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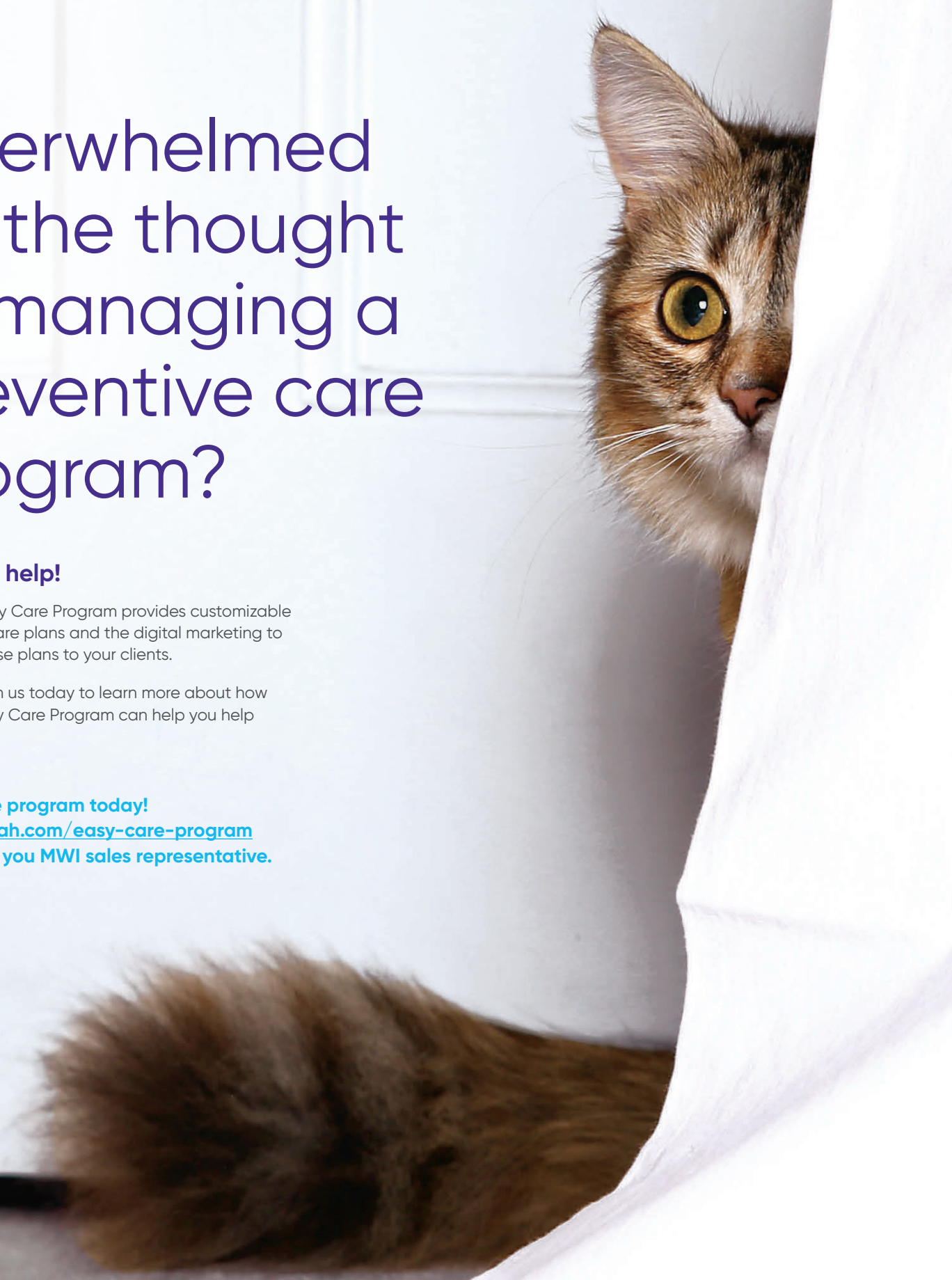
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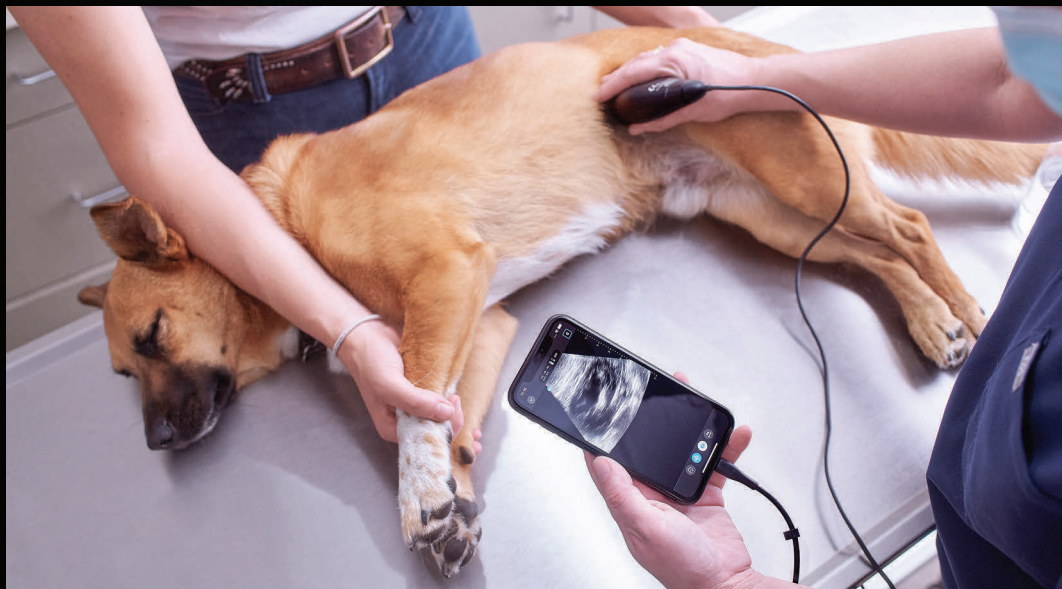
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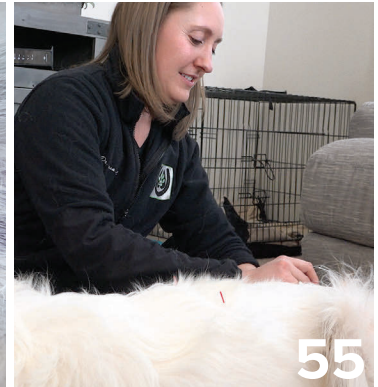
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from the editor's desk

