zach, Taylor and Dominique are about to encounter the second phase of being a new graduate.

In order to understand this second phase, you must first understand phase one. Something happens to your brain when you walk across a stage, shake a hand, receive a diploma and have your prefix changed to "Dr." for the rest of your life.

A lot of hard work and sacrifice led up to that stage walk—about eight years of nose-to-the-grindstone study and labor, including 1,000 quizzes and about 10,000 hours of study and class time. There is perhaps no time that a person is more aware of how much they've sacrificed and how special their accomplishment is than when they walk across that stage to receive the veterinary diploma they've longed for all of their life.

This feeling follows these fresh graduates to their first jobs.

Then, everything changes.

The euphoria that comes from hearing your new title is soon replaced by the realization that you actually have to be a doctor now. When these new

graduates start working, it doesn't take long for them to enter the second phase of being a doctor: the "I'm a dumb doctor" phase.

Oh, yes. It won't take long for each and every one of these new doctors' confidence to dissolve upon confronting the reality that they're expected to know and practice all of the things their vet school professors tried to instill in them from day one. Making matters worse, those trusted professors are no longer on hand to answer questions.

I remember the feeling well. I was smacked with this awareness on my third day in practice. An old rancher came into the clinic where I was working with a horse that had been bitten by a snake. The critter's nose was swollen, and he could barely move any air through his nasal passages. I immediately fetched my notes from vet school and scanned them to see how to treat a horse with a rattlesnake bite. After storing the knowledge in my brain, I headed out to tell the cowboy what I was gonna do.

When I arrived back on the scene, the vet tech, Billy, who'd worked at the clinic for years, was standing by the counter holding two large syringes and a ping pong paddle. This was no ordinary ping pong paddle, however. This one had multiple large hypodermic needles poked through it and looked like some sort of medieval torture device. I had no idea what I was walking into, but I was just smart enough to keep my mouth shut.

The rancher saw me eyeing the ping pong paddle and asked, "How old are you, Boy?"

"Well, sir, I'm 26," I squeaked.

"What? I have a wart on my fanny that's older than you."

So there I was, looking at a fella holding a needle-riddled ping pong paddle and listening to an old rancher use redneck code to describe my incompetence. That's when I entered that aforementioned second phase.

My notes from school didn't match what was used in the real world by a man who'd practiced in Clarendon, Texas, for 40 years. He sedated the horse and put lidocaine all around the bite before slapping the site with the needle-laden paddle in order to release pressure from the tissue and lessen the suffocating edema caused by the venom. All in all, it wasn't that different from human doctors doing a fasciotomy on people who've been bitten.

I stood back and watched Billy slap that horse's nose with the paddle over and over until serum and fluid were running down its nose and onto the ground. The horse went from a state of panic over not being able to get enough air to relaxed and almost happy.

If you know any new graduates, encourage them a little for the next few months. They're gonna be hit with the ping pong paddles of life, and when they do, they'll be just like I was that day, wondering how I would ever wind up being a good doctor.

And if you're a brand-new veterinarian, keep your head up. You're already a good doctor.

*Bo Brock, DVM, owns Brock Veterinary Clinic in Lamesa, Texas. His latest book is Crowded in the Middle of Nowhere: Tales of Humor and Healing From Rural America.*



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