

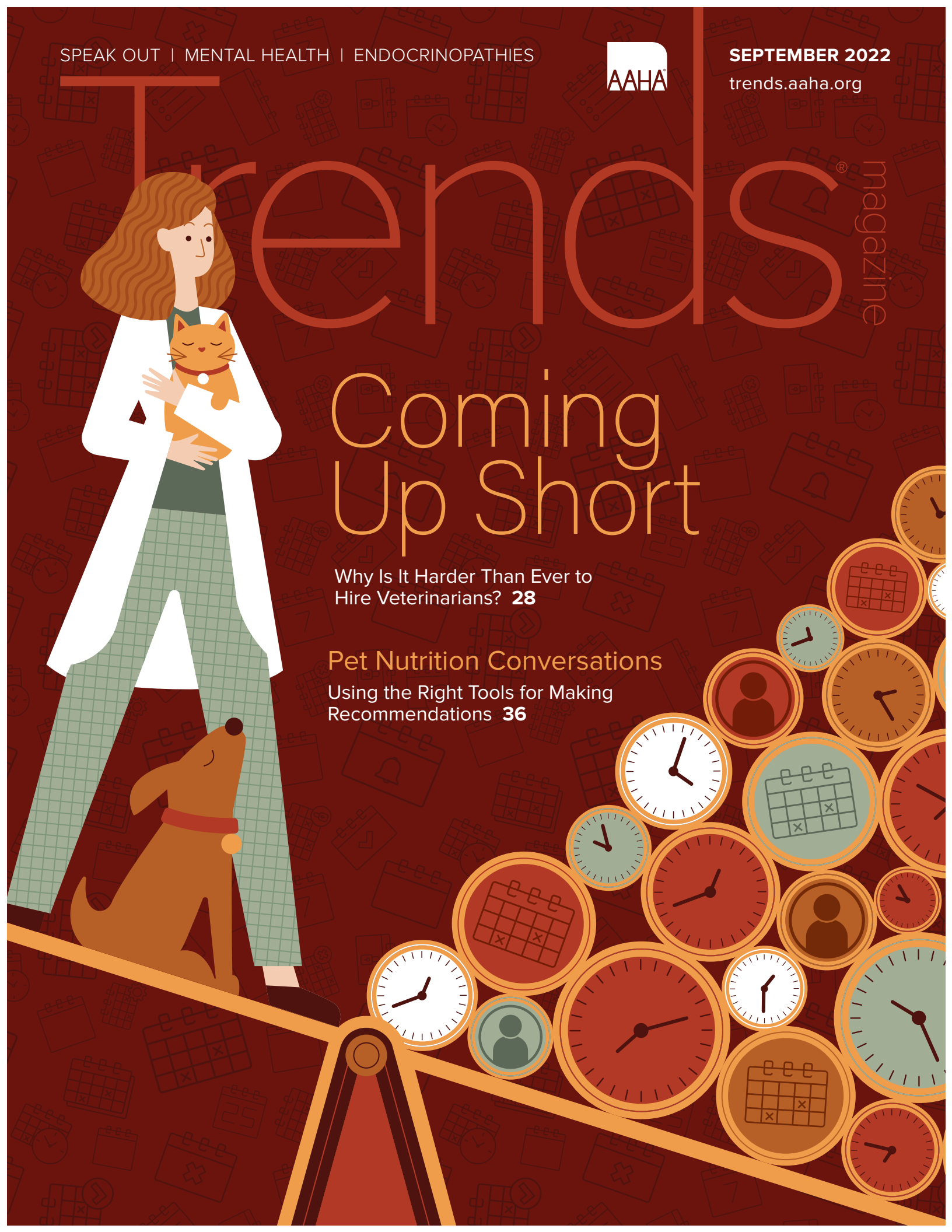
# Trends

## Coming Up Short

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A close-up, profile view of a German Shepherd dog's head, looking towards the right. The dog has tan and black fur, large upright ears, and a focused expression. The background is dark and out of focus.

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**CHEWS**<sup>1</sup>



**SENTINEL**  
**SPECTRUM CHEWS**<sup>2</sup>



\**A. caninum*.

†Prevents flea eggs from hatching.

**To learn more, please contact your Merck Animal Health sales representative.**

## IMPORTANT SAFETY INFORMATION:

**BRAVECTO Chews for Dogs.** The most commonly reported adverse reactions include vomiting, decreased appetite, diarrhea, lethargy, polydipsia, and flatulence. **BRAVECTO Chews for Dogs** have not been shown to be effective for 12-weeks' duration in puppies less than 6 months of age. **BRAVECTO Chews** are not effective against lone star ticks beyond 8 weeks of dosing. Fluralaner is a member of the isoxazoline class. This class has been associated with neurologic adverse reactions including tremors, ataxia, and seizures. Seizures have been reported in dogs receiving isoxazoline class drugs, even in dogs without a history of seizures. Use with caution in dogs with a history of seizures or neurologic disorders. Please see full prescribing information on page 4.

**SENTINEL<sup>®</sup> SPECTRUM<sup>®</sup> Chews** (milbemycin oxime/lufenuron/praziquantel). Dogs should be tested for heartworm prior to use. Mild hypersensitivity reactions have been noted in some dogs carrying a high number of circulating microfilariae. Treatment with fewer than 6 monthly doses after the last exposure to mosquitoes may not provide complete heartworm prevention. For complete product information refer to page 5.

**References:** 1. BRAVECTO<sup>®</sup> Chews [product label]. Madison, NJ: Merck Animal Health; 2019. 2. SENTINEL<sup>®</sup> SPECTRUM<sup>®</sup> Chews [product label]. Madison, NJ: Intervet Inc.; 2020.



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# BRAVECTO<sup>®</sup>

(fluralaner) Chews

Flavored chews for dogs.

## Caution:

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

## Description:

Each chew is formulated to provide a minimum dose of 11.4 mg/lb (25 mg/kg) body weight.

The chemical name of fluralaner is (±)-4-[5-(3,5-dichlorophenyl)-5-(trifluoromethyl)-4,5-dihydroisoxazol-3-yl]-2-methyl-N-[2-oxo-2-(2,2,2-trifluoroethylamino) ethyl]benzamide.

## Indications:

Bravecto kills adult fleas and is indicated for the treatment and prevention of flea infestations (*Ctenocephalides felis*), and the treatment and control of tick infestations [*Ixodes scapularis* (black-legged tick), *Dermacentor variabilis* (American dog tick), and *Rhipicephalus sanguineus* (brown dog tick)] for 12 weeks in dogs and puppies 6 months of age and older, and weighing 4.4 pounds or greater.

Bravecto is also indicated for the treatment and control of *Amblyomma americanum* (lone star tick) infestations for 8 weeks in dogs and puppies 6 months of age and older, and weighing 4.4 pounds or greater.

## Dosage and Administration:

Bravecto should be administered orally as a single dose every 12 weeks according to the **Dosage Schedule** below to provide a minimum dose of 11.4 mg/lb (25 mg/kg) body weight.

Bravecto may be administered every 8 weeks in case of potential exposure to *Amblyomma americanum* ticks (see **Effectiveness**).

Bravecto should be administered with food.

## Dosage Schedule

Body Weight Ranges (lb)	Fluralaner Content (mg)	Chews Administered
4.4 – 9.9	112.5	One
>9.9 – 22.0	250	One
>22.0 – 44.0	500	One
>44.0 – 88.0	1000	One
>88.0 – 123.0*	1400	One

\*Dogs over 123.0 lb should be administered the appropriate combination of chews

Treatment with Bravecto may begin at any time of the year and can continue year round without interruption.

## Contraindications:

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

## Warnings:

Not for human use. Keep this and all drugs out of the reach of children. Keep the product in the original packaging until use, in order to prevent children from getting direct access to the product. Do not eat, drink or smoke while handling the product. Wash hands thoroughly with soap and water immediately after use of the product.

Keep Bravecto in a secure location out of reach of dogs, cats, and other animals to prevent accidental ingestion or overdose.

## Precautions:

Fluralaner is a member of the isoxazoline class. This class has been associated with neurologic adverse reactions including tremors, ataxia, and seizures. Seizures have been reported in dogs receiving isoxazoline class drugs, even in dogs without a history of seizures. Use with caution in dogs with a history of seizures or neurologic disorders.

Bravecto has not been shown to be effective for 12-weeks duration in puppies less than 6 months of age. Bravecto is not effective against *Amblyomma americanum* ticks beyond 8 weeks after dosing (see **Effectiveness**).

## Adverse Reactions:

In a well-controlled U.S. field study, which included 294 dogs (224 dogs were administered Bravecto every 12 weeks and 70 dogs were administered an oral active control every 4 weeks and were provided with a tick collar); there were no serious adverse reactions. All potential adverse reactions were recorded in dogs treated with Bravecto over a 182-day period and in dogs treated with the active control over an 84-day period. The most frequently reported adverse reaction in dogs in the Bravecto and active control groups was vomiting.

## Percentage of Dogs with Adverse Reactions in the Field Study

Adverse Reaction (AR)	Bravecto Group: Percentage of Dogs with the AR During the 182-Day Study (n=224 dogs)	Active Control Group: Percentage of Dogs with the AR During the 84-Day Study (n=70 dogs)
Vomiting	7.1	14.3
Decreased Appetite	6.7	0.0
Diarrhea	4.9	2.9
Lethargy	5.4	7.1
Polydipsia	1.8	4.3
Flatulence	1.3	0.0

In a well-controlled laboratory dose confirmation study, one dog developed edema and hyperemia of the upper lips within one hour of receiving Bravecto. The edema improved progressively through the day and had resolved without medical intervention by the next morning.

## Post Approval Experience (2019):

The following adverse events are based on post-approval adverse drug experience reporting. Not all adverse events 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 reported for dogs are listed in decreasing order of reporting frequency for fluralaner:

Vomiting, lethargy, diarrhea (with and without blood), anorexia, pruritis, polydipsia, seizure, allergic reactions (including hives, swelling, erythema), dermatitis (including crusts, pustules, rash), tremors and ataxia.

## Contact Information:

For a copy of the Safety Data Sheet (SDS) or to report suspected adverse drug events, contact Merck Animal Health at 1-800-224-5318. Additional information can be found at [www.bravecto.com](http://www.bravecto.com).

For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or <http://www.fda.gov/AnimalVeterinary/SafetyHealth>.

## Clinical Pharmacology:

Peak fluralaner concentrations are achieved between 2 hours and 3 days following oral administration, and the elimination half-life ranges between 9.3 to 16.2 days. Quantifiable drug concentrations can be measured (lower than necessary for effectiveness) through 112 days. Due to reduced drug bioavailability in the fasted state, fluralaner should be administered with food.

## Mode of Action:

Fluralaner is for systemic use and belongs to the class of isoxazoline-substituted benzamide derivatives. Fluralaner is an inhibitor of the arthropod nervous system. The mode of action of fluralaner is the antagonism of the ligand-gated chloride channels (gamma-aminobutyric acid (GABA)-receptor and glutamate-receptor).

## Effectiveness:

Bravecto began to kill fleas within two hours after administration in a well-controlled laboratory study. In a European laboratory study, Bravecto killed fleas and *Ixodes ricinus* ticks and reduced the numbers of live fleas and *Ixodes ricinus* ticks on dogs by > 98% within 12 hours for 12 weeks. In a well-controlled laboratory study, Bravecto demonstrated 100% effectiveness against adult fleas 48 hours post-infestation for 12 weeks. In well-controlled laboratory studies, Bravecto demonstrated ≥ 93% effectiveness against *Dermacentor variabilis*, *Ixodes scapularis* and *Rhipicephalus sanguineus* ticks 48 hours post-infestation for 12 weeks. Bravecto demonstrated ≥90% effectiveness against *Amblyomma americanum* 72 hours post-infestation for 8 weeks, but failed to demonstrate ≥90% effectiveness beyond 8 weeks.

In a well-controlled U.S. field study, a single dose of Bravecto reduced fleas by ≥ 99.7% for 12 weeks. Dogs with signs of flea allergy dermatitis showed improvement in erythema, alopecia, papules, scales, crusts, and excoriation as a direct result of eliminating flea infestations.

**Palatability:** In a well-controlled U.S. field study, which included 559 doses administered to 224 dogs, 80.7% of dogs voluntarily consumed Bravecto within 5 minutes, an additional 12.5% voluntarily consumed Bravecto within 5 minutes when offered with food, and 6.8% refused the dose or required forced administration.

## Animal Safety:

**Margin of Safety Study:** In a margin of safety study, Bravecto was administered orally to 8- to 9-week-old puppies at 1, 3, and 5X the maximum label dose of 56 mg/kg at three, 8-week intervals. The dogs in the control group (0X) were untreated.

There were no clinically-relevant, treatment-related effects on physical examinations, body weights, food consumption, clinical pathology (hematology, clinical chemistries, coagulation tests, and urinalysis), gross pathology, histopathology, or organ weights. Diarrhea, mucoid and bloody feces were the most common observations in this study, occurring at a similar incidence in the treated and control groups. Five of the twelve treated dogs that experienced one or more of these signs did so within 6 hours of the first dosing. One dog in the 3X treatment group was observed to be dull, inappetent, with evidence of bloody diarrhea, vomiting, and weight loss beginning five days after the first treatment. One dog in the 1X treatment group vomited food 4 hours following the first treatment.

**Reproductive Safety Study:** Bravecto was administered orally to intact, reproductively- sound male and female Beagles at a dose of up to 168 mg/kg (equivalent to 3X the maximum label dose) on three to four occasions at 8-week intervals. The dogs in the control group (0X) were untreated.

There were no clinically-relevant, treatment-related effects on the body weights, food consumption, reproductive performance, semen analysis, litter data, gross necropsy (adult dogs) or histopathology findings (adult dogs and puppies). One adult 3X treated dog suffered a seizure during the course of the study (46 days after the third treatment). Abnormal salivation was observed on 17 occasions: in six treated dogs (11 occasions) after dosing and four control dogs (6 occasions).

The following abnormalities were noted in 7 pups from 2 of the 10 dams in only the treated group during gross necropsy examination: limb deformity (4 pups), enlarged heart (2 pups), enlarged spleen (3 pups), and cleft palate (2 pups). During veterinary examination at Week 7, two pups from the control group had inguinal testicles, and two and four pups from the treated group had inguinal and cryptorchid testicles, respectively. No undescended testicles were observed at the time of necropsy (days 50 to 71).

*In a well-controlled field study* Bravecto was used concurrently with other medications, such as vaccines, anthelmintics, antibiotics, and steroids. No adverse reactions were observed from the concurrent use of Bravecto with other medications.

## Storage Information:

Do not store above 86°F (30°C).

## How Supplied:

Bravecto is available in five strengths (112.5, 250, 500, 1000, and 1400 mg fluralaner per chew). Each chew is packaged individually into aluminum foil blister packs sealed with a peelable paper backed foil lid stock. Product may be packaged in 1, 2, or 4 chews per package.

Approved by FDA under NADA # 141-426

Distributed by:  
Intervet Inc (d/b/a Merck Animal Health)  
Madison, NJ 07940

Fluralaner (active ingred.) Made in Japan.  
Formulated in Austria

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Rev. 04/19





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

**Description:** SENTINEL® SPECTRUM® Chews are available in four strengths in color-coded packages for oral administration to dogs and puppies according to their weight. Each chewable flavored tablet is formulated to provide a minimum of 0.23 mg/pound (0.5mg/kg) of milbemycin oxime, 4.55 mg/pound (10mg/kg) of lufenuron, and 2.28 mg/pound (5mg/kg) of praziquantel.

Milbemycin oxime consists of the oxime derivatives of 5-didehydromilbemycins in the ratio of approximately 80% A<sub>1</sub> (C<sub>28</sub>H<sub>42</sub>NO<sub>7</sub>, MW 555.71) and 20% A<sub>2</sub> (C<sub>31</sub>H<sub>46</sub>NO<sub>7</sub>, MW 541.68). Milbemycin oxime is classified as a macrocyclic anthelmintic.

Lufenuron is a benzoylphenylurea derivative with the following chemical composition: N-[2,5-dichloro-4-(1,1,2,3,3,3-hexafluoropropoxy)-phenyl]-aminocarbonyl-2,6-difluorobenzamide (C<sub>17</sub>H<sub>10</sub>Cl<sub>2</sub>F<sub>9</sub>N<sub>2</sub>O<sub>3</sub>, MW 511.15). Benzoylphenylurea compounds, including lufenuron, are classified as insect development inhibitors (IDIs).

Praziquantel is an isouquinoline anthelmintic with the chemical name 2-(Cyclohexylcarbonyl)-1,2,3,6,7,11b-hexahydro-4H-pyrazino[2,1-a]isoquinolin-4-one.

**Indications:** SENTINEL SPECTRUM Chews are indicated for the prevention of heartworm disease caused by *Dirofilaria immitis*, for the prevention and control of flea populations (*Ctenocephalides felis*); and for the treatment and control of adult roundworm (*Toxocara canis*, *Toxascaris leonina*), adult hookworm (*Ancylostoma caninum*), adult whipworm (*Trichuris vulpis*), and adult tapeworm (*Dipylidium caninum*, *Taenia pisiformis*, *Echinococcus multilocularis* and *Echinococcus granulosus*) infections in dogs and puppies two pounds of body weight or greater and six weeks of age and older.

**Dosage and Administration:** SENTINEL SPECTRUM Chews should be administered orally, once every month, at the minimum dosage of 0.23 mg/lb (0.5 mg/kg) milbemycin oxime, 4.55 mg/lb (10 mg/kg) lufenuron, and 2.28 mg/lb (5 mg/kg) praziquantel. For heartworm prevention, give once monthly for at least 6 months after exposure to mosquitoes (see **EFFECTIVENESS**).

Dosage Schedule				
Body Weight	Milbemycin Oxime per chewable	Lufenuron per chewable	Praziquantel per chewable	Number of chewables
2 to 8 lbs.	2.3 mg	46 mg	22.8 mg	One
8.1 to 25 lbs.	5.75 mg	115 mg	57 mg	One
25.1 to 50 lbs.	11.5 mg	230 mg	114 mg	One
50.1 to 100 lbs.	23.0 mg	460 mg	228 mg	One
Over 100 lbs.	Administer the appropriate combination of chewables			

To ensure adequate absorption, always administer SENTINEL SPECTRUM Chews to dogs immediately after or in conjunction with a normal meal.