YOU HAVE PROBABLY HEARD ABOUT THE RURAL VETERINARIAN CRISIS, where there is a critical shortage of large animal veterinarians who live and practice in rural areas. But there is another story, about companion animal veterinarians who are actually thriving in the North American countryside. This month we will look at three accredited practices that are doing well in their rural outposts. Next month, we'll look at three more to conclude the two-part series.

Also in this issue, we look at how to cope with getting reported to your state veterinary board. Obviously, it can be a stressful experience, but knowing what to expect before anything ever happens can better prepare you.

We are also covering several topics written by experts in their field. First, lasers, with a Q&A with pain management expert Jan Huntingford, DVM, DACVSMR. Then, we have an article on referring dermatology patients, by boarded dermatologist Terri Bonenberger, DVM, DACVD. And finally, a look at leveling up your evaluation of patients with lumbosacral conditions, by Narda G. Robinson, DO, DVM, MS, FAAMA, and Mike Petty, DVM, CCRT, CVPP, DAAPM.

WE WANT YOUR OPINION!

The *Trends* team is always interested to hear what our readers have to say about the topics *Trends* is covering—and what we are not covering. Feel free to reach out any time with your thoughts or ideas for article topics.

And don't forget to nominate your own Employee of the Month to win \$100!

COMING NEXT MONTH

Next month we will have articles on pain management, laser therapy, and dermatology. We will also look at some stories from veterinarians working out of rural areas and some of the unique challenges they face.

As always, let me know what you think at trends@aaha.org.

—Ben Williams, Editor



vetmedin®

(pimobendan) CHEWABLE TABLETS

FOR THE HEART *from the start.*

- In clinical studies, dogs treated with VETMEDIN lived almost twice as long from the start of treatment,¹ and required less intensification of therapy to maintain quality of life, than those treated with an ACE inhibitor²
- In the US, VETMEDIN has supported over 1 million dogs³
- Recommended by the ACVIM as part of standard treatment for dogs with congestive heart failure⁴



Studies show using VETMEDIN from the start gives dogs with CHF the opportunity for better days and longer lives.⁵

IMPORTANT SAFETY INFORMATION: VETMEDIN is for use in dogs with clinical evidence of heart failure only. The most common side effects reported in field studies were poor appetite, lethargy, diarrhea, dyspnea, azotemia, weakness, and ataxia. VETMEDIN should not be given in case of hypertrophic cardiomyopathy, aortic stenosis, or any other clinical condition where an augmentation of cardiac output is inappropriate for functional or anatomical reasons. **For more information, please see full prescribing information.**