SENTINEL SPECTRUM Chews may be offered to the dog by hand or added to a small amount of dog food. The chewables should be administered in a manner that encourages the dog to chew, rather than to swallow without chewing. Chewables may be broken into pieces and fed to dogs that normally swallow treats whole. Care should be taken that the dog consumes the complete dose, and treated animals should be observed a few minutes after administration to ensure that no part of the dose is lost or rejected. If it is suspected that any of the dose has been lost, redosing is recommended.

**Heartworm Prevention:** SENTINEL SPECTRUM Chews should be administered at monthly intervals beginning within one month of the dog's first seasonal exposure to mosquitoes and continuing until at least 6 months after the dog's last seasonal exposure (see **EFFECTIVENESS**). SENTINEL SPECTRUM Chews may be administered year-round without interruption. When switching from another heartworm preventative product to SENTINEL SPECTRUM Chews, the first dose of SENTINEL SPECTRUM Chews should be given within a month of the last dose of the former product.

**Flea Treatment and Prevention:** Treatment with SENTINEL SPECTRUM Chews may begin at any time of the year, preferably starting one month before fleas become active and continuing monthly through the end of flea season. In areas where fleas are common year-round, monthly treatment with SENTINEL SPECTRUM Chews 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 protection product, as necessary.

**Intestinal Nematode and Cestode Treatment and Control:** Dogs may be exposed to and can become infected with roundworms, whipworms, hookworms, and tapeworms throughout the year, regardless of season or climate. Clients should be advised of appropriate measures to prevent reinfection of their dog with intestinal parasites. Because the prepatent period for *E. multilocularis* may be as short as 26 days, dogs treated at the labeled monthly intervals may become reinfected and shed eggs between treatments.

**Contraindications:** There are no known contraindications to the use of SENTINEL SPECTRUM Chews.

**Warnings:** Not for use in humans. Keep this and all drugs out of the reach of children.

**Precautions:** Treatment with fewer than 6 monthly doses after the last exposure to mosquitoes may not provide complete heartworm prevention (see **EFFECTIVENESS**).

Prior to administration of SENTINEL SPECTRUM Chews, dogs should be tested for existing heartworm infections. At the discretion of the veterinarian, infected dogs should be treated to remove adult heartworms. SENTINEL SPECTRUM Chews are not effective against adult *D. immitis*.

Mild, transient hypersensitivity reactions, such as labored breathing, vomiting, hypersalivation, and lethargy have been noted in some dogs treated with milbemycin oxime carrying a high number of circulating microfilariae. These reactions are presumably caused by release of protein from dead or dying microfilariae.

Do not use in puppies less than six weeks of age.

Do not use in dogs or puppies less than two pounds of body weight.

The safety of SENTINEL® SPECTRUM® Chews has not been evaluated in dogs used for breeding or in lactating females. Studies have been performed with milbemycin oxime and lufenuron alone (see **ANIMAL SAFETY**).

**Adverse Reactions:** The following adverse reactions have been reported in dogs after administration of milbemycin oxime, lufenuron, or praziquantel: vomiting, depression/lethargy, pruritus, urticaria, diarrhea, anorexia, skin congestion, ataxia, convulsions, salivation, and weakness.

To report suspected adverse drug events, contact Merck Animal Health at 1-800-224-5381. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or <http://www.fda.gov/reportanimalae>.

For technical assistance, call Merck Animal Health at 1-800-224-5318.

**Information for Owner or Person Treating Animal:** *Echinococcus multilocularis* and *Echinococcus granulosus* are tapeworms found in wild canids and domestic dogs. *E. multilocularis* and *E. granulosus* can

infect humans and cause serious disease (alveolar hydatid disease and hydatid disease, respectively). Owners of dogs living in areas where *E. multilocularis* or *E. granulosus* are endemic should be instructed on how to minimize their risk of exposure to these parasites, as well as their dog's risk of exposure. Although SENTINEL SPECTRUM Chews were 100% effective in laboratory studies in dogs against *E. multilocularis* and *E. granulosus*, no studies have been conducted to show that the use of this product will decrease the incidence of alveolar hydatid disease or hydatid disease in humans. Because the prepatent period for *E. multilocularis* may be as short as 26 days, dogs treated at the labeled monthly intervals may become reinfected and shed eggs between treatments.

#### Effectiveness

**Heartworm Prevention:** In a well-controlled laboratory study, SENTINEL SPECTRUM Chews (milbemycin oxime, lufenuron, praziquantel) were 100% effective against induced heartworm infections when administered once monthly for 6 consecutive months. In well-controlled laboratory studies, neither one dose nor two consecutive doses of SENTINEL SPECTRUM Chews provided 100% effectiveness against induced heartworm infections.

**Intestinal Nematodes and Cestodes Treatment and Control:** Elimination of the adult stage of hookworm (*Ancylostoma caninum*), roundworm (*Toxocara canis*, *Toxascaris leonina*), whipworm (*Trichuris vulpis*) and tapeworm (*Dipylidium caninum*, *Echinococcus multilocularis*, *Echinococcus granulosus*, *Taenia pisiformis*) infections in dogs was demonstrated in well-controlled laboratory studies.

**Flea Prevention and Control:** In well-controlled studies, SENTINEL SPECTRUM Chews were effective in preventing flea eggs from hatching, thus providing control of the development of flea populations (*Ctenocephalides felis*).

**Palatability:** In a field study of 117 dogs offered SENTINEL SPECTRUM Chews, 113 dogs (96.6%) accepted the product when offered from the hand as if a treat, 2 dogs (1.7%) accepted it from the bowl with food, 1 dog (0.9%) accepted it when it was placed in the dog's mouth, and 1 dog (0.9%) refused it.

**Animal Safety:** In a margin of safety study, 40 ten-week-old puppies (10 per group) were administered either a sham dose (0X) or doses of 1, 3, or 5X the maximum exposure dose of SENTINEL SPECTRUM Chews once every two weeks for a total of seven treatments. Transient ataxia, lethargy, tremors, and salivation were seen in the 3X and 5X groups following each of the seven doses. Lethargy and ataxia were occasionally reported in sham-dosed (0X) and 1X dogs. Tremors were observed twice post-treatment in the 1X treatment group. Vomiting was seen in all treatment groups but at a higher incidence in the 3X and 5X groups. At the 5X dose, shallow breathing was noted in two dogs and one dog was unable to stand following two different doses. All clinical signs resolved within 24 hours.

In a second margin of safety study, 64 six-week-old puppies (16 per group) were dosed with either a sham (0X) or 1, 3, or 5X the maximum exposure dose of SENTINEL SPECTRUM Chews on days 1, 15, 29, and 43. A dose dependent increase in ataxia, decreased activity, tremors, and salivation was seen within 24 hours of treatment. Splayed hind limbs were observed once in one dog in the 5X treatment group. Vomiting was observed in the 5X treatment group.

For SENTINEL SPECTRUM Chews, the maximum exposure based on product dosing is 2.5 mg/kg for milbemycin oxime, 50.7 mg/kg for lufenuron and 25.1 mg/kg for praziquantel, which is higher than the minimum effective dose used in the safety studies for milbemycin oxime and lufenuron (see below).

**Milbemycin Oxime:** Two studies were conducted in heartworm-infected dogs treated with milbemycin oxime. Mild, transient hypersensitivity reactions were observed in dogs with high microfilariae counts (see **PRECAUTIONS**).

Safety studies in pregnant dogs demonstrated that doses of 0.6X the maximum exposure dose of SENTINEL SPECTRUM Chews (1.5 mg/kg of milbemycin oxime), administered daily from mating through weaning, resulted in measurable concentrations of milbemycin oxime in milk. Puppies nursing these females demonstrated milbemycin oxime-related effects (depression, decreased activity, diarrhea, dehydration, nasal discharge). A subsequent study, which evaluated the daily administration of 0.6X the maximum exposure dose of SENTINEL SPECTRUM Chews, from mating until one week before weaning, demonstrated no effects on the pregnant females or their litters. A study, in which pregnant females were dosed once, at 0.6X maximum exposure dose of SENTINEL SPECTRUM Chews before, on the day of, or shortly after whelping, resulted in no effects on the puppies.

Some nursing puppies, at 2, 4, and 6 weeks of age, administered oral doses of 9.6 mg/kg milbemycin oxime (3.8X the maximum exposure dose of SENTINEL SPECTRUM Chews) exhibited tremors, vocalization, and ataxia. These effects were all transient and puppies returned to normal within 24 to 48 hours. No effects were observed in puppies administered 0.5 mg/kg milbemycin oxime (minimum label dose).

A rising-dose safety study conducted in rough-coated Collies resulted in ataxia, pyrexia, and periodic recumbency in one of fourteen dogs administered milbemycin oxime at 12.5 mg/kg (5X the maximum exposure dose of SENTINEL SPECTRUM Chews). Prior to receiving the 12.5 mg/kg dose on day 56 of the study, all animals had undergone a dosing regimen consisting of 2.5 mg/kg milbemycin oxime on day 0, followed by 5.0 mg/kg on day 14, and 10.0 mg/kg on day 32. No adverse reactions were observed in any of the Collies treated with doses less than 12.5 mg/kg.

**Lufenuron:** In a ten-month study, doses of lufenuron up to 2X the maximum exposure dose of SENTINEL SPECTRUM Chews (10 mg/kg) caused no overt toxicity. A single dose of 200 mg/kg had no marked effect on adult dogs, but caused decreased activity and reduced appetite in eight-week-old puppies. Lufenuron tablets were evaluated with concurrent administration of flea adulticides containing carbaryl, permethrin, chlorpyrifos, and cythothate. No toxicity resulted from these combinations. Lufenuron tablets did not cause cholinesterase inhibition nor did they enhance cholinesterase inhibition caused by exposure to organophosphates.

Two laboratory and two well-controlled field studies were conducted to evaluate reproductive safety of lufenuron tablets in breeding dogs. In one of the laboratory studies, in which lufenuron was administered to Beagle dogs as three divided doses, equivalent to 17.8X the maximum exposure dose of SENTINEL SPECTRUM Chews (10 mg/kg), the ratio of gravid females to females mated was 8/8 or 100% in the control group and 6/9 or 67% in the lufenuron-treated group. The mean number of pups per litter was two animals higher in the lufenuron versus control groups and mean birth weights of pups from treated females in this study was lower than control groups. These pups grew at a similar rate to the control pups. The incidence of nasal discharge, pulmonary congestion, diarrhea/dehydration, and sluggishness was higher in the lufenuron-treated pup group than in the control pup group. The incidence of these signs was transient and decreasing by the end of lactation.

Results from three additional reproductive safety studies, one laboratory and two field studies, evaluating eleven breeds of dogs, did not demonstrate any adverse findings for the reproductive parameters measured, including fertility, pup birth weights, and pup clinical signs, after administration of lufenuron up to 1X the maximum exposure dose of SENTINEL SPECTRUM Chews. The average milk: blood concentration ratio was approximately 60 (i.e. 60X higher drug concentrations in the milk compared to drug levels in the blood of treated females). Nursing puppies averaged 8-9 times higher blood concentrations of lufenuron compared to their dams.

**Storage Information:** Store in a dry place at controlled room temperature, between 59° and 77°F (15-25°C).

**How Supplied:** SENTINEL SPECTRUM Chews are available in four strengths, formulated according to the weight of the dog. Each strength is available in color-coded packages of six chewable tablets each.

Manufactured for: Intervet Inc (d/b/a Merck Animal Health)  
2 Giralda Farms  
Madison, NJ 07940

Approved by FDA under NADA # 141-333

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## Acupuncture and the 2022 AAHA Pain Management Guidelines for Dogs and Cats

Dear Editor,

We are writing to call your attention to the 2022 AAHA *Pain Management Guidelines for Dogs and Cats* by Gruen et al. and, particularly, the section on acupuncture.<sup>1</sup> In our opinion, the authors downplay the value of acupuncture as a safe and effective pain medicine practice. In fact, one can find far more evidential support for acupuncture than for many of the medications, surgical procedures, and nonpharmacologic modalities listed as preferred options. And yet, the new guidelines contradict the previous version that advocated for acupuncture unequivocally.<sup>2</sup> In 2015, Epstein et al. wrote, "Acupuncture offers a compelling and safe method for pain management in veterinary patients and should be strongly considered as a part of multimodal pain management plans." By 2022, Gruen et al. reverse course, stating, "There is not an abundance of evidence-guided studies supporting the use of acupuncture" and "Further work is needed to fully define the role of acupuncture in pain control." They refer to decades-old publications instead of citing recent veterinary papers and reviews.<sup>3,4,5,6</sup>

Furthermore, the human scientific medical literature contains thousands of systematic reviews and "a large number" are "overall methodologically rigorous," according to a 2022 publication in the *British Medical Journal*.<sup>7</sup> These reviews reveal a moderate or large effect for acupuncture in the treatment of neck and shoulder pain, myofascial pain, fibromyalgia-related pain, and nonspecific low back pain, among other clinical problems.

With its cost-effectiveness and clinically reliable outcomes, acupuncture is "successfully and meaningfully utilized by the Veterans Administration and various

branches of the US Military."<sup>8</sup> The American College of Physicians recommends it as first-line treatment for low back pain instead of opioids.<sup>9</sup> Oncology centers across the globe offer acupuncture, as it is "significantly associated with reduced cancer pain and decreased use of analgesics."<sup>10,11</sup>

We urge Gruen et al. to revise the 2022 guidelines with results from the latest acupuncture research. Veterinary practitioners deserve current information from which to develop their own pain management strategies. AAHA has already updated the 2022 guidelines once, following our identification of omissions in Figure 3. Here, we reiterate our concerns about the section on acupuncture and respectfully request that the authors correct that portion of the guidelines as well.

Cordially yours,

Narda G. Robinson, DO, DVM, MS, FAAMA  
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Lori Siracuse-Parker, VMD

Please see next page for response from  
the **2022 AAHA Pain Management  
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# Speak Out

Continued from previous page

## Response from AAHA

Dear Dr. Robinson et al.,

Thank you for your interest in the *2022 AAHA Pain Management Guidelines for Dogs and Cats*. The authors collectively worked to provide a more practical approach to pain management, detailing tools to assist with the recognition of pain and providing a tiered (ranked) approach to treatment recommendations. While ranking of pain management options has not been addressed in the veterinary literature, except for a few systematic reviews, the authors felt this was an important step to take in these guidelines to improve the practical application.

As authors of the guidelines, we believe that the opening statement regarding acupuncture's use in pain management in veterinary species could be interpreted as dismissive, especially given its noticeable absence from the algorithms; this was not our intent. A copy-paste error during publication duplicated our designated nondrug "tier 1" options in the nondrug "tier 2" section, making it appear that physical modalities, including acupuncture, were not recommended at this high level. This error has been corrected. (See [aaha.org/globalassets/02-guidelines/2022-pain-management/resources/painmgmtgl\\_figure-3.pdf](https://aaha.org/globalassets/02-guidelines/2022-pain-management/resources/painmgmtgl_figure-3.pdf)) Our statement, that "there is not an abundance of evidence-guided studies supporting the use of acupuncture," remains true with regard to acupuncture in veterinary medicine, but this statement was not qualified by that condition and could be applied to several other sections in the guidelines. Members of the task force both use and recommend acupuncture as part of a multimodal pain management plan, and the original text and corrected Figure 3 support this approach.

The term "acupuncture" in veterinary medicine is not clearly defined, with the term encompassing the use of fine needles, electroacupuncture, laser acupuncture, acupressure, injection acupuncture, and moxibustion

acupuncture. We stand by our statement that "further work is needed to fully define the role of acupuncture in pain control," similar to the conclusions of the most comprehensive review on acupuncture efficacy in companion animals since 2015.<sup>1</sup> However, the authors did not intend for this statement to deter veterinarians from including acupuncture as part of a multimodal treatment plan.

We certainly acknowledge the concerns raised by Dr. Robinson and colleagues and encourage high-quality, clinically relevant, randomized controlled trials of adequate power—a sentiment also expressed in reviews of acupuncture in the human literature.<sup>2</sup>

Regards,

### **The 2022 AAHA Pain Management Guidelines for Dogs and Cats Task Force:**

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# from the editor's desk



## ARE YOU FINDING IT HARD TO HIRE VETERINARIANS AT YOUR PRACTICE?

If so, you are not alone. There seems to be a national shortage of everything these days from microchips to baby formula, and now you can add veterinarians to that list. With demand for services up and desire to stay in the profession down, some estimates predict a shortage of 15,000 vets by 2030. (That number is based on an analysis from Mars Veterinary Health.)

So, what do you do? For starters, have a look at this month's cover story for tips and ideas how to navigate this shortage and how to get a leg up on the competition. Of course, part of the problem is in the mental health space and relates to burnout, stress, and other factors. Fortunately, we have an article in this issue on how to approach that subject as well.

Have you subscribed to *Central Line: The AAHA Podcast* yet? This month in *Trends* we feature an interview with Patty Casebolt, chief operating officer at the Medical Eye Center. Yes, that is human medicine, but she has some great insights that are very relevant to vet med.

## THE AAHA COMMUNITY

Have you posted in AAHA Community yet? Thousands of your peers are already on AAHA Community. Come and be a part of the new platform designed to connect AAHA members online. Try it out today at [community.aaaha.org](http://community.aaaha.org). Now you can access the AAHA Community on your mobile device as well. Just search for Tradewing in the Google Play Store or the App Store. Have a question about *Trends*? Just @ me and I will reply!

## NOMINATE A STAR EMPLOYEE AND THEY CAN WIN \$500!

What better way to boost morale than to nominate one of your employees for the *Trends* Employee of the Month? Thanks to generous sponsorship from CareCredit, the winner of our monthly contest wins a \$500 gift card to a giant online retailer named after a rainforest. Nominations must be submitted by a staff member at an AAHA-accredited practice, or an AAHA affiliate member. Enter your star employee online, just head over to [aaaha.org/EOTM](http://aaaha.org/EOTM).

## COMING NEXT MONTH

The Technician Issue! This single-themed issue will feature articles about techs and include articles from tech superstars like Stephen Cital, RVT, SRA, RLAT, CVPP, VTS- LAM (Res. Anesthesia). Of course, we will also have the results from our famous Techs@Work photo contest!

As always, let me know what you think at [trends@aaaha.org](mailto:trends@aaaha.org).

—Ben Williams, Editor

# View from the Board

## Healthy Mind, Healthy Body

*“Be kind, for everyone you meet is fighting a hard battle.”—Ian Maclaren*

Improving and supporting mental health in veterinary medicine is a huge, nebulous topic with no simple answers. Many of us either have firsthand knowledge of mental health challenges or know someone who struggles. Our profession is both blessed and cursed with tasks that can either help or hurt our mental health. The entire team of the hospital faces these unique challenges every single day. We are all affected by compassion fatigue and other mental health challenges, so we need to be sure to include the entire team in the discussion.

Mental health has come a long way in society over the past few decades, and while we in veterinary medicine are benefitting from these advances, we still have a long way to go. Whether it is reducing the stigma that surrounds mental health disorders and allowing more people to seek help or having better management strategies, we have made great strides since I started in this profession. We now know that we can do better than to expect people to simply “tough it out.” I don’t have any more insight than anyone else; I just know that we can continue to improve how we handle this sensitive topic and support each other along the way.

This month’s *Trends* also includes the topic of nutrition. While the article deals with nutrition for animals, our own nutritional needs should not be ignored. I believe our mental health can directly affect our physical health and vice versa. The better we eat and focus on feeding our gut with the “good stuff,” the healthier we can feel. The better we feel, the better chance we have of helping our mental state. The better our mental state, the better we take care of our physical self. It is a circle of care that can lead to better health, both mental and physical.

Hippocrates is credited with saying: “Let food be thy medicine and let medicine be thy food.” Not bad for someone born 2,400 years ago. We know that the first

medications came from nature, but today this idea goes beyond plants being medicine and looks into the microbiome and how that affects our day-to-day health. I am by no means an expert on this topic, but I am intrigued by some of the research being done and how important our nutrition is to both our mental and physical health. I try to do a better job of eating what I know I am supposed to eat, such as fresh foods in smaller portions, albeit with varying success depending on the day. Knowing and doing are very different ends of a continuum. Like most things in life, taking that first step toward better health will see us becoming an improved version of ourselves. We must give ourselves the grace to not be perfect. Attempting to do better is healthy, attempting to be perfect is not. We all need to remember that every journey starts with the same thing. A single step.

Scott Driever, DVM, is a director on the AAHA board. Driver is a Houston native who received his doctor of veterinary medicine degree from Texas A&M University in 2000. Upon graduation, he moved back to Houston and began his veterinary career at Animal Hospital Highway 6 in Sugar Land, Texas, where he became a partner in 2005. In 2015, he purchased the rest of the practice and became a sole owner. His wife, Susan, is the office manager at the practice.







## Community

Log in at [community.aaha.org](https://community.aaha.org) for Hot Topic Tuesdays!

### HOT TOPIC: De-escalation and active listening training

#### AAHA Community question:

Does anyone offer de-escalation and active listening training for their CSRs and other team members who face frustrated clients? Would you be interested in more resources about this topic?

#### Responses from AAHA Community members:

We offer this training and have great resources to share ..... 5%

**We don't offer this training but would love access to resources to do so ..... 82%**

We offer this training but could use some additional help ..... 14%

We don't see a need for this training right now ..... 0%

### This month in AAHA's Publicity Toolbox . . .

Here are the downloadable social media images available for AAHA-accredited members at [aaha.org/publicity](https://aaha.org/publicity) this month:

**Animal Pain Awareness Month**

**National Happy Healthy Cat Month**

**National Service Dog Month**

**National Disaster Preparedness Month**

**Deaf Dog Awareness Week** September 18–24

**World Rabies Day** September 28



### Connecting at Connexity!

We look forward to seeing you in Nashville, Tennessee, September 14–17 to celebrate these connections!

Look for limited-edition AAHA Community merchandise at the conference and in the AAHA Store at [aaha.org/store](https://aaha.org/store).



# Research Recap

Through surveys, focus groups, interviews, and other channels, we'll be asking for your input as members of the veterinary community. Learn how you can contribute at [aaha.org/research](https://aaha.org/research).

## SPOTLIGHT ON **COMMUNITY + CONNECTION**

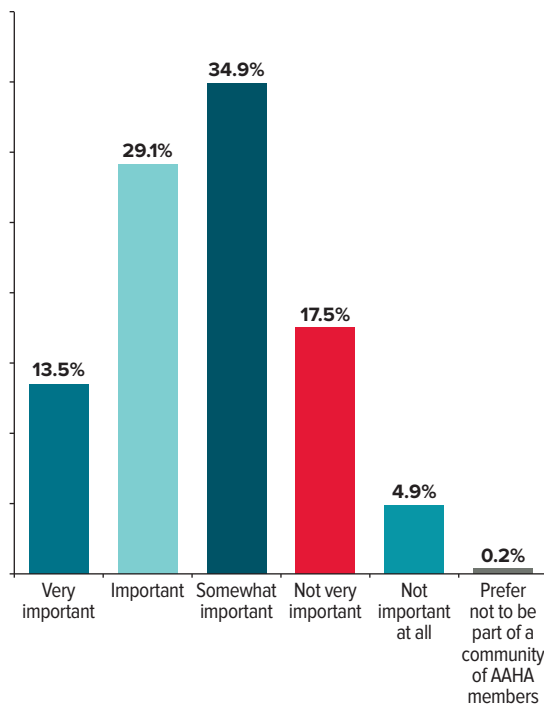
### From the AAHA SENSE OF COMMUNITY SURVEY

**This was a one-time survey that asked members about how connected they feel to other AAHA members and to the association as a whole.**

A decisive majority of AAHA members (over 77%) feel that a sense of community with other members is important.



**How important is it for you to feel a sense of community with other AAHA members?**



**When asked what they like most about being a part of AAHA, the most common responses from members included:**

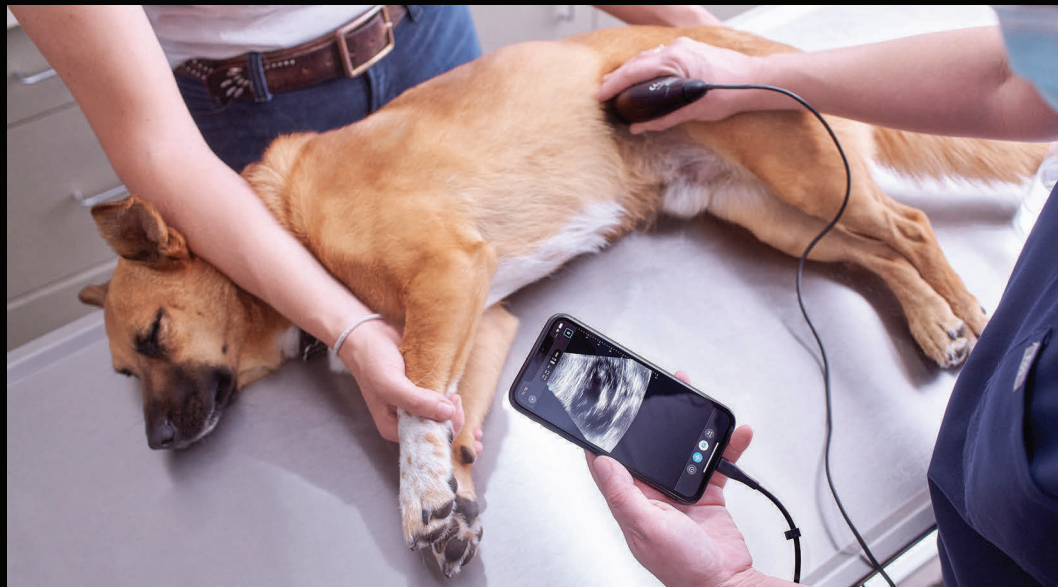
- Being a part of AAHA makes me feel good.
- AAHA members and I value the same things.
- People in the AAHA community have similar needs, priorities, and goals.
- I can trust people in this community.
- I expect to be part of this community for a long time.
- I feel hopeful about the future of the AAHA community.

Look for more AAHA Research highlights next month. Questions or feedback? Email us at [research@aaha.org](mailto:research@aaha.org).

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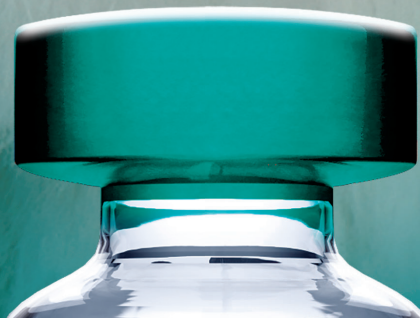
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## Adoption Surge Leads to Continued Growth in Pet Insurance Sector

The North American Pet Health Insurance Association (NAPHIA) recently published its 2022 State of the Industry Report. It states a 30.5% increase in premiums in 2021 as compared with 2020, totaling more than 4.41 million insured pets across North America. That figure is a 27.7% increase from the previous year.

“The societal and behavioral changes we are experiencing around our relationships with pets have contributed greatly to an unprecedented period of growth for our industry,” NAPHIA’s executive director Kristen Lynch said in a press release. “A record number of household pet adoptions and purchases during the pandemic, combined with continued work-from-home arrangements and pet owners’ desire to mitigate unexpected veterinary costs, have contributed to even higher growth rates in the past several years.”

The 2021 results show total premium volume in the U.S. amounted to \$2.6 billion, NAPHIA reports. To read the report, visit [naphia.org](https://naphia.org).

### QUOTE OF THE MONTH

*“It’s not the strongest species that survive, nor the most intelligent, but the most responsive to change.”* —Charles Darwin

# notebook

## Harbor Seal Aided by Noninvasive Kidney Stone Treatment

When Hermes, a 23-year-old harbor seal at the Vancouver Aquarium in British Columbia, exhibited signs of abdominal pain, aquarium staff diagnosed him with kidney stones on both sides. Because of the unique anatomy of seal kidneys, stones cannot usually be removed using standard endoscopic techniques.

Vancouver Aquarium veterinarians worked with urologists from Vancouver General Hospital to perform the procedure, which involved brand-new noninvasive technology that fragments stones by creating standing stress waves within the stones. The device used for the burst wave lithotripsy, a SonoMotion Break Wave system, is being studied in clinical trials in human patients. The device uses ultrasound imaging to guide delivery of the ultrasound pulses.

“We were pleased to see that the technology successfully broke up several stones in the left kidney, which was clearly evident in real time,” said Martin Haulena, DVM, DACZM. “Hermes has recovered well from the procedure, and a follow-up CT exam will help guide further treatment.”

Hermes, a 23-year-old harbor seal from the Vancouver Aquarium, underwent a noninvasive treatment that used ultrasound pulses to fragment many of his kidney stones. The technology is in development in human and veterinary medicine.



## American Association of Veterinary Medical Colleges Receives \$1.3M Grant

The American Association of Veterinary Medical Colleges (AAVMC) received a \$1.3 million grant awarded by the Stanton Foundation to support the AAVMC Spectrum of Care (SOC) initiative.

The AAVMC reports that the SOC initiative aims to address the growing challenge of affordability of veterinary care by providing a continuum of care options that are rooted in evidence-based medicine and responsive to client circumstances. The purpose of the initiative is to provide the infrastructure and support for a unified and collaborative approach across veterinary colleges that brings SOC pedagogy to veterinary education.

The Stanton Foundation has supported the AAVMC SOC since the initiative's inception in 2021. This new grant will support work over the next two years to develop an educational model including the competency outcomes, assessment strategies, and learning experiences that will prepare graduates to practice with competence and confidence across the spectrum of care.

"This funding will help us establish an evidence-based pedagogical approach to better prepare graduates for practice, meet the needs of a diverse clientele, and provide high-quality care to more patients. We believe the result of this work will be transformational to the profession and help address the growing challenge of affordability of veterinary care," said Julie Noyes, executive director of the AAVMC Spectrum of Care initiative.

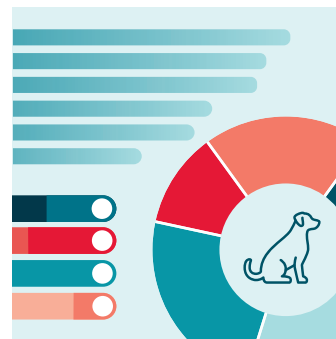
## DVM Student Enrollment on the Rise

According to the American Association of Veterinary Medical Colleges' (AAVMC) Annual Data Report (ADR), total enrollment in US colleges of veterinary medicine rose 4.7% over last year.

Other highlights from this year's ADR include:

- The number of students from underrepresented racial and ethnic groups is higher than ever at 23.2%.
- The percentage of men enrolled dropped a percentage point from the previous year to 17.3%.
- 3,460 Americans are studying veterinary medicine outside of the U.S. this academic year.
- Debt levels for indebted graduates stayed level in 2021.
- On average, tuition made up 16.4% of college revenue, while instruction, academic, and student support made up nearly a quarter of college expenditures.

To access the report, go to [aavmc.org/about-aavmc/public-data](https://aavmc.org/about-aavmc/public-data).



## Canine Cancer Registry

Take C.H.A.R.G.E. (Canine Health and Registry Exchange) is a national canine cancer registry and cancer care index. The registry reports that it provides the veterinary community and canine pet owners with incidence and prevalence data to guide canine cancer diagnosis and treatment decisions and that it is intended to help improve canine cancer care and build a community of hope for dog lovers.

Take C.H.A.R.G.E. begins with a review of deidentified and anonymous canine patient records provided by veterinary clinics that join the registry and by pet owners who upload their dog's medical records. The group reports that all research and academia-related activities are deidentified and anonymized. The registry also includes a nationwide Gallup survey of dog owners addressing their experience with canine cancer. For more information, visit [takechargeregistry.com](https://takechargeregistry.com).

## “Seek and Destroy” Cancer Trial Explores Nonsurgical Therapies

A first-of-its-kind nonsurgical cancer therapy is being tested at the Ontario Veterinary College (OVC) in Canada. Called a “seek and destroy” alternative therapy option, the treatment combines light-activated nanoparticles called porphysomes with photodynamic therapy (PDT). While PDT (i.e., use of laser light to destroy tumors) is not a novel therapy, researchers say that the trial marks the first pairing of it with a new nanoparticle technology.

The technique might ultimately offer a targeted, nonsurgical way to diagnose and treat tumors in pets and humans, which could prevent overtreatment and reduce common side effects, says Michelle Oblak, DVM, DVSc, DACVS, a veterinary surgeon oncologist and professor in OVC’s department of clinical studies.

“This is such an exciting opportunity to have an impact on how cancer is treated in both humans and pets and to be involved in such an incredibly innovative idea and invention,” she said. “It’s motivating for us to continue the work we’re doing. This could change the way we treat and diagnose cancer in the future.”

In the trial, porphysomes are injected into the bloodstream. The nanoparticles then collect in the tumor or any spot where cancer may have spread. The light-activated molecule’s fluorescent glow allows researchers to track



Patient Miya sporting “doggles” following her porphysome infusion at the Ontario Veterinary College.

its location using a special light source. Additionally, the porphysomes make the tissue more vulnerable to damage from laser light. A beam of near-infrared laser light directed through a nanofiber activates the porphysome, which then destroys cancerous tissue. For the clinical trial, the team is destroying only a portion of the tumor, then taking samples of the tumor and lymph nodes to assess results of the therapy. Patients in the trial still undergo standard-of-care surgery to remove the entire tumor.

With the trial, researchers say they hope to refine the treatment for use in animals and determine its use for treating various types of human cancer as an adjunct or alternative to surgery.

## USDA Adds \$400M for Avian Influenza Response

The U.S. Department of Agriculture (USDA) will use another \$400 million from the Commodity Credit Corp. to address the outbreak of highly pathogenic avian influenza, which has now been found in 35 states, affecting nearly 38 million birds.

The money will be used “to address indemnity, diagnostics, field activities, and other emergency response costs,” USDA’s Animal and Plant Health Inspection Service (APHIS) said. The funds will go directly to APHIS and “allow APHIS personnel to continue to deploy and support the emergency wherever they are needed,” USDA Undersecretary for Marketing and Regulatory Programs Jenny Lester Moffitt said.

The outbreak is geographically larger than the one in 2014–2015, which hit about 50 million birds in 21 states. APHIS has been tracking the outbreak on its website, which shows the last four detections were in backyard flocks—three in Washington and one in Idaho.

The outbreak has so far affected 183 commercial operations, compared with 211 during the 2014–2015 outbreak. However, the USDA says that the number of backyard operations, at 172, is more than eight times the number of backyard premises affected during 2014–2015.

## New Report Digs Deep into Pet Ownership

The American Veterinary Medical Association (AVMA) reports that understanding the various types of pet owners can help veterinary practices increase engagement and loyalty with their client base. Their *2022 AVMA Pet Ownership and Demographics Sourcebook* draws on a survey of more than 2,000 pet owners conducted in early 2021. The AVMA reports that the survey found moderate increases to the populations of owned cats and dogs and the percentages of households owning dogs or cats, while the number of dogs and cats per household decreased.

Households spent a mean of \$354 in 2020 on veterinary care, as measured by veterinary services plus medications, which was 33% of total spending on household pets.

“(Concerns about) value and affordability were the primary reasons for not seeing a veterinarian, which is in line with previous research,” said Rosemary Radich, principal data scientist in the AVMA Veterinary Economics Division.. “Although convenience and location are important, they are not the top predictors or drivers for regular care. Focusing on communicating the value of veterinary care and providing affordable options are going to be more successful at moving the needle for regular care.”

Households with annual incomes of more than \$75,000 were most likely to own pets. People who lived in houses or mobile homes were more likely than apartment dwellers to own dogs, while cat ownership did not vary significantly by type of residence.

“The idea that home ownership and income impact pet ownership is really a key finding because changes in the overall U.S. economy can have big impacts on home ownership and income,” Radich said.

## Using Artificial Intelligence to Predict Life-Threatening Bacterial Disease in Dogs

Veterinarians and researchers at the University of California-Davis School of Veterinary Medicine have discovered a technique to predict leptospirosis in dogs through the use of artificial intelligence. Their research was published in the *Journal of Veterinary Diagnostic Investigation*.

“Traditional testing for *Leptospira* lacks sensitivity early in the disease process,” said lead author Krystle Reagan, a board-certified internal medicine specialist and assistant professor focusing on infectious diseases. “Detection also can take more than two weeks because of the need to demonstrate a rise in the level of antibodies in a blood sample. Our AI model eliminates those two roadblocks to a swift and accurate diagnosis.”