References: ¹ Häggström J, Boswood A, O'Grady M, et al. Effect of pimobendan or benazepril hydrochloride on survival times in dogs with congestive heart failure caused by naturally occurring myxomatous mitral valve disease: the QUEST study. *J Vet Intern Med.* 2008;22(5):1124–1135. ² Häggström J, Boswood A, O'Grady M, et al. Longitudinal analysis of quality of life, clinical, radiographic, echocardiographic, and laboratory variables in dogs with myxomatous mitral valve disease receiving pimobendan or benazepril: the QUEST study. *J Vet Intern Med.* 2013;27(6):1441–1451. ³ The number of dogs treated with VETMEDIN in the US is estimated by IDEXX Laboratories, Inc. based on transaction data from a representative sample of US veterinary practices. Data on file at IDEXX Laboratories, Inc. Westbrook, Maine USA. ⁴ Keene BW, Atkins CE, Bonagura JD, Fox PR, Häggström J, Fuentes VL, et al. ACVIM consensus guidelines for the diagnosis and treatment of myxomatous mitral valve disease in dogs. *J Vet Intern Med.* 2019, 33:1127–1140. ⁵ Lombard CW, Jöns O, Bussadori CM; for the VetSCOPE study. Clinical efficacy of pimobendan versus benazepril for the treatment of acquired atrioventricular valvular disease in dogs. *J Am Anim Hosp Assoc.* 2006;42(4):249–261.

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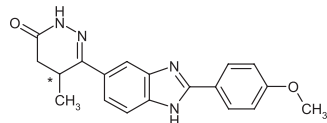
VETMEDIN®

(pimobendan)
Chewable Tablets

Cardiac drug for oral use in dogs only

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

Description: VETMEDIN (pimobendan) is supplied as oblong half-scored chewable tablets containing 1.25, 2.5, 5 or 10 mg pimobendan per tablet. Pimobendan, a benzimidazole-pyridazinone derivative, is a non-sympathomimetic, non-glycoside inotropic drug with vasodilatory properties. Pimobendan exerts a stimulatory myocardial effect by a dual mechanism of action consisting of an increase in calcium sensitivity of cardiac myofilaments and inhibition of phosphodiesterase (Type III). Pimobendan exhibits vasodilating activity by inhibiting phosphodiesterase III activity. The chemical name of pimobendan is 4,5-dihydro-6-[2-(4-methoxyphenyl)-1H-benzimidazole-5-yl]-5-methyl-3(2H)-pyridazinone. The structural formula of pimobendan is:



Indications: VETMEDIN (pimobendan) is indicated for the management of the signs of mild, moderate, or severe (modified NYHA Class II^a, III^b, or IV^c) congestive heart failure in dogs due to atrioventricular valvular insufficiency (AVVI) or dilated cardiomyopathy (DCM). VETMEDIN is indicated for use with concurrent therapy for congestive heart failure (e.g., furosemide, etc.) as appropriate on a case-by-case basis.

^a A dog with modified New York Heart Association (NYHA) Class II heart failure has fatigue, shortness of breath, coughing, etc. apparent when ordinary exercise is exceeded.

^b A dog with modified NYHA Class III heart failure is comfortable at rest, but exercise capacity is minimal.

^c A dog with modified NYHA Class IV heart failure has no capacity for exercise and disabling clinical signs are present even at rest.

Dosage and Administration: VETMEDIN should be administered orally at a total daily dose of 0.23 mg/lb (0.5 mg/kg) body weight, using a suitable combination of whole or half tablets. The total daily dose should be divided into 2 portions that are not necessarily equal, and the portions should be administered approximately 12 hours apart (i.e., morning and evening). The tablets are scored and the calculated dosage should be provided to the nearest half tablet increment.

Contraindications: VETMEDIN should not be given in cases of hypertrophic cardiomyopathy, aortic stenosis, or any other clinical condition where an augmentation of cardiac output is inappropriate for functional or anatomical reasons.

Warnings: Only for use in dogs with clinical evidence of heart failure. At 3 and 5 times the recommended dosage, administered over a 6-month period of time, pimobendan caused an exaggerated hemodynamic response in the normal dog heart, which was associated with cardiac pathology (See **Animal Safety**).

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

Precautions: The safety of VETMEDIN has not been established in dogs with asymptomatic heart disease or in heart failure caused by etiologies other than AVVI or DCM. The safe use of VETMEDIN has not been evaluated in dogs younger than 6 months of age, dogs with congenital heart defects, dogs with diabetes mellitus or other serious metabolic diseases, dogs used for breeding, or pregnant or lactating bitches.

Adverse Reactions: Clinical findings/adverse reactions were recorded in a 56-day field study of dogs with congestive heart failure (CHF) due to AVVI (256 dogs) or DCM (99 dogs). Dogs were treated with either VETMEDIN (175 dogs) or the active control enalapril maleate (180 dogs). Dogs in both treatment groups received additional background cardiac therapy (See **Effectiveness** for details and the difference in digoxin administration between treatment groups).