The research involved historical data of patients at the UC-Davis Veterinary Medical Teaching Hospital that had been tested for leptospirosis. Routinely collected blood work from these 413 dogs was used to train an AI prediction model. Over the next year, the hospital treated an additional 53 dogs with suspected leptospirosis. The model correctly identified all nine dogs that were positive for leptospirosis and correctly identified approximately 90% of the 44 dogs that were ultimately leptospirosis negative.

The researchers report that the goal for the model is for it to become an online resource for veterinarians to enter patient data and receive a timely prediction.



The bacterial disease leptospirosis, if not caught early, can cause kidney failure in dogs among other life-threatening symptoms.



## VHMA Issues Workforce White Paper

The Veterinary Hospital Managers Association (VHMA) has published a white paper that explores workforce issues in the veterinary industry. The VHMA states that the white paper was created to leverage the discussions, actions, and recommendations developed during a December 2021 two-day critical issues summit. The paper's goals are to pinpoint the current state of the veterinary practice workforce by examining current conditions and trends and to describe and share the ideas, experiences, recommendations, and conclusions about the current state of the workforce and potential opportunities by summit participants.

The publication is divided into six sections:

- State of the veterinary hospital workforce
- Workforce conditions and trends
- Workforce opportunities: examining the practice operation model
- Conditions created by retention issues
- Discussion of the future
- Next steps for veterinary professionals

VHMA reports that the white paper is intended to serve as a resource at a time when hiring and retention challenges associated with “The Great Resignation” are impacting the smooth operation of veterinary practices. For more information, visit [vhma.org](http://vhma.org).

## Preventing Workplace Harassment in Veterinary Medicine

The AVMA reports that workplace harassment, including sexual harassment, remains a persistent problem that often goes unreported. Workplace harassment first and foremost comes at a steep cost to those who suffer it, as they experience mental, physical, and economic harm. Even beyond the impact to the individual, workplace harassment affects all workers, and its true cost includes decreased productivity, increased turnover, and reputational harm.

The AVMA provides a variety of resources and information to help members of the veterinary community play an active role in ending workplace harassment. These include training resources, webinars, and a wellbeing certificate program. Visit the AVMA website at [avma.org](http://avma.org) for more information.



## FDA Conditionally Approves First Drug to Delay Onset of Congestive Heart Failure in Dogs

The U.S. Food and Drug Administration (FDA) conditionally approved Vetmedin-CA1 (pimobendan) chewable tablets, the first drug indicated for delaying the onset of congestive heart failure in dogs with Stage B2 preclinical myxomatous mitral valve disease (MMVD).

MMVD is a condition in dogs where an abnormal heart valve allows blood to leak backward (regurgitation), impacting the ability of the heart to pump blood and resulting in an enlarged heart. Stage B2 preclinical MMVD refers to dogs with MMVD that have not yet developed signs of heart failure but have a moderate or loud mitral murmur due to a leaking mitral heart valve and have an enlarged heart.

While Vetmedin is already fully approved for the management of the signs of mild, moderate, or severe congestive heart failure in dogs due to MMVD or dilated cardiomyopathy, the conditionally approved indication for Vetmedin-CA1 is the first for dogs in the preclinical stage of MMVD who have a heart murmur and an abnormal enlargement of the heart but are not yet in congestive heart failure.

An animal drug that addresses a serious or life-threatening disease or addresses an unmet animal or human health need for which demonstrating effectiveness would require complex or particularly difficult study or studies is eligible for conditional approval. The FDA determined that Vetmedin-CA1 is eligible for conditional approval because it met all of these criteria.



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## ABSTRACTS

### VETERINARY PRACTICE GUIDELINES

#### 2022 AAHA Canine Vaccination Guidelines

*John Ellis, Elizabeth Marziani, Chumkee Aziz, Catherine M. Brown, Leah A. Cohn, Christopher Lea, George E. Moore, Neha Taneja*

These guidelines are an update and extension of previous AAHA peer-reviewed canine vaccination guidelines published in 2017. Vaccination is a cornerstone of canine preventive healthcare and one of the most cost-effective ways of maintaining a dog's health, longevity, and quality of life. Canine vaccination also serves a public health function by forming a barrier against several zoonotic diseases affecting dogs and humans. Canine vaccines are broadly categorized as containing core and noncore immunizing antigens, with administration recommendations based on assessment of individual patient risk factors. The guidelines include a comprehensive table listing canine core and noncore vaccines and a recommended vaccination and revaccination schedule for each vaccine. The guidelines explain the relevance of different vaccine formulations, including those containing modified-live virus, inactivated, and recombinant immunizing agents. Factors that potentially affect vaccine efficacy are addressed, including the patient's prevaccination immune status and vaccine duration of immunity. Because animal shelters are one of the most challenging environments for prevention and control of infectious diseases, the guidelines also provide recommendations for vaccination of dogs presented at or housed in animal shelters, including the appropriate response to an infectious disease outbreak in the shelter setting. The guidelines explain how practitioners can interpret a patient's serological status, including maternally derived antibody titers, as indicators of immune status and suitability for vaccination. Other topics covered include factors associated with postvaccination adverse events, vaccine storage and handling to preserve product efficacy, interpreting product labelling to ensure proper vaccine use, and using client education and healthcare team training to raise awareness of the importance of vaccinations.

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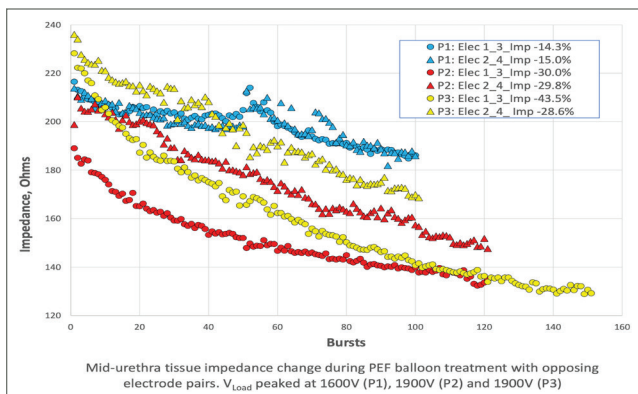
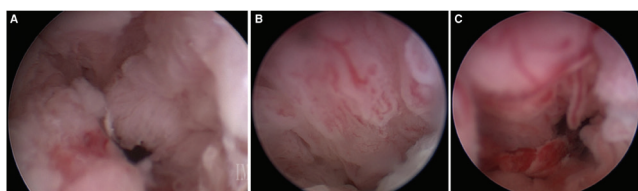
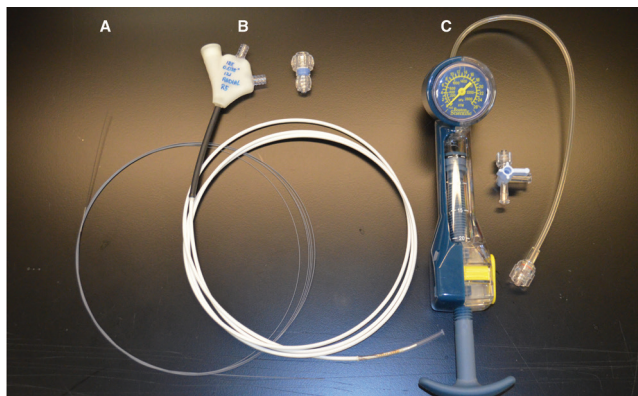
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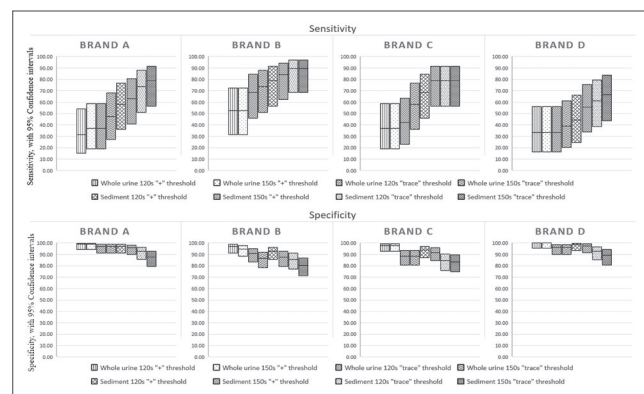
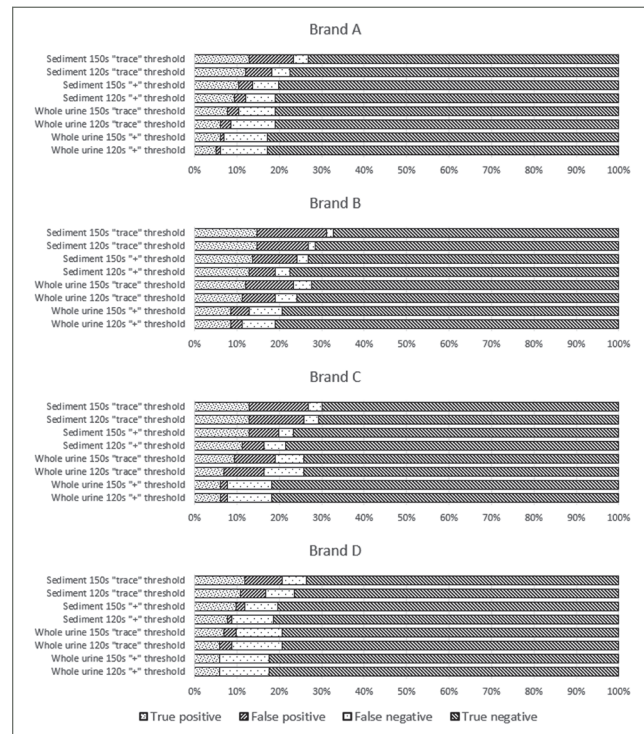


## ORIGINAL STUDIES

### Irreversible Electroporation Balloon Therapy for Palliative Treatment of Obstructive Urethral Transitional Cell Carcinoma in Dogs

*Emmanuelle Marie Butty, Bruce Forsyth, Mary Anna Labato*  
Progression of transitional cell carcinoma (TCC) in dogs often leads to urinary obstruction. This observational pilot study aimed to evaluate the safety and efficacy of irreversible electroporation (IRE) balloon therapy for the palliative treatment of TCC with partial urethral obstruction. Three client-owned dogs diagnosed with TCC causing partial urethral obstruction were enrolled. After ultrasonographic and cystoscopic examination, IRE pulse protocols were delivered through a balloon catheter device inflated within the urethral lumen. After the procedure, the patients were kept overnight for monitoring and a recheck was planned 28 days later. No complication was observed during the procedure and postprocedural monitoring. After 28 days, one dog had a complete normalization of the urine stream, one dog had stable stranguria, and one dog was presented with a urethral obstruction secondary to progression of the TCC.

On recheck ultrasound, one dog had a 38% diminution of the urethral mass diameter whereas the other two dogs had a mass stable in size. IRE balloon therapy seems to be a feasible and apparently safe minimally invasive novel therapy for the palliative treatment of TCC causing urethral obstruction. Further studies are needed to better characterize the safety, efficacy, and outcome of this therapy.



## ORIGINAL STUDIES

### Leukocyte Esterase and Nitrite Urine Reagent Strip Utility Under Altered Assay Conditions in Dogs

*Justin Farris, Melinda S. Camus, Paula M. Krimer*

The study evaluated leukocyte esterase (LE) and nitrite reagent pad usefulness in canine urine using multiple time endpoints and decision thresholds. Whole and sedimented urine samples from 116 client-owned dogs were analyzed



with reagent strips from four manufacturers. Results for LE and nitrite were recorded every 30 s up to 150 s using “trace” and “+” positive thresholds and compared to microscopic urine sediment analysis and culture results. Sedimented urine assessed at 150 s with a “trace” positive threshold for LE had significantly or trending higher sensitivity (brand dependent) for pyuria detection compared with manufacturer recommendations. Using these parameters, LE sensitivity and negative likelihood ratio were 66.67–89.47%, and 0.13–0.37, respectively. Following manufacturer recommendations, LE specificity and positive likelihood ratio were 96.91–100% and 17.02–30.63, respectively. Nitrite performance for pyuria and bacteriuria detection was poor for all conditions. LE reagent pads are a useful screening test for pyuria detection using sedimented urine and a “trace” positive threshold at 150 s, whereas LE use with traditional manufacturer recommendations is a good confirmatory test for pyuria detection. Nitrite reagent pads are not useful for pyuria or bacteriuria detection.

#### CASE REPORTS

##### Bacteremia and Late-Term Abortion Secondary to Salmonellosis in a Dog

Ashley Allen-Durrance, Kaitlyn M. Mazzaccari, Cory L. Woliver

A 5 yr old, 54-day-pregnant whippet presented for hyperthermia, lethargy, and spontaneous abortion of multiple fetuses. Blood work and clinical signs raised concern for uterine sepsis; therefore, the dog underwent an emergency ovariohysterectomy. Blood and uterine samples cultured a *Salmonella* species. Following ovariohysterectomy and oral antibiotic therapy, the dog had no further systemic signs. Repeat blood cultures and *Salmonella* testing were negative. To the authors' knowledge, this is the first report of a *Salmonella* species causing bacteremia in conjunction with late-term abortion in a dog.

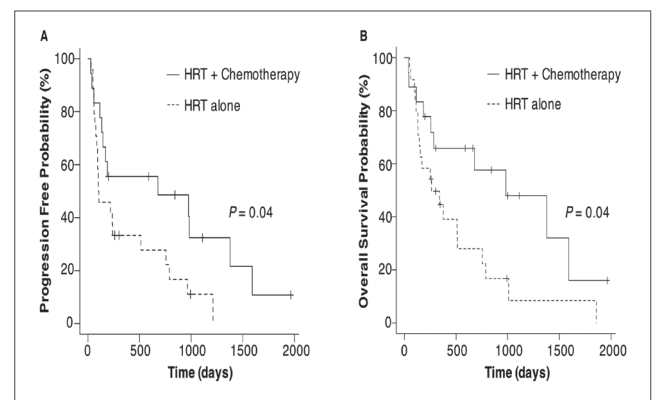
#### ORIGINAL STUDIES

##### Evaluation for Postoperative Infections Following Cutaneous Punch Biopsies in Dogs and Cats: 154 Cases (2013–2018)

Jason B. Pieper, Shahla Doroud, William E. Sander

Antimicrobial stewardship is becoming more important every day with increasing bacterial resistance and limitations on antibiotics. Prophylactic antibiotics are not necessary with all procedures, which has been shown previously with a variety of human and veterinary surgeries. Medical records were retrospectively evaluated for cases who had a cutaneous punch biopsy performed between 2013 and 2018 including the following information: species, signalment, concurrent diseases, concurrent medications, location of biopsy, histopathologic diagnosis, and bacterial infections postoperatively. The prevalence of secondary infections, due to punch biopsies in all animals, was 1.9% and further divided into 2.3% (3/128) of dogs and 0% (0/26) of cats. It was

determined that the relative risk of developing complications from punch biopsy was 0.06 (0.01–0.93) when diagnosing a dermatologic disease versus a cutaneous mass (neoplastic and nonneoplastic), which was statistically significant. The risk increased 2.16 (0.16–59.91) times if the biopsy site was the trunk, which includes the neck, thorax, and abdomen. These results indicate that in veterinary medicine, postoperative complications are uncommon with cutaneous punch biopsies. The administration of prophylactic antibiotics in dogs and cats is unnecessary when performing a punch biopsy when there is no infection present at the time of biopsy.



#### RETROSPECTIVE STUDIES

##### Combined Hypofractionated Radiotherapy and Chemotherapy Versus Hypofractionated Radiotherapy Alone for Cats with Localized Sinonasal Lymphoma

Sho Goto, Ryota Iwasaki, Hiroki Sakai, Takashi Mori

Despite considering hypofractionated radiotherapy (HRT) a useful treatment option for feline localized sinonasal lymphoma (stage I), the benefits of additional chemotherapy remain controversial. This retrospective cohort study evaluated the efficacy of the early initiation of chemotherapy in combination with HRT (HRTC) to prolong the progression-free survival (PFS) and overall survival (OS) in cats with localized sinonasal lymphoma compared with HRT alone. While 24 eligible cats received HRT alone (HRT group), 18 received HRTC (HRTC group). The total median administered dose was 35 Gy, with one fraction per week, for a median of five fractions. In the HRTC group, the chemotherapy protocol was cyclophosphamide, doxorubicin, vincristine, and prednisolone (CHOP)-based and cyclophosphamide, vincristine, and prednisolone (COP)-based in 14 (78%) and 4 cats (22%), respectively. Cats in the HRTC group had significantly longer PFS (677 versus 104 days;  $P = .04$ ) and OS (983 versus 263 days;  $P = .04$ ) than those in the HRT group. Considering the poor outcome in the HRT group despite the cats having received rescue chemotherapy for progressive disease, the early initiation of additional chemotherapy along with HRT may be recommended for feline localized sinonasal lymphoma.



# Healing with Shock Wave Therapy in Dogs & Cats - Safe, Effective, Economical & Convenient

By Dr. Paris Revoir, DVM

## What is Shock Wave Therapy?

When people first hear the term shock wave, they often think of an electrical shock, but a shock wave is simply a physics term for a supersonic high-energy sound wave. This non-invasive modality has been used for over 25 years in humans and is approved by the FDA for treating plantar fasciitis, tendonitis (tennis elbow, in particular), and diabetic foot ulcers.

For over 15 years PulseVet® Shock Wave therapy has been the standard of care in equine medicine for treating a variety of musculoskeletal indications. In 2021 with the launch of PulseVet's new handpiece, the X-Trode™, the PulseVet system now provides sedation-free treatment for small animal patients such as cats and dogs.

PulseVet Shock wave therapy is backed by more than 20 years of published research and is proven to speed healing, resolve lameness and relieve chronic pain in equine and canine patients.

## How Do Shock Waves Work?

Shock wave therapy aids healing by stimulating the body's regeneration process. The waves work on a cellular level by releasing inflammatory cytokines, angiogenic growth factors, and osteogenic proteins that accelerate healing. Energy is released as a shockwave at tissue interfaces where the density of the tissue changes (such as at a tendon to bone interface). Neovascularization occurs, leading to increased blood supply and tissue regeneration in tendons, joints, and bone.

Shock wave therapy is completed on an outpatient basis with minimal recovery time. Sedation is not required, and treatment takes less than five minutes. Many pets begin to see relief in one to three treatments. Results may be observed immediately; however, it takes time for the full biological response to occur.

## Is There a Difference Between Shock Wave Therapy and Laser Therapy?

- Shock wave therapy uses **sound** energy, whereas laser uses **light** energy.
- Shock wave creates a **higher-energy output and penetrates deeper in the tissue** than a laser can. Lasers are mostly used for superficial indications that require a few millimeters in depth.
- One to three treatments provide long-term healing with shock wave therapy, whereas lasers require 10 to 15 treatments for any given injury.
- There is no risk of burns with sound energy like there may be with laser therapy and no protective glasses are required.

## Clinical Indications

Backed by more than 15 years of clinical research, PulseVet shock wave therapy is proven to reduce lameness, speed healing, and relieve pain in dogs and cats with:

- Osteoarthritis
- Tendon/ligament injuries
- Wounds
- Lick granulomas
- Bone fractures
- Back pain
- Lumbosacral disease
- Shoulder instability

## Clinically Proven – Published Cases: Backed by Top Veterinarians

### Bone Healing Accelerated Post-TPLO Surgery

"Dogs treated with PulseVet® shock wave therapy following TPLO surgery healed two weeks faster than dogs that were not treated"

*Drs. Felix Duerr and Nina Kieves – Colorado State University College of Veterinary Medicine*

### Weight Bearing Post-TPLO Surgery

"Significant increase in the PVF (peak vertical force) and VI (vertical impulse) in the PulseVet® device treated group at 8 weeks compared to a decrease in the sham group"

*K. Barnes et al. Colorado State University Vet Surg 2019*

### Bone Healing

"Significantly improved bone healing by the PulseVet® device at 8 weeks post-TPLO"

*Dr. N. Kieves, et al. Colorado State University, VCOT 2015 (Journal of Veterinary and Comparative Orthopaedics and Traumatology)*

### 64% Positive Response in Dogs with Shoulder-Related Lameness

"For shoulder instability, PulseVet® shock wave therapy is the treatment of choice at Tufts University."

*Drs. WM Becker, M Kowaleski, et al. - Cummings School of Veterinary Medicine Tufts University*

### Hard-to-Treat Elbow Osteoarthritis

"Our studies show that about 70 to 80 percent of our dogs have a positive, measurable response to PulseVet® shock wave therapy".

*Drs. Marti Drum and Darryl Millis, - orthopedic surgical specialists University of Tennessee*

### Lumbosacral Disease – Chronic Pain

"75% of patients experienced improvement following a single PulseVet® treatment. Median effect was 13+ months primarily after one treatment".

*YJ Kim, L Jenkins and EB Leeds. Surgical Group for Animals, Torrance, CA*

## Information For Clients:

### What Can I Expect from an Average Shock Wave Treatment?

An average treatment typically takes less than 5 minutes. The veterinary team may shave a small area on your dog or cat, so the sound waves are not interrupted. Conductive gel will be applied to the treatment area and the applicator head is moved gently over the affected area. Results may be seen immediately, but it is important that your dog or cat not take part in any strenuous or high-impact activity for a few days after treatment so its body may effectively heal. Depending on the case, additional treatments may be needed after 2 to 3 weeks. The typical maximum number of treatments is three.

### What is the Cost of Shock Wave Therapy?

Shock wave therapy is an affordable alternative to surgery or long-term use of NSAIDs, is covered by pet insurance, and requires significantly less treatments and time commitments than other modalities. Results are typically seen within one to two treatments and can last for up to 12 months. Cost will vary depending on the specific condition, the number of treatments needed and the size of your pet.

### Where is Shock Wave Therapy Available?

The [PulseVet.com](https://www.pulsevet.com) site contains a **Find a Vet** feature. Click the tab to view a list of veterinarians who offer therapy with the PulseVet® shock wave device.



To learn more about PulseVet system, call or click  
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# Coming Up Short

Salaries, Sign-On Bonuses,  
Extra Incentives Make Hiring  
a Challenge

by Maureen Blaney Flietner



**“IT’S AN EMPLOYEE’S MARKET.** Young veterinarians want higher salaries and other considerations like mentorship and additional continuing education in specialized areas. For those who have jobs, I can’t blame them for entertaining other opportunities with higher salaries or increased benefits.”

The exasperation is evident as Richard Cohen, MBA, CVPM, shares his experiences in hiring veterinarians as practice administrator at the AAHA-accredited Dupont Veterinary Clinic and Palisades Veterinary Clinic, both in Washington, DC.

“A big issue in the industry is increased debt-to-income ratio. Less-experienced veterinarians will not accept salaries of \$95,000 or \$100,000 anymore,” said Cohen, noting that this trend may force hospitals to increase prices, putting most of the burden on their clients.

Cohen is not alone in his concerns about finding and hiring veterinarians. Asked if she had to advertise in the last year for veterinarians, Tiffany Consalvo, BS, CVPM, practice administrator for the AAHA-accredited Gilbertsville Veterinary Hospital, Gilbertsville, Pennsylvania, said her “yes” is “a universal yes from every manager in our industry. We had to look for six to nine months to find veterinarians for each of our two full-time openings.”

Susie Crockett, BS, CVPM, director of practice management for all nine locations of Noah’s Animal Hospitals in Indiana, manages general

practice, emergency, and low-cost models. Five of the locations are AAHA accredited, and she said that they have been advertising for veterinarians for the last several years.

“In the last year, perhaps we have had 20 to 30 solid contacts. We have received interest; however, the competition in the market has increased substantially. The Midwest is not as appealing as coastal or southern states. We also are in a market with a lot of corporate entities that can pay a higher rate than we can as a single-doctor-owned company.”

Unfortunately, it looks like that hiring challenge could be around for a while. The U.S. Bureau of Labor Statistics had projected that employment of veterinarians would grow 17% from 2020 to 2030, much faster than the average for all occupations, and with a projected total increase of 14,500 more jobs.

### **Watching the Demand for Services Rise**

But why is there such a need for more veterinarians? Increasing demand seems to be a common response.

“We had a run of veterinarians taking time off to raise families,” said Crockett, who manages 47 staff and 12 doctors. “We also had a lot of ER veterinarians getting burned out and moving on to GP. However, our main reason was still growth. In the last two years, we have expanded three locations with increased hours or increased services.

“We have also seen some of our general practices that were three-doctor practices increasing volume that requires four or five doctors. We were having a hard time matching the demand and didn’t want to risk losing clientele. So far in 2022, we have hired six new veterinarians. We still need more.”

At Gilbertsville, a renovation/addition project completed three years ago brought growth and the need to add veterinarians. In addition, said Consalvo, a veterinarian was terminated in the fall of 2020 because she did not fit the team, one relocated to another state in the fall of 2021, and another quit to work closer to home.

Cohen said they needed to hire because business was increasing and an expansion was allowing them to see more clients.

Rachel Koepsel, assistant director of career services at the University of Florida College of Veterinary Medicine (CVM) Career Services office, offered several reasons she is aware of for increased business.

“Younger generations are deciding to have pets instead of children and, having more discretionary income, make more visits to veterinary practices. Pet owners now google things that may raise concerns, and they want to get their veterinarian’s opinion. Pet owners are using more pet monitoring devices and treating animals like family, which is driving more clientele to veterinary hospitals.”

A March 2022 Rover.com study found that 1 in 10 pet owners are choosing to bring home a dog versus having a child owing to the lower total cost. This is most true for Gen Z (23%) and millennials (22%). The study also found that pet owner priorities and purchasing behaviors indicate 1) a shift toward products and services that better align with personal values and 2) prioritizing pet care.

### **Creating Ways to Interest Students**

With so many businesses hoping to hire veterinarians, how might they interest new veterinary students? The process needs to begin long before the need is there.

“Hospitals need to be forming relationships with graduates years before graduation through mentoring of local students, offering externships for summer and fourth-year opportunities, and finding other ways to interest them in that practice,” advised James K. Roush, DVM, MS, DACVS, associate dean for academic programs and student success professor, small animal surgery, Kansas State University CVM. “Anything to get the students into that practice and learn it’s a good place to start out, including mentoring in the practice, is important.”

That idea has proved true at Noah’s Animal Hospitals. Crockett explained that they have been “more successful when we have a robust externship/internship program. We get them in during school and ‘wow’ them, get them integrated into our company and our teams, build the relationships. This seems to give us a leg up, if you will, when the applicants are looking for where they want to take an offer from.”





**“Networking, building relationships, and mentoring are keys to attracting talent.”**

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—GLEN SELLERS, MS, MBA, CLINICAL LECTURER IN THE OFFICE OF ACADEMIC AFFAIRS AND CLINICAL SCIENCES AT AUBURN UNIVERSITY CVM

The hospitals make sure that externs have a lot of opportunities to “practice” under the guidance of their veterinarians, letting them get their hands dirty, and doing the “cool stuff,” she said. “Showing them what they will get to do goes a long way in engaging them.”

“Providing great mentorships is also important, Crockett noted. “We work extremely hard to gain new veterinarians (either new graduates or experienced). If we ‘throw them into the fire,’ they will leave quickly, just like staff, and then you have to start over.”

### **Learning to Manage with Fewer Doctors**

While being proactive in interesting young people for the future and looking for that new addition, how can a hospital best manage without a full doctor crew? Critical and creative thinking and breaking the old rules appear to be requisites to keep operations running smoothly.

Managing a shortage of team members can be stressful, said Consalvo. However, if the management team takes a little time and steps away from the issue, they might find ways to create more efficient processes that take less staff.

“Utilize your technicians at a higher level by having them perform more technician appointments. A veterinarian

can move efficiently from room to room with the right support staff, seeing multiple patients without being overwhelmed,” she said.

“We closed one of our offices on Sundays but expanded hours on Saturdays,” explained Cohen. “It’s one less day that staff members have to commute, which has increased morale.” He also suggested that hospitals consider alternative schedules like longer workdays so staff would only work three or four days a week.

Another option hospitals might want to consider is IndeVets, a company that offers a hybrid model of flexible veterinary staffing. Cohen said his hospitals have used IndeVets to fill vacancies.

### **Finding Time and Money Rising to the Top**

Job postings for veterinarians feature a mix and match of appealing incentives. But what attracts a veterinarian to a new position? Large signing bonuses? 401(k)s?

According to Roush, “work-life balance is moving to the top of veterinary students’ wish lists, with shorter workweeks mentioned as a frequent desire and location having a large effect for many graduates. Salaries, starting bonuses, health insurance, and retirement packages are also high on their list of priorities.”

In addition, “practices and practice owners need to be realistic about today’s graduates and their job market,” Roush noted. “Students today are quite knowledgeable about what average salaries and offers should be, and they are not willing to spend years at low salaries to ‘earn their dues’—a phrase I hear frequently from employers. They don’t have to earn their dues anymore to obtain a competitive salary and excellent working conditions from day one with the numbers of offers they can choose from.”

Crockett has found that people want “time—time off work, time with their families, and the ability to travel and manage mental health. Providing a schedule where they have long periods of time off seems to be key.”

The new graduates Consalvo saw were interested in mentorship and understanding how management would support them with their employment journey. In addition, she noted, everyone asked about sign-on

## What does the future hold for veterinarians and employment?

The future for veterinarians and employment is complex because of continuing stressors, evolving opportunities, and changing employer-employee expectations, according to José Arce, DVM, immediate past president of the American Veterinary Medical Association (AVMA). He said the AVMA is seeking and considering information from many sources and stakeholders for comprehensive workforce analyses.

“We hope these analyses will help the profession better understand the motivations and dynamics of those entering and leaving the active veterinary workforce, including those limiting their hours of practice or focusing on relief practice,” said Arce. “Getting the projections right is critically important because any changes that are made based on those numbers are likely to have long-term impacts on patients, clients, and our profession.”

### What is known?

Three new schools—Arizona, Long Island University, and Texas Tech—will graduate their first classes in 2023, 2024, and 2025, respectively. All are operating under provisional AVMA Council on Education (COE) accreditation.

Two additional U.S. colleges are under development and several international schools have expressed interest in obtaining AVMA COE accreditation.

The AVMA is committed to providing support for practices, including resources on wellbeing, suicide prevention, student debt, burnout, and practice efficiency. Visit: [avma.org/wellbeing](https://avma.org/wellbeing).

Veterinary educational debt was growing 4.5 times faster than the growth rate of income in 2020. Since data show no correlation between the choice of a veterinary school and its graduates’ starting salaries, the AVMA encourages preveterinary students to choose the school that makes the most sense for their financial situation and personal circumstances.

Many veterinarians continue to want to work fewer hours for less compensation, and mental health remains a concern, according to the AVMA’s 2021 report.



bonuses—a bolder move that she had not seen in the past from candidates.

For Cohen, the incentives that attracted one experienced veterinarian away from a local emergency clinic were more daytime hours and days off in a row. Another recent hire, also experienced, happened to start off in a relief role, then chose to join his staff.



**Glen Sellers,  
MS, MBA**

Glen Sellers, MS, MBA, clinical lecturer in the Office of Academic Affairs and Clinical Sciences at Auburn University, said he sees that “networking, building relationships, and mentoring are keys to attracting talent. In addition, veterinary hospitals need to be as updated as possible on the business and veterinary (medicine) side as possible.”

In talking with veterinary students about their future careers, he said he has found that “most students begin the conversation by asking if their contract is fair. So, in my mind, students are asking for fairness. That leads to a fair salary, benefits, mentorship, and work-life balance.”

Sellers, who directs practice management/business programs, explained that he educates students on current trends based on what the American Veterinary Medical Association (AVMA), AAHA, Well-Managed Practice Benchmarks, owners, clinics, and students share. He accumulates data specific to that student population by visiting 50–80 students, speaking with countless owners, and assessing several operating veterinary clinics per year.

“For example, last year, I met with 66 students. This year, as of May 5, the number is 55. Based on the offered base salary and average production percentage, the production break-even has risen by almost \$20,000 year-over-year while the base salary has been increased by nearly \$12,000. That compared to previous years is significant in my mind and those of owners and students. I also cross-check my numbers with that of the AVMA to see how my specific student population matches.”

“A veterinarian can move efficiently from room to room with the right support staff, seeing multiple patients without being overwhelmed.”

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—TIFFANY CONSALVO, BS, CVPM, PRACTICE ADMINISTRATOR FOR THE AAHA-ACCREDITED GILBERTSVILLE VETERINARY HOSPITAL

### Seeing Changing Attitudes About Careers

The world of work and the attitudes toward careers continue to evolve. The advantage at present has swung to those seeking jobs.

Cohen suggested that part of the challenge is the attitude of younger veterinarians. He recalled, for example, being confused by one who questioned having to see appointments all day when that was the employee’s main responsibility. Additionally, he hears more complaints about leaving on time than ever before.

He’s aware that experienced veterinarians have conflicts with what is happening, citing that younger veterinarians want higher salaries and more accommodations. It seems, he said, that the younger generation of veterinarians are advocating more strongly for themselves than he has previously experienced.

“If they don’t start thinking about being part of a team environment, it’s going to hurt the industry as a whole. It’s become more about them than the team. I’ve seen that quite a bit.”

Crockett perhaps best summed up how to work with the current market conditions: “Compromise is the name of the game,” she said. “Gone are the days of having a very strict schedule and no flexibility. Being adaptable to the applicant pool is extremely important.” ✖



Maureen Blaney Flietner is an award-winning freelance writer living in Wisconsin.



# Learning how to speak “pet owner” enhances the value of regular care

**According to a new language-focused research study spearheaded by the AVMA, what you say to your clients—right down to specific words and phrases—matters. A lot.**

A new nationwide study, *Language That Works: Changing the Way We Talk About Veterinary Care*, shows that a fundamental shift in the way veterinary teams communicate can significantly influence pet owner perceptions about the value and importance of regular veterinary care. Study results are now available in a new ebook, the first in an AVMA library of Language of Veterinary Care resources, made possible in part by educational funding from CareCredit and Pets Best Pet Health Insurance.

## What pet owners want to hear

The study revealed pet owners may say they rely on veterinary medicine to keep up with their pet’s care, but they also admit they don’t always bring their pets in for regular checkups.

When asked what they value from their veterinarian, three main things topped the list:

- Expertise
- A strong relationship
- Personalized recommendations

**Of anything a veterinarian could offer, personalized recommendations stood out as the most valuable to pet owners.** This quality differentiates vets from sources that provide generic support. Pet owners also say that when their veterinarian first takes the time to get to know them and their pet, it makes recommendations seem more personal and credible.

## Which word works best?

41% of pet owners chose “checkups” as the best way to talk about wellness visits.

**41%** Checkups

**31%** Wellness visits

**24%** Visits

**4%** Appointments

## Start with language that’s reassuring

Pet owners know that preventive care is good for their pets’ long-term health but they don’t want to be told it’s their responsibility. (This kind of talk just makes them feel criticized.) **They prefer to focus on the relationship they have with their pets.**

A good place to start is to simply tell them that regular checkups are a great way for you to learn more about them and their pet. Routine exams can also help identify (even avoid) problems early. And, according to the study, this is the time to assure your clients they can always turn to you and your team for recommendations tailored to their pet.

## Talk about the elephant in the room

What’s the first thing pet owners associate with veterinary care? The answer is “money.” The research revealed pet owners typically don’t budget for



veterinary care and may not be aware of payment options. They also appreciate it when their veterinarian shows empathy about the cost of care and provides options to help them pay. It makes them feel like the vet is on their side.

### Mention solutions that can help

If clients have concerns about cost, one way to respond is to tell them you have options to help make payment easier for the care you're recommending.

One leading option is the CareCredit credit card, a flexible financing solution that's accepted at more than 25,000 veterinary locations. With CareCredit, clients have a way to fit pet care into their budget and pay over time.\*

CareCredit can also be used with Pets Best Pet Health Insurance to help clients be financially prepared for the care you recommend at every stage of a pet's life.

### Most valuable thing a vet offers?

*More than half of respondents said "personalized recommendations."*

**53%** Recommendations

**33%** Advice

**13%** Guidance

**13%** Answers

**7%** Insight

### Call 844-812-8111 to enroll with CareCredit.

The one-time fee is only \$59 if you apply to enroll by Oct. 31, 2022.

**Already enrolled?** For more information about the Language of Care, visit [avma.org/languageofcare](https://avma.org/languageofcare).

For more details about CareCredit or Pets Best, visit [carecredit.com/vetinsights](https://carecredit.com/vetinsights).



<sup>1</sup>Language That Works: Changing The Way We Talk About Veterinary Care, AVMA.  
Made possible in part by educational funding from partners CareCredit & Pets Best.  
\*Subject to credit approval. See [carecredit.com](https://carecredit.com) for details.

Pet insurance is administered by Pets Best Insurance Services, LLC and is underwritten by American Pet Insurance Company, a New York insurance company headquartered at 6100 4th Ave. S. Suite 200 Seattle, WA 98108. Please see [www.americanpetinsurance.com](https://www.americanpetinsurance.com) to review all available pet health insurance products underwritten by APIC.





# Pet Nutrition Conversations

## Recognizing Spin, Using Reputable Tools, and Making Complicated Pet Food Recommendations

by Roxanne Hawn

IT'S HARD TO IMAGINE A WORLD without readily available commercial pet foods. When first introduced, maybe consumers' perceptions about benefits or costs of ready-to-eat, pet-specific foods stirred controversy then too. Most of us aren't old enough to remember it firsthand. More likely, though, consumers' opinions about feeding pets got more complicated as pet food options grew exponentially—with high-dollar marketing efforts to match. Amid so many buzzwords and so much chatter online and in stores, veterinary teams step into an arena that's certainly more complex than it used to be.

In addition to following recommendations from the *2021 AAHA Nutrition and Weight Management Guidelines*, here's how pet nutrition conversations look today.

### **Predatory Marketing**

Caitlin Marie, DVM (an online pen name used to prevent doxing and harassment), graduated from veterinary school in spring 2022 and started working in small animal practice in Florida over the summer. However, she began writing about information literacy and science communication while in school, including the contentious canine dilated cardiomyopathy issue. After graduation, she updated the site's name and URL from Doc of All Trades to All Trades DVM.

"I think the biggest thing right now for nutrition is connecting with clients about it," Marie said. "Clients often recognize that nutrition is important for their pet's health, but they aren't always equipped with the right tools and resources to try and sort out reliable



information from some of the predatory marketing that's out there." Here's where you can start.

**Credentials and evidence.** Help people understand legitimate pet nutrition credentials and evidence since those less familiar with the veterinary field may be swayed by spin and false promises about pets' health and longevity. For example, Marie recommends *The SkeptVet* site for a thorough book review of *The Forever Dog* that's getting so much attention. Also, beware that early information out of the Dog Aging Project notes a positive association with once-a-day feeding. Without appropriate caveats, headlines blared and spread via social media as dogs fed this way "live longer"—causing people who feed their dogs two or three times a day to doubt themselves even though the information is preliminary and needs further study.

**Reputable information.** Point people to reputable pet food sites, such as the Petfoodology blog from the veterinary nutrition team at the Cummings School of Veterinary Medicine at Tufts University. Marie said, "It's a really credible source coming from people who know better than pretty much anyone else what they're talking about. It's always written in a way that's really accessible for someone at any level."

**Marketing and merchandising.** Industry insiders and publications for pet food retailers and ingredient suppliers see a "profitable market" for certain ingredient categories, including those implicated in some DCM cases. They offer tactics for "overcoming hesitations" about switching from kibble to raw foods and for setting up and placing raw pet food displays for the best merchandising and conversations with consumers to ramp up sales aggressively and quickly.

**Higher price points.** In many cases, newer pet diets cost more—both because higher moisture content requires more food to meet pets' calorie needs and because higher pricing implies better quality. "It's actually marketing strategy to put a higher price tag on something," Marie said.

**Budgets, sketchy promises, and guilt.** Consumers often find themselves facing budgetary drama since expensive pet foods make it harder for families to afford veterinary care. "My experience has been people coming

in and saying, 'I don't have \$500 for this bill. I spend \$150 a month on dog food,'" Marie said. "There is this perception among a lot of people that if you're putting out all this money for this pet food, your dog will be so healthy, you'll never need to visit the vet. Honestly, it's kind of sad to me that people are sold on this idea that if you do all of the right things, this will keep your dog safe, or it will keep your dog healthy. It ends up putting a lot of guilt on the shoulders of consumers who maybe can't afford this expensive diet. Now they feel like their dog only lived to be 14 or only lived to be 15 but could have been 18 if he had been eating this diet they couldn't afford. And, in reality, that may not have been the case. We don't have enough evidence to say those diets would have made such a big difference. That's such a terrible weight to put on somebody's shoulders. It's really frustrating. To me, that's another aspect that feels predatory."

### Top Tools to Use

By implementing nutritional assessments in daily practice, veterinary teams can empower pet-loving families so that they don't fall prey to hype, sciencey-sounding information, and marketing and merchandising ploys.

To support this process outlined in the guidelines, use free, online resources from the Pet Nutrition Alliance (PNI), which is a consortium of nine veterinary organizations founded upon the principle of advancing



pet health through proper nutrition. This includes preventing or addressing obesity, which remains the top nutrition-related health concern for pets, dating back decades now.

Kara Burns, MS, MEd, LVT, VTS (Nutrition), PNI president, said, “Is that the same old, same old? Maybe, but we’re not really making a dent, so it’s as important as ever. Not every veterinary healthcare team member knows how to calculate the proper amount to feed, and that’s what our calorie calculators help do. It’s designed to aid the veterinary healthcare team in making assessments and recommendations.”

Those recommendations need to be specific, including brand, product within the brand, type of food (wet, dry, etc.), the precise amount to feed, and how often. It’s a bit easier now that pet food labeling requirements include calories.

Burns makes clear that the calculations behind the free, online tools come from board-certified veterinary nutritionists who “delted into the best calculations and how best to do that for dogs and for cats—there’s some super intelligence behind this.”

Also, explaining the reasons behind pet nutritional recommendations supports adherence to those recommendations. It helps people to understand why you trust certain brands or what data backs up the use of a specific diet. Ask your industry reps for data that supports the benefits of various diets, such as measures of clinical improvement, slowed disease progression, and the like.

“It comes down to confidence,” Burns said. “It comes down to knowledge, but even before knowledge, it comes down to time. Does the team have time? Have they made time to talk about nutrition? Do they have the confidence in themselves? What am I going to say? How am I going to handle this objection?”

Whether it’s CBD-infused treats yesterday, mushroom-based supplements today, and who knows what else tomorrow, Burns suggested finding points of shared understanding, including what people hope to accomplish with various choices of foods and supplements or hope to avoid or correct by ruling out foods with certain ingredients. Be aware that people may feel judged by friends, at the dog park, or at the local boutique for feeding a commercial kibble or certain brands, like that’s somehow a dirty secret and wrong.

Veterinary teams also enjoy free access to another PNI resource called “Dare to Ask,” where the organization surveyed pet food companies. The tool shows which companies replied, how they answered key questions, and more importantly who ignored or refused to provide information. That intel serves as a reality check for some people since many newer pet food makers market themselves as highly transparent.

Dare to Ask protocol questions include things like:

- Is nutritional adequacy determined by formulation or feeding trials?
- Does the manufacturer employ a full-time, qualified nutritionist?
- Do they own their own manufacturing plants?

“Clients often recognize that nutrition is important for their pet’s health, but they aren’t always equipped with the right tools and resources to try and sort out reliable information from some of the predatory marketing that’s out there.”

—CAITLIN MARIE, DVM







“It comes down to knowledge, but even before knowledge, it comes down to time. Does the team have time? Have they made time to talk about nutrition?”

—KARA BURNS, MS, MED, LVT, VTS (NUTRITION)

### Senior Pets with Comorbidities

Most research and pet nutrition formulations focus on life stage or singular diseases or conditions. Yet, Association of American Feed Control Officials (AAFCO) guidelines don't include requirements for the nutritional needs of senior or geriatric pets. That doesn't mean, though, that companies don't already market various foods for this population of aging pets. When veterinary teams monitor senior pets with comorbidities, the nutrition recommendation puzzle gets more complicated.

With so many possible combinations of diseases with potentially conflicting nutritional management, Julie Churchill, DVM, PhD, DACVN, professor, department of veterinary clinical sciences, offered the disclaimer about how “very little research” looks at comorbidities since each combination “would be a very small population.”

Churchill coauthored a paper entitled “Senior Pet Nutrition and Management” in 2021 that outlines several considerations. She begins, however, by clarifying that age itself is not a disease and yet risk factors for disease increase with age. She also points out that consumers likely don't understand what “complete and balanced” diets mean. She thinks of meeting each pet's baseline nutritional needs

“sort of like infant formula,” a comparison often easier for families to understand.

That's step one. Finding the nutritional foundation, then building from there for the comorbidities older pets face. Churchill weighs considerations like these:

- What did I learn about this specific patient?
- When assessing each pet, what are the nutrients of concern for each condition?
- Is each disease or condition acute or chronic and are there means other than nutrition for treatment?
- Which ones are changing rapidly or are progressive, and can nutritional changes help stabilize or slow the progression?
- Which one is most impacting quality of life?

“I don't just want to feed this diet if the patient won't eat it and the client can't afford it,” Churchill said. “If it's making everybody miserable, that's a fail from the start, so it's a bit of a juggling act. But I want to sort of lay out and meet the species and life-stage needs, lay out the conditions, and then really ask myself, ‘What is that doing to the patient? Is it rapidly progressing? Is it slow and chronic? Is it stable?’ And then I prioritize the ones that are most dynamic and are damaging or impairing quality of life.”





For example, consider a senior cat with both diabetes and kidney disease. Both conditions can be acute or chronic. Both can result in hospitalization. Yet their typical nutritional recommendations fall in contrast to each other. Churchill explained the differentials: “One, we can manage with insulin, so there’s a medical avenue. With kidney disease, there is really not a medical avenue. It is nutrition. And for diabetes, high protein/low carb is nice-to-have but not need-to-have because I have insulin. I’d like them to be optimal weight, but we’re not going to worry about that yet. And I want them to have reliable, predictable intake because nothing is more stressful to the client than deciding, ‘do I give insulin or do I not because they’re not going to eat?’ So I’m going to prioritize the quality of life and ability to manage diabetes with reliable, predictable intake rate. Then, for kidney disease, I want to see whatever I can do to slow the progression of renal disease, so maybe I might not be as restrictive if that impairs intake. I try to find that sweet spot.”

On the canine side of things, consider an obese dog with arthritis and mobility issues just diagnosed with kidney disease. Initially, Churchill likely settles for the patient not gaining any more weight or slows weight loss to a “glacial pace” while working to get the kidney disease under control.

Churchill summed up her strategy as “Where can I do benefit and not do harm?”

### Topics Heating Up

Other topics in the pet nutrition world gaining steam include meat-free foods and those with insect-based proteins such as crickets, as food supply concerns grow with greater populations of people and pets in the world. Expect more insights into the gut microbiome and its effect on health and response to nutritional changes as research in the field expands.

In addition, market research finds that younger pet owners feel less loyal to brands, which spurs them to switch foods more often. That detail alone supports doing frequent, routine nutritional assessments for all patients, including any supplements or treats (functional or otherwise) pets receive.

Churchill said, “There are so many great products in this country. I would rather spend my time helping you pick the right food for your pet than trying to fix a food that’s less than ideal [through supplements]. Pets are individuals just like people, and it all comes down to assessing the individual and meeting their unique needs.” ✱



### Nutrition Guidelines Online

Read the latest guidelines from AAHA on nutrition, the *2021 AAHA Nutrition and Weight Management Guidelines* at [aaha.org/nutrition](https://aaha.org/nutrition).



Roxanne Hawn is an award-winning writer living in Colorado.

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# Mental Health: More Important Than Ever

## New Ideas to Help Keep Staff Mentally Healthy

by Kerri Fivecoat-Campbell

**The numbers are stark.** According to the most recent American Veterinary Medical Association (AVMA) and Merck Animal Health Veterinary Wellbeing Study, conducted in 2021, less than half of those in the profession would recommend veterinary medicine as a career. Serious psychological distress is on the rise among veterinarians of all age groups, and nearly one-third of veterinary staff are likely to leave practice in the next two years.

“This number is staggering and should be a wake-up call to leadership in our veterinary community,” said Charles Hurty, DVM at Grove Veterinary Clinic, an AAHA-accredited clinic in Newport, Oregon. “Many veterinary practices have experienced a literal exodus of staff.”

Hurty added it’s understood within the industry that many of those exit considerations are fueled by mental health concerns.

Sarah Wooten, DVM, who is now a veterinary specialist for Pumpkin Pet Insurance, worked as a veterinarian in an AAHA-accredited clinic until 2018. Wooten said stress isn’t the main reason she decided to leave clinic life, but it was a huge contributing factor. “Until you’ve been in it awhile, you don’t understand how stress will affect you,” said Wooten. “I wasn’t willing to sacrifice that part of myself and realized education was a better fit.”

“I think all clinicians should be in therapy. It’s a safe space.”

—REBECCA BAKER, LCSW, METROPOLITAN ANIMAL SPECIALTY HOSPITAL



In March 2020, the COVID-19 pandemic threw extra stress upon veterinary healthcare workers.

“We were called essential workers and, in the same breath, literally shamed for the inconveniences and inefficiencies of the new practice models, such as curbside,” said Hurty. “Within this space of impossibility and distress arose a whole new menu of mental health challenges.”

As a result, many clinics, from small, locally owned clinics to large corporations, received their wake-up call and are trying to address mental health, not just to save employees from leaving the profession, but to literally help save some lives.

### Building a Program from Scratch

Hurty said he was concerned with the issue of staff mental health well before the pandemic.

“My team and I were, like many others, feeling the effects of long emotional workdays and the resulting exhaustion of our compassion and empathy,” he noted. “We were practicing veterinary medicine and running this business with very minimal investment in personal and professional boundaries. Something fundamentally needed to change. Frankly, I was getting to a point where I was considering different options and thinking about making some changes in my own career and life.”

Hurty said he finally had an epiphany. “We were experiencing what many would define as trauma; we needed to look at some outside resources. I think we all needed therapy.” Hurty began looking into what resources



were available and said he found an “amazing” person to help. “I found someone who not only had the expertise to help, but also the desire to invest some serious energy into our veterinary team’s health,” said Hurty. “She was excited about developing a program that would help the team and hopefully, teams beyond our own.”

That person is Helen Beaman, LCSW. Beaman has spent the past five years working to destigmatize mental health. She had taken a keen interest in the veterinary industry owing to the high suicide rates.

“I’m passionate about training and educating and helping people take better care of their mental health,” said Beaman.

Beaman worked with Hurty to create a module-based program they could present to the five veterinarians then at the clinic (there are now six) and 21 staff members.

The practice began implementing the program in July 2021 by renting a room on a Saturday afternoon at a locally

owned new restaurant and providing lunch at a cost of \$600. “Developing the program didn’t cost us,” said Hurty. “Helen did it for us pro bono.” Hurty added they provide Beaman with a \$100 stipend, which she donates to a local animal welfare group.

The sessions are held for two hours, and the four modules were presented one month apart, with periodic ongoing follow-ups.

“We decided to make it voluntary and held the first module on a Saturday afternoon. We had 100% participation,” said Hurty. “That’s amazing and I think speaks to how much this was needed.”

The modules are built as follows:

**Module 1, basics:** Defining anxiety, depression, stress, and burnout. Recognizing the symptoms and assuring staff they are not alone in their feelings. They were asked to tell what they learned about themselves during the pandemic. Also, defining suicide and how to recognize when it gets to that point.

**Module 2, strategies:** Basic cognitive behavioral therapy (CBT) techniques, breathing strategies, meditation, visualization, grounding techniques, body awareness, diet, and exercise.

**Module 3, recognizing triggers and additional techniques:**

Understanding stress and anxiety and how to dismantle and handle the situations. Changing the mindsets and approaches to problems. For example, a difficult client service moment is not described as “bad” or “impossible,” but as “not ideal.” Hurty added, “These are forward-thinking, mindfulness, solution-oriented approaches, goals, and purpose. This has really caught on in our practice, and we even laugh about it at times, which is the point. Laugh a little, lighten it up, figure it out, and move on.”

**Module 4, boundary setting:**

Understanding the importance of boundaries and how to set them is a critically important lesson to learn in veterinary medicine, said Hurty.

Hurty said they had at least 90% participation for all the subsequent



module presentations, mostly due to scheduling conflicts, not due to lack of interest. Hurty added the clinic also provides money for staff to use for calming apps or any type of self-care, as well as providing staff a Wellness CE credit. Another component of the wellness focus are mandatory breaks during work hours. “There is a lot of data on the benefits of taking breaks throughout the day,” said Hurty. “There is no lunch or break shaming, and we encourage our staff not to feel guilty for taking their breaks.”

As to how it is working, he said that the new focus on mental health and the program have been anecdotally successful, but he can’t apply any measurements. “I would love to apply some analytics, but the measuring stick is more subjective,” said Hurty, who added the clinic didn’t have a high attrition rate before the program. “When we recognized and validated their feelings during the first module, there were a lot of tears,” said Hurty. “Communication is so much better; we talk about wellbeing. It literally comes up every day. People seem less triggered and can better work through the day.”

## A Different Business Model

Ivan Zakharenkov, DVM, CEO of Galaxy Vets in New Brunswick, BC, founded Galaxy Vets with the mission to “return vet medicine back to the veterinarians and employees.” At the same time, he said they want to provide better access to care where and when it is needed. “We need to expand because there is such a shortage within the industry,” Zakharenkov said.



## Quick Tips for Improving Mental Health

Jill Lauri, MSW, MBA, a professional animal communicator and veterinary coach located in New York City, said if you want to help improve the mental health of your employees, you can start by taking these steps:

- Meet with staff regularly, establishing an open and safe environment to discuss issues and concerns.
- Implement a process before the clinic opens each morning to do a calming, grounding, and visualization exercise. “This really can set a positive tone and energy for the day,” Lauri said. “There are different methods and exercises, but the point is to visualize the day going smoothly.”
- Commit to the process of sharing. “Make meeting with staff an ongoing process, but you have to make it fun and engaging and make your staff feel inspired to share.”



“We were practicing veterinary medicine and running this business with very minimal investment in person and professional boundaries. Something fundamentally needed to change. Frankly, I was getting to a point where I was considering different options and thinking about making some changes in my own career and life.”

—CHARLES HURTY, DVM, AAHA ACCREDITED GROVE VETERINARY CLINIC

Zakharenkov was six years into his career when he started experiencing burnout. “I almost lost my life then,” he said, and he noted that the industry hasn’t gotten much better in the years since.

Zakharenkov said they are focused on making conditions better in the top three areas of concern within the industry:

**Work/life balance:** Zakharenkov said they are committed to providing flexible work schedules, even calling as few as 24-hour work weeks “full time” worthy of benefits. “Of course, staff who work fewer hours don’t make as much money, but we’re finding

flexibility to spend more time with family is key,” Zakharenkov said. “We know there are many studies that show a direct correlation between long work hours and burnout. Truck drivers, pilots, and others limit their hours, but no one was doing it for veterinarians.” Zakharenkov said this has been particularly popular for young veterinarians who are also parenting. Other aspects of helping balance work and life are allowing everyone to rotate duties, as well as shifts.

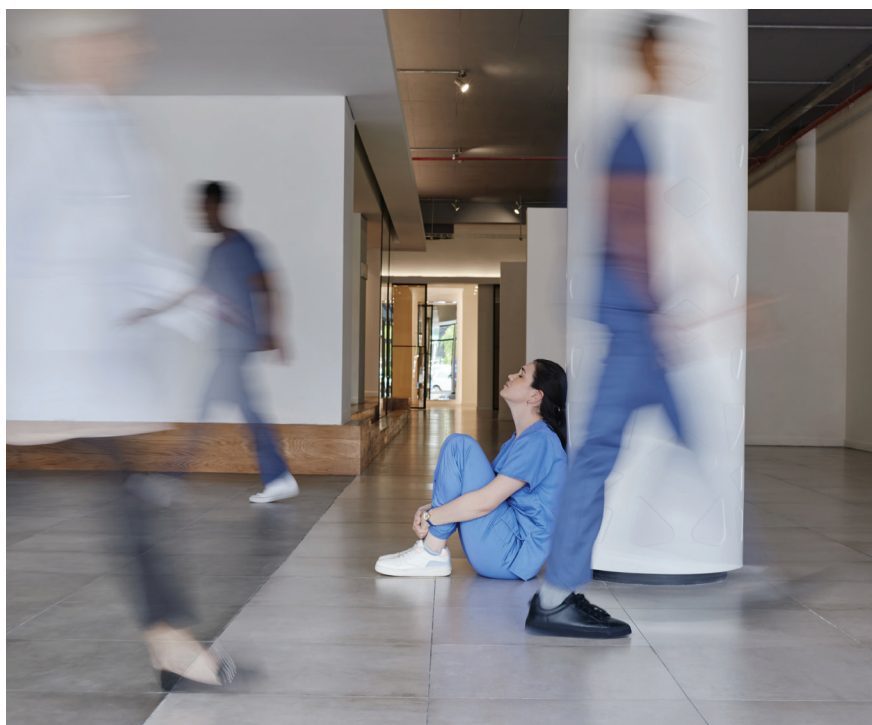
**A connection of core values with staff:** Zakharenkov said clinics across the United States are selling to the corporation, giving the hospital financial freedom, as well as a

personal connection to management through systems, such as apps, much like the ones Uber drivers use to rate their shifts. “Our staff has a direct line to management, and they can present ideas and also implement them.”

**Pay:** Zakharenkov said they realized they couldn’t just throw more pay at veterinarians and staff and have it fix everything. However, it helps that Galaxy veterinarians and their staff aren’t set up on commission pay, everyone owns a stake in the company from the doctors to kennel staff, and no one is required to sign a noncompete.

Zakharenkov said the company just started forming in the fall of 2021,





**“Until you’ve been in it awhile, you don’t understand how stress will affect you. I wasn’t willing to sacrifice that part of myself and realized education was a better fit.”**

—SARAH WOOTEN, DVM, VETERINARY SPECIALIST, PUMPKIN PET INSURANCE

so there aren’t yet many metrics to gauge how this business model is working against attrition rates and overall employee satisfaction. Galaxy Vets currently has 50 employees and had just purchased their first three clinics when this interview was conducted. They hope to have 15–18 clinics by the end of the year.

He said one early metric has been the interest shown in their company by prospective veterinarians and staff. In the four months preceding this interview, he said the company received 1,150 applications over a four-month period. They get 50–100 applications per week.

“At least 90% of clinics are short at least one veterinarian, and I think so

many people being interested in our model means people are attracted to what we are doing.”

### Hiring a Social Worker

Rebecca Baker, LCSW, at the Metropolitan Animal Specialty Hospital in Los Angeles, California, said hiring a staff social worker has helped her colleagues at the clinic deal with everything from clients who are having to say goodbye to their pets, to burnout, to even their own grief when several staff members lost loved ones during the pandemic. “I don’t personally believe in taking on the role of therapist,” said Baker. “I provide bridge services, helping them between crisis and stability and then provide that hand off to the services they need.” Baker also provides talks

and workshops to staff on dealing with burnout, mental health, and suicide ideation.

Baker consults not only with staff but also with clients who are having a difficult time dealing with their pet’s illness. “I act as a liaison, taking that burden off staff, which helps staff deal with stress in an indirect way.”

The final part of Baker’s job involves listening to staff’s concerns and bringing those concerns and ideas to upper management. “I advocate for staff, in a general way, so people feel freer to voice themselves,” said Baker.

One thing Baker said she’s had to do in her role is make sure she establishes clear boundaries, as well as attend therapy to relieve her own stress. “I think all clinicians should be in therapy,” she said. “It’s a safe space.” ✖

Kerri Fivecoat-Campbell is a writer living her dream life in a small cabin in the Ozark Mountains. She shares her life with her rescued pack of dogs. She is the author of *Living Large in Our Little House: Thriving in 480 Square Feet with Six Dogs, a Husband, and One Remote*. You can see more of her work at [kerrifivecoatcampbell.com](http://kerrifivecoatcampbell.com).



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# Beyond Feline Diabetes

## Demystifying Common Feline Endocrinopathies

by Renee Rucinsky, DVM, DABVP (Feline)

**Sometimes when I talk to other veterinary people**, either doctors or nurses, I get the impression that they fall into one of two categories: people who love diagnosing and managing feline endocrine cases, and people who would rather undergo an invasive medical procedure.

What is it about these cases that makes them so scary? In my mind, it's probably the same stuff that makes them so interesting—there are no two cats that are alike, and there are no two feline endocrine cases that are alike. Anyone who works with cats knows not only do they refuse to follow the textbook, they take that book, shred it, and line their litter boxes with it.

Let's talk about how to make some of the more common feline endocrinopathies a little easier to tackle.

### Diabetes Mellitus

The *2018 AAHA Diabetes Management Guidelines for Dogs and Cats* are a fantastic resource and have recently been updated. One of the most important messages of the guidelines is that you don't necessarily need to be obsessed with chasing perfection in your diabetic cat patients. Perfection is great, and what a unicorn if you can hit it! Between cost limitations, client compliance, and patient compliance, though, we rarely get things exactly right.

Left untreated, cats suffering from hyperaldosteronism are at risk for renal damage, ocular damage, and stroke.

Chronic diabetic cat cases are a great way to empower veterinary staff to educate clients and help them more effectively regulate their kitties. Moving away from in-hospital blood glucose curves has made things much less stressful on diabetic felines, but it also can make for more frequent and intense communication demands from clients. Continuous glucose monitors (CGMs) have probably been the biggest game-changer for diabetic cats and dogs. In addition to being a helpful way to monitor blood glucose trends, the discussions about the information CGMs provide can be a way to further bond clients to your practice team. Cat owners can scan and download glucose level trends and send that information along with notes about water intake and urine output, and trained staff members can have a telemedicine appointment to help guide the treatment plan. Regular laboratory and physical exam monitoring is clearly still important, but adding the extra level of communication and home monitoring is good for everyone involved—most of all, the diabetic cat.

## Hyperthyroidism

Hyperthyroidism is the most common endocrinopathy in older cats. Historically, hyperthyroid cats presented with what we now call the “classic” clinical signs: increased appetite, weight loss, increased activity, and tachycardia. A lot of things have changed since the veterinary profession started diagnosing thyroid disease in cats, not the least of which is routine lab screening for our patients. This routine screening has allowed us to diagnose whole different populations of cats with thyroid disease, identifying them earlier and frequently



Discussing hyperthyroid treatment, similar to discussing diabetic management, is a key opportunity for nurses and staff to talk about concerns and roadblocks to treatment.

before secondary damage to other organs can occur. Often these early diagnosed cats are younger, many of them younger than 10 years old. This presents us as a profession with a unique opportunity to aggressively tackle this curable disease, avoiding the significant side effects that can happen with longstanding, untreated hyperthyroidism.

The American Association of Feline Practitioners (AAFP) has a great set of guidelines for the diagnosis of hyperthyroidism. They have categorized cats with varying clinical signs and made it a little simpler to make decisions about cats without clinical signs or cats with clinical signs but incongruent lab values. The more we continue to do routine screening, the more subclinical hyperthyroid cats we will be able to identify. The most important takeaway from these guidelines is that cats with persistently high T4 levels, no matter what their presentation, need to be treated. Check out the guidelines at [www.catvets.com](http://www.catvets.com).

TSH testing was not discussed in the AAFP guidelines. Although we think of this test more when we're dealing with hypothyroid dogs, the thyroid-stimulating hormone (TSH) test can be useful for cats with early hyperthyroidism. Early hyperthyroid disease usually refers to cats who have minimal clinical symptoms, if any, and have a total T4 of under 4.5. In these cases, a TSH level will help show how much suppression of the normal thyroid tissue has occurred. This will be an important factor in deciding how these cases will be treated. If the TSH level is still measurable, there is a risk of damaging normal thyroid tissue when treating with radioactive iodine. Treatment with I131 should be postponed until the TSH is not measurable in borderline cats.

As mentioned before, all hyperthyroid cats need to be treated. Gone are the days of leaving the cat “a little hyperthyroid.” With few exceptions, the treatment of choice is radioactive iodine, especially now that we are



diagnosing cats much sooner than we have in the past. An important update in hyperthyroidism management is that cats do not necessarily need to be treated with methimazole prior to receiving radioactive iodine. This is going to be a big change for many veterinarians, as we are all conscious of the possibility of concurrent chronic kidney disease being hidden by hyperthyroidism. Regardless of how the thyroid disease is managed, if there is also kidney disease, it will be exposed.

There is benefit to eliminating the constant whole body changes that the hyperthyroid state creates. When methimazole is chosen as the treatment option, over time, as the hyperplastic thyroid continues to grow, the cat will gradually become less regulated. As that happens, the thyrotoxic effects on the heart and kidney continue. By eliminating the hyperthyroid state completely, those hormone fluctuations can also be eliminated and the veterinary staff

can focus on managing any other conditions without the constant interference of the thyroid.

Radioactive iodine treatment is a difficult choice for some owners because of cost, time away from home, age of the cat, and a general lack of understanding of how the treatment works. But those considerations only come into play if we are actually discussing this treatment. An important thing to remember as doctors and nurses is that we have to present all treatment options for a problem and stop making decisions for our clients. We are all guilty of bias sometimes, especially when it comes to financial judgments. We all love seeing our clients pull up in fancy cars, right? But are they always the ones who choose the ideal treatment plan?

Discussing hyperthyroid treatment, similar to discussing diabetic management, is a key opportunity for nurses and staff to talk about

concerns and roadblocks to treatment. Cats are notoriously hard to medicate, and clients are sometimes willing to do more than we realize when they know that their relationship with their pets can be maintained by curing a disease with a single injection. Cost, distance, time away from home—these are all things that we may presume our clients don't want to do, and we have to remember to keep our biases out of their decisions. Clearly not everyone has easy access to this treatment, but the sentiment is the same. Educate your clients, let your team members continue that education, and allow the cat owner to make the best decision they can.

## Hypothyroidism

Hypothyroidism in cats can occur as a primary congenital problem, or most commonly as a secondary sequela to treatment for hyperthyroidism. Congenital hypothyroidism should be suspected in kittens who are slow to grow or present with constipation,

## Pearls of Wisdom

- Owners know their pets better than we do, and listening when they believe something is wrong can save a pet's life.
- Cost of I131 treatment may actually be less expensive in the long run for younger hyperthyroid cats, and maintaining a good relationship with a pet may be priceless for the owner.
- Starting methimazole prior to I131 treatment is not mandatory for most hyperthyroid cats.
- Don't skip taking blood pressures! Figure out a way for your team to be successful.
- Allowing hypothyroidism to persist after thyroid treatment will accelerate chronic kidney disease.







Short appointment times, uncooperative patients, lack of staff technical skills, and false elevations because of stress and anxiety can all be factors for not having accurate, routine blood pressure measurements on feline patients.

lethargy, or just being a little dull. Diagnosis is usually straightforward, with low total thyroxine levels and elevated thyroid-stimulating hormone levels being diagnostic. Supplementation with levothyroxine is effective and lifelong.

Naturally occurring hypothyroidism in an adult cat is extremely rare, and a decreased T4 level is most commonly secondary to nonthyroidal illness. If an adult cat has a below-normal T4 level and has not been treated for hyperthyroidism, the cat should be screened for concurrent systemic disease. Improvement of the primary problem should allow the thyroid levels to normalize.

Iatrogenic hypothyroidism can be caused by overadministration of methimazole, thyroidectomy, or I131 therapy. The target T4 range for well-controlled hyperthyroid cats is between 1.0 and 2.5 ug/dL. Methimazole administration should be adjusted to reach this zone. After thyroidectomy or I131 administration, the T4 should normalize within three months. If the T4 remains

lower than 0.8 after three months, supplementation with levothyroxine is indicated. Allowing hypothyroidism to persist will accelerate chronic kidney disease. It is not acceptable to allow the T4 to remain below normal.

### Hyperaldosteronism

If you haven't diagnosed a cat with hyperaldosteronism, odds are you've missed it. This disease can be subtle in presentation, and because cats are such challenging patients, it can be very easy to miss if you're not paying close attention.

Excess aldosterone secretion is typically caused by either an adenoma or a carcinoma of the adrenal gland. Aldosterone is responsible for the regulation of potassium and sodium and contributes to water balance. Simplifying, the presence of excessive aldosterone creates a situation in which potassium is overly excreted and sodium is retained, leading to increased intracellular fluid and increased blood pressure.

The hallmarks of hyperaldosteronism

are hypokalemia and systemic hypertension. Although most laboratories show a normal potassium level down to 3.6 or 3.7 mg/dL, anything under 4.0 mg/dL suggests whole-body depletion of potassium. Cats with hyperaldosteronism will usually be middle-aged to older cats, and low potassium may be noted on routine lab screening. With advanced hyperaldosteronism, the potassium may be lower than 3 mg/dL.

Blood pressure screening should be done at least annually in middle-aged to older cats. In reality, this can be challenging. Short appointment times, uncooperative patients, lack of staff technical skills, and false elevations because of stress and anxiety can all be factors for not having accurate, routine blood pressure measurements on feline patients. Performing a retinal examination on all feline patients is quick and relatively easy. With practice, identifying tortuous retinal vessels and small retinal hemorrhages associated with longstanding hypertension becomes easier and is tremendously helpful

in identifying true hypertensive cats. A retinal exam is not meant to be a substitution for actual blood pressure measurement.

Clinical signs of longstanding hyperaldosteronism include severe muscle weakness, ataxia, blindness, and retinal detachment. Earlier in the disease course, however, concerns from owners may be nonspecific. Affected cats may be somewhat lethargic or withdrawn because of the hypertension. People with hypertension frequently have headaches; being lethargic or withdrawn may be how our feline patients demonstrate the same symptom. The cats may be reluctant to jump up because of the declining potassium levels and subsequent muscle weakness.

As veterinary professionals, keeping an open mind about all of the differentials for vague symptoms is imperative. Owners know their pets better than we do, and listening when they believe something is wrong can save a pet's life. The early signs of hyperaldosteronism could easily be attributed to other diseases or just to normal age changes. Most cats

with early hyperaldosteronism do not show polyuria or polydipsia. This is important because hypertension and hypokalemia are frequent consequences of chronic kidney disease. Cats with refractory hypertension and hypokalemia should be additionally screened with plasma aldosterone concentration, which will provide a diagnosis in the majority of cases. Abdominal ultrasonography can identify an adrenal mass.

Left untreated, cats suffering from hyperaldosteronism are at risk for renal damage, ocular damage, and stroke. When possible, surgery is the treatment of choice for hyperaldosteronism. If surgery is not an option, either because the mass is unresectable or the owner chooses not to pursue, medical management can be effective. Medical management requires controlling the hypertension, supplementing potassium aggressively, and using spironolactone (an aldosterone receptor blocker) to help reduce the loss of potassium.

### Primary Hyperparathyroidism

Primary hyperparathyroidism is a disease that we usually think about in our canine patients a whole lot more than our feline ones. It definitely isn't as common as in dogs, but it is something to consider in cats.

Clinical signs of primary hyperparathyroidism are fairly

nonspecific, with vomiting, lethargy, and decreased appetite being most common. Cats are more likely to have a palpable cervical mass than dogs, which may be mistaken for an enlarged thyroid gland. Hypercalcemia is present on routine lab testing and should be interpreted on fasted samples. Renal parameters may or may not be abnormal, but with renal secondary hyperparathyroidism, renal parameters will always be abnormal. Idiopathic hypercalcemia is the most common cause for elevated calcium in cats, but a complete workup for any calcium abnormality will include an ionized calcium level and a parathyroid hormone (PTH) concentration. Elevated ionized calcium, elevated PTH concentration, and a palpable cervical mass are consistent with a parathyroid mass and primary hyperparathyroidism. Treatment of choice is surgical removal of the mass, and the success rate for surgery is good.

Just like anything else in feline medicine, having patience dealing with the various endocrinopathies can make things go much more smoothly. Successful diagnosing and treating cats frequently requires more client communication, more creativity, humility, and perseverance.

Don't panic, go one step at a time, and don't be afraid to ask for help. ✖

## Further Reading

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Renee Rucinsky, DVM, DABVP (Feline), is a graduate of the University of Missouri College of Veterinary Medicine and has been a board certified feline specialist for over 20 years. In addition to routine feline wellness care, her hospital, at Mid Atlantic Cat Hospital and Mid Atlantic Feline Thyroid Center in Queenstown, Maryland, has become a busy referral center for complicated feline internal medicine cases, especially for diabetic cats. Although kittens are great, Rucinsky is most drawn to geriatric care, endocrinology, and managing complex comorbidities in her feline patients. When not working, you can find her out for a trail run or on her mountain bike, out on the paddle board, or sipping craft beers at a local brewery.



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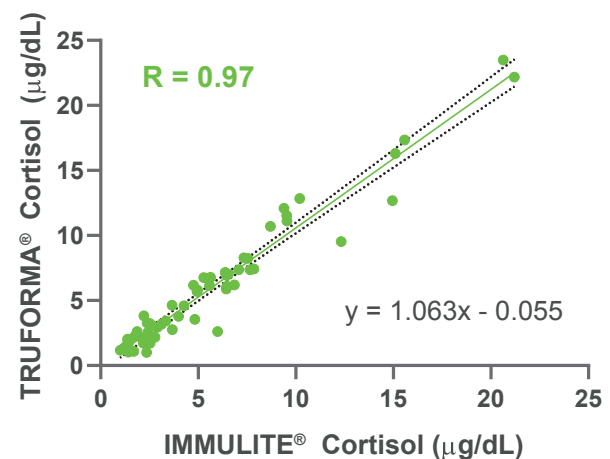
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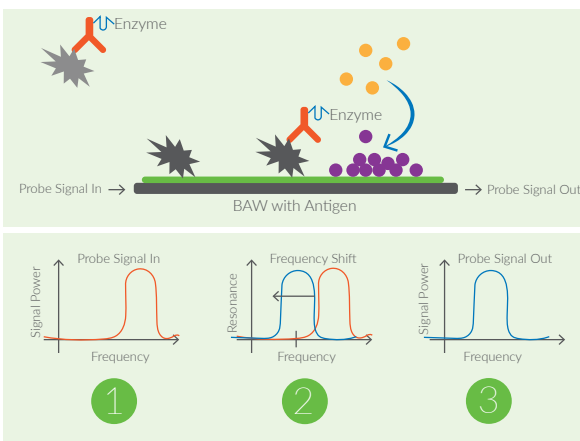
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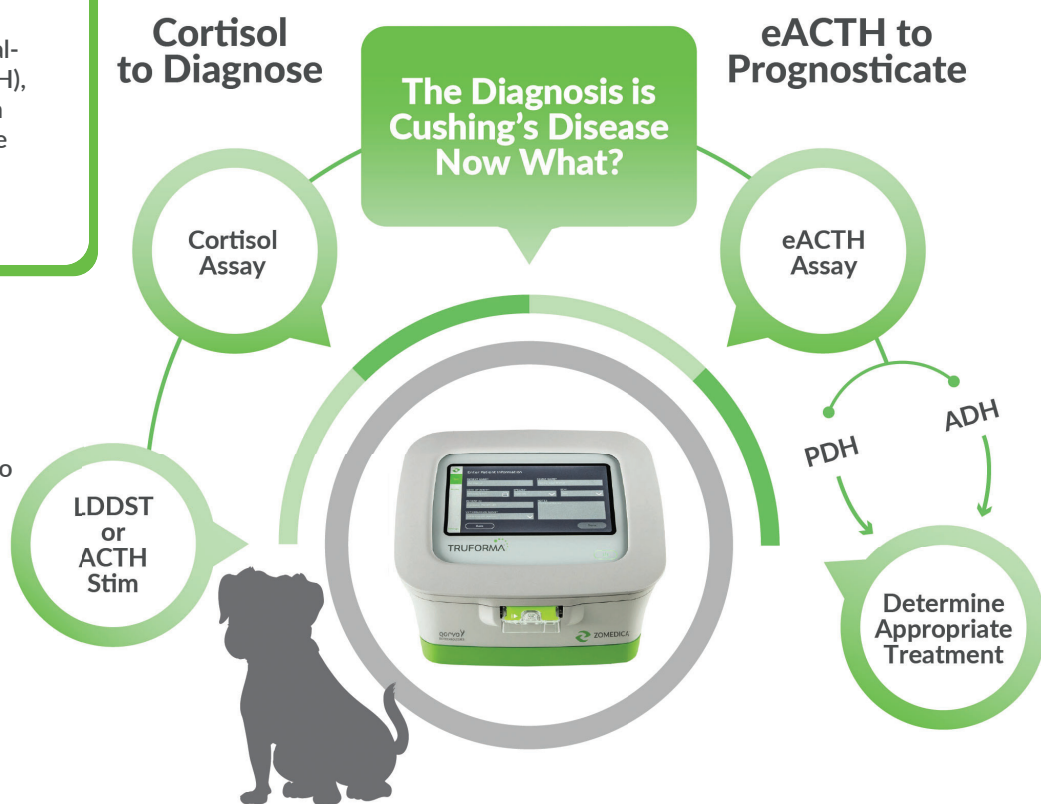
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# Mindfulness: An Oxygen Mask for Your Brain



An Interview with Patty Casebolt on *Central Line: The AAHA Podcast*

Hosted by Katie Berlin, DVM

**Mindfulness and meditation have begun to appear** consistently in conversations about mental health and wellbeing. Leaders in nearly every field, from Ariana Huffington to Bill Gates, cite mindfulness and meditation as keys to their success, and it turns out there's plenty of evidence to back up the benefits. Patty Casebolt, chief operating officer at the Medical Eye Center, was introduced to us by our friends at CareCredit, who generously made it possible for us to have a conversation about how mindfulness can be worked into our busy days and why even skeptics should consider making meditation a habit.

**Patty Casebolt:** I started as a technician, so I've been on the clinic side, and I've been in management for a really long time. But the path that brought me here is most likely what

a lot of people deal with, which is stress. I developed some pretty serious stress-related illnesses. And maybe 10 years ago my doctor recommended that I get into mindfulness and meditation as a way to help, because mainstream medicine wasn't helping. And it was a dramatic change. I am symptom-free. And I was so impressed that I continued my journey and became certified as a mindfulness meditation coach.

**Katie Berlin:** That rings true for me this year, for sure, after having had some very strange neurologic symptoms pop up seemingly out of nowhere. I have to admit that I'm very dedicated when it comes to exercise and to try to eat well and all that, but I have a hard time with things that require me to be still.



**PC:** I diagnosed myself as an A+++ personality type—so driven. And I work ridiculous hours, and my family calls me a workaholic. But I have discovered, and I want to share with you today, how someone like me, maybe someone like you, can work in mindfulness.

So if you're thinking it's sitting on a cushion for 20 minutes or half an hour, that's not what we're talking about today. That's great if someone wants to do that, but really, this is more for the working person who wants to find more manageable ways to work in mindfulness throughout the day, those micro-moments of pause.

**KB:** Can you tell us what the difference is between mindfulness and meditation?

**PC:** There are many different definitions if you google it. I like going back to the person who really coined the term *mindfulness*. Mindfulness is a state of being, if you just think about that, and meditation is a tool to achieve that. Jon Kabat-Zinn was really like the father of mindfulness, and he says that mindfulness is *the awareness that arises through paying attention on purpose in the present moment nonjudgmentally*, so that means as you become aware of what's going on for you in this present moment, you're not judging yourself.

Meditation is just simply a tool. It's possible to be mindful without actually meditating. And I think that's the part that most people get confused. Meditation is *a tool or a practice that helps an individual use a technique that trains their brain*—it trains their attention to become aware of this present moment and achieve a mentally clear and emotionally calm and stable state. It's really about wiring two parts of the brain: the prefrontal cortex, which is the executive problem-solving part of our brain, and the amygdala, the emotional part—fight, flight, freeze. When we are becoming defensive or scared or any kind of emotional response, most of us go right to that amygdala part, not problem-solving. And the wonderful thing about mindfulness is they've shown in studies that those two regions of the brain actually wire together, and therefore, I'm able to be more emotionally regulated and access that problem-solving part of my brain, real time, in the moment when I need it most.

Everyone I've ever experienced in the veterinary industry has an amazing amount of empathy. One of the reasons

I think that mindfulness is so important is the difference between sympathy and empathy: sympathy is I can relate to what's going on for you, but empathy is I'm actually feeling it myself.

And the problem with empathy can be: if I really allow myself to be in the same space as you emotionally, now we're both in the trench, right? And that's where mindfulness really helps me bring up that resource of still being empathetic and feeling with you, and yet I can help problem-solve despite what's going on for you emotionally.

**KB:** That kind of makes me wonder if we should call it empathy fatigue instead of compassion fatigue.

**PC:** It's true. I work with a lot of patients who have really received devastating news about their eyesight, and what I was noticing for myself is absolute fatigue. At the end of the day, [I was] almost feeling depressed, and what I noticed through doing so much mindfulness and meditation is I was able to tap into a resource that I hadn't been [able to tap into] before. Although I was still feeling what was going on for them, I was able to—like the oxygen mask, when they tell you in the plane to put it on yourself first before anyone else, it's one and the same thing. I'll be able to show up every day, at my best, and therefore be helpful for other people.

**KB:** Regardless of our role in the hospital or what our day is looking like, do you have some tips for how anybody can start to incorporate mindfulness into their day?

**PC:** I do. There are ways, these micro-moments, that you don't have to sit on a cushion for 30 minutes a day to achieve this zen-like feeling inside.

So, it starts with—you've already mentioned it—setting an intention in the morning. So as soon as you wake up, you're asking yourself, "What is my intention for the day?" And that's very different than a goal. A goal is action, moving toward something. Intention is more open-ended and nonjudgmental, so maybe my intention today is to create micro-moments throughout the day when I'm going to take care of myself in that way.

The next thing would be in the morning when you're eating breakfast and drinking your coffee, doing so in a mindful way. It means taking a moment to really pay attention, because remember, mindfulness is about being

in this present moment. Putting the phone away and really absorbing what it feels like, using all five senses—what does my breakfast smell like? What does it taste like? What's the texture? What does it sound like? Am I crunching or . . . ?

And it might sound silly, but it is a way of becoming present without any complicated tools, and that's kind of easing you into your morning as a micro-moment.

The next thing is, on your drive in to work, take a different route. When we go to work every day, I'm sure you're probably like me, where I've somehow ended up at work and had no idea how I got there. If you force yourself to take a different route, your brain is forced to be more present, to pay attention.

The other thing, I love this one, is breathing into the belly at the stop lights. So any time you stop for a red light, just breathe into your belly, pay attention to your breath, until a green light happens, and that's a very easy way of becoming present.

**KB:** That's something that as a person who's chronically five minutes later than I wanted to be, I have had to do intentionally many times because I'm sitting there at the red light or behind the train that's taking forever or whatever.

**PC:** Definitely—control the adrenaline rush, the cortisol spike.

The next is walking meditation, and you can do this at your lunch break, but I like to start when I come from the parking

lot into the building. Literally paying attention to how my foot is falling on the ground, where my weight is transferring from the ball of my foot to the heel, then looking, and what am I noticing? What are five new things that I've noticed just from the parking lot [to the door]?

Because again you could get into autopilot, just lock in and be thinking about my first meeting or that report that was due last night that I didn't finish. You're forcing, again, that presence, and using all five senses—so what do I smell? What am I hearing? What am I seeing? Maybe even, what does the air taste like? It doesn't seem like you could taste the air, but if you pay attention, there are subtleties, right? And then as you are walking into the building, ask yourself, "What is my purpose for being here?"

Doors can be a real key, any time you pass through a door. If you're coming into the office, the door is a moment to pause and remind yourself, as you go in that door, of three things: What are my thoughts right now, in my head? In my body, what are the sensations that are present right now? And then in my heart, what are emotions that are present right now? And that's another way of bringing yourself a micro-moment, right? Just a quick check in, how am I doing in those three areas? The mind/head, the body, the heart.

Another really important thing is the micro-moment of a break. I can go hours and my mind and my body are disconnected. If you find that it's difficult to find a space in the office where you're not going to get interrupted, go into a bathroom and

## Patty's Micro-Moments

Try to incorporate some or all of these mini moments of mindfulness throughout your day . . . or better yet, try them with your team.

- Set an intention (not a goal—intentions are open-ended and nonjudgmental) for the day as soon as you wake up. Maybe "I'll create micro-moments of mindfulness today."
- Eat breakfast mindfully—no phone, no TV, no eating in the car. Use all of your senses to experience the smells, textures, and tastes of your food and drink.
- Take a different route to work.

- Breathe into your belly at red lights and pay attention to your breaths until the light turns green.
- Try a walking meditation from your car to the door of the clinic. How is your foot meeting the ground? How is your weight shifting? Take note of five new things on the way from the parking lot into the building.
- When you pass through a door—into the hospital, into your house, even into an exam room—pause and check in with your mind (what are my thoughts?), your body (what sensations are present?), and your heart (what am I feeling?).
- Take a break to connect your mind and body, even if you have to lock yourself in the bathroom for 60 seconds to allow yourself to reset.

**Brief Summary: Cats and Dogs – This information is not comprehensive. Before using PROZINC, please consult the product insert, a summary of which follows. The product insert may be obtained from your veterinarian or by visiting [www.prozinc.us](http://www.prozinc.us).**

## ProZinc® (protamine zinc recombinant human insulin)

40 IU/mL

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

**Description:** PROZINC® 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 and dogs with diabetes mellitus.

**Contraindications:** PROZINC is contraindicated in cats and dogs sensitive to protamine zinc recombinant human insulin or any other ingredients in PROZINC. PROZINC is contraindicated during episodes of hypoglycemia.

### Warnings:

**User Safety:** For use in cats and dogs 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. Use of this product, even at established doses, has been associated with hypoglycemia. A dog or cat 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 dogs and cats that are difficult to regulate.

**Precautions:** Cats and dogs 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. Overdose can result in profound hypoglycemia and death.

Glucocorticoids, progestogens, and certain endocrinopathies can have an antagonistic effect on insulin activity. Glucocorticoid and progestogen use should be avoided.

The safety and effectiveness of PROZINC in breeding, pregnant, and lactating cats and dogs has not been evaluated. The safety and effectiveness of PROZINC in kittens and puppies has not been evaluated.

**Adverse Reactions - Cats:** In a 45-day effectiveness field study, 176 cats received PROZINC. Hypoglycemia (low blood sugar) was the most common reported adverse event. Clinical signs of hypoglycemia were generally mild in nature (described as lethargic, sluggish, weak, trembling, uncoordinated, groggy, glassy-eyed or dazed).

In severe cases of hypoglycemia, seizures and coma can occur. Hypoglycemia can be fatal if an affected cat does not receive prompt treatment.

Local transient injection site reactions may occur.

**Dogs:** In a 182-day field study, 276 dogs received PROZINC. The most common adverse reactions were lethargy, anorexia, hypoglycemia (low blood sugar), vomiting, seizures, shaking, diarrhea, and ataxia.

Clinical signs of hypoglycemia varied and included seizure, collapse, ataxia, staggering, trembling, twitching, shaking, disorientation, lethargy, weakness, and vocalization.

**Information for Cat Owners:** PROZINC, 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.

The most common adverse reaction observed is hypoglycemia (low blood sugar). 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.

Local transient injection site reactions may occur.

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.

**Information for Dog Owners:** PROZINC, 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.

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 dog 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 - Cats:** A total of 187 client-owned cats were enrolled in a 45-day field study, with 176 receiving PROZINC. 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.

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.

**Dogs:** A total of 276 client-owned dogs were enrolled in an 84-day field study followed by a 98-day extended-use phase with 276 dogs receiving PROZINC. The dogs included various purebred and mixed breed dogs ranging in age from 2 to 16 years and in weight from 3.3 to 123 pounds.

Effectiveness was based on successful control of diabetes which was defined as improvement in at least one laboratory variable (blood glucose curve mean, blood glucose curve nadir, or fructosamine) and at least one clinical sign (polyuria, polydipsia, or weight loss). Based on this definition, 162 of 224 cases (72%) were considered successful.

Approved by FDA under NADA # 141-297

### Marketed by:

Boehringer Ingelheim Animal Health USA Inc.  
Duluth, GA 30096

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lock the door and set your timer on your phone for a minute. Literally breathing for even a minute can reset so much and just give you that presence of mind of like, “I’m doing this for me, and nobody can get to me right now. This one minute is all for me.”

**KB:** I love that. And we are so conditioned in healthcare and veterinary care to not take that time for ourselves during the day. It’s like we think we’re not as worthy or not working as hard if we take a minute for ourselves, and that’s just not true.

**PC:** For me, it has felt like a badge of honor. Even before COVID, I just think about how often most of us came to work sick and worked through it. And all these things like, “I don’t need a break. I can power through.” Like you’re saying you’re more worthy or more competent [if you don’t take breaks].

And honestly, what I have found in our office is the more we take care of ourselves, the more others are looking at that and giving themselves permission [to do the same]. It’s supportive, and we haven’t realized. ✖

*This episode was made possible with generous support from CareCredit.*



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Katie Berlin, DVM, CVA, is AAHA's Veterinary Content Strategist and host of *Central Line: The AAHA Podcast*.





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1. PROZINC<sup>®</sup> (protamine zinc recombinant human insulin) [Freedom of Information Supplement; NADA 141-297]. St. Joseph, MO: Boehringer Ingelheim Vetmedica, Inc.; 2019.

**IMPORTANT SAFETY INFORMATION:** PROZINC<sup>®</sup> (protamine zinc recombinant human insulin) is for use in dogs and cats only. Keep out of the reach of children. Owners should be advised to observe for signs of hypoglycemia (low blood sugar). 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 animal does not receive prompt treatment. PROZINC should not be used during episodes of hypoglycemia (low blood sugar). 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. The safety and effectiveness of PROZINC in puppies, kittens, or breeding, pregnant, and lactating animals has not been evaluated. **For more information, see full prescribing information.**

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## All Insulins Are Not Created Equal

PROZINC® (protamine zinc recombinant human insulin) treatment for diabetes mellitus is the only FDA-approved veterinary insulin made with recombinant technology. It's also the only product with protamine zinc, which supports optimal glycemic control and appropriate duration of action. To learn more, contact your Boehringer Ingelheim Sales Representative.



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# Stefany Hutchinson

*Receptionist*

**Village Veterinary Hospital, Canastota, NY**

Year started in vet medicine: **2000**

Years with practice: **22**

Nominated by: **Jennifer Crompt, LVT**

**AAHA MEMBER**

*Employee of the Month*



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Stefany is one of our main receptionists. She manages the client scheduling for 11–12 doctors plus our growing and very busy rehabilitation department.

## How Does Stefany Go Above and Beyond?

Stefany manages to bridge the gap between client and doctor schedules. She keeps everyone's schedule in line and flowing while accommodating the clients also.

## In Their Own Words

*Why do you love your job:* I love to help people and pets.

*Favorite celebrity:* Dave Matthews

*Pets at home:* Two dogs, two cats

*What brought you to the profession:* An internship at school for business and animal related business

*Hobbies outside of work:* Kayaking, swimming, shopping, spending time with the kids

*Favorite book/TV show:* General Hospital

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