The VETMEDIN group had the following prevalence (percent of dogs with at least one occurrence) of common adverse reactions/new clinical findings (not present in a dog prior to beginning study treatments): poor appetite (38%), lethargy (33%), diarrhea (30%), dyspnea (29%), azotemia (14%), weakness and ataxia (13%), pleural effusion (10%), syncope (9%), cough (7%), sudden death (6%), ascites (6%), and heart murmur (3%). Prevalence was similar in the active control group. The prevalence of renal failure was higher in the active control group (4%) compared to the VETMEDIN group (1%).

Adverse reactions/new clinical findings were seen in both treatment groups and were potentially related to CHF, the therapy of CHF, or both. The following adverse reactions/new clinical findings are listed according to body system and are not in order of prevalence: CHF death, sudden death, chordae tendinae rupture, left atrial tear, arrhythmias overall, tachycardia, syncope, weak pulses, irregular pulses, increased pulmonary edema, dyspnea, increased respiratory rate, coughing, gagging, pleural effusion, ascites, hepatic congestion, decreased appetite, vomiting, diarrhea, melena, weight loss, lethargy, depression, weakness, collapse, shaking, trembling, ataxia, seizures, restlessness, agitation, pruritus, increased water consumption, increased urination, urinary accidents, azotemia, dehydration, abnormal serum electrolyte, protein, and glucose values, mild increases in serum hepatic enzyme levels, and mildly decreased platelet counts.

See Table 1 for mortality due to CHF (including euthanasia, natural death, and sudden death) and for the development of new arrhythmias (not present in a dog prior to beginning study treatments) by treatment group and type of heart disease (AVVI or DCM) in the 56-day field study.

Table 1: CHF Death and New Arrhythmias in the 56-Day Field Study

	VETMEDIN® Group	Active Control Group
Dogs that died due to CHF	14.3% n = 175	14.4% n = 180
	9 of 126 dogs with AVVI	16 of 130 dogs with AVVI
	16 of 49 dogs with DCM	10 of 50 dogs with DCM
Dogs that developed new arrhythmias^a	39.4% n = 175	45.0% n = 180
	45 of 126 dogs with AVVI	59 of 130 dogs with AVVI
	24 of 49 dogs with DCM	22 of 50 dogs with DCM

^a New arrhythmias included supraventricular premature beats and tachycardia, atrial fibrillation, atrioventricular block, sinus bradycardia, ventricular premature beats and tachycardia, and bundle branch block

Following the 56-day masked field study, 137 dogs in the VETMEDIN group were allowed to continue on VETMEDIN in an open-label extended-use study without restrictions on concurrent therapy. The adverse reactions/new clinical findings in the extended-use study were consistent with those reported in the 56-day study, with the following exception: One dog in the extended-use study developed acute cholestatic liver failure after 140 days on VETMEDIN and furosemide.

In foreign post-approval drug experience reporting, the following additional suspected adverse reactions were reported in dogs treated with a capsule formulation of pimobendan: hemorrhage, petechia, anemia, hyperactivity, excited behavior, erythema, rash, drooling, constipation, and diabetes mellitus.

To report suspected adverse reactions, to obtain a Safety Data Sheet (SDS), or for technical assistance, contact Boehringer Ingelheim Animal Health USA Inc. at 1-888-637-4251. For additional information about adverse drug experience reporting for animal drugs, contact the FDA at 1-888-FDA-VETS or online at <http://www.fda.gov/reportanimalae>.

Clinical Pharmacology: Pimobendan is oxidatively demethylated to a pharmacologically active metabolite which is then conjugated with sulfate or glucuronic acid and excreted mainly via feces. The mean extent of protein binding of pimobendan and the active metabolite in dog plasma is >90%. Following a single oral administration of 0.25 mg/kg VETMEDIN tablets the maximal mean (\pm 1 SD) plasma concentrations (C_{max}) of pimobendan and the active metabolite were 3.09 (0.76) ng/ml and 3.66 (1.21) ng/ml, respectively. Individual dog C_{max} values for pimobendan and the active metabolite were observed 1 to 4 hours post-dose (mean: 2 and 3 hours, respectively). The total body clearance of pimobendan was approximately 90 mL/min/kg, and the terminal elimination half-lives of pimobendan and the active metabolite were approximately 0.5 hours and 2 hours, respectively. Plasma levels of pimobendan and active metabolite were below quantifiable levels by 4 and 8 hours after oral administration, respectively. The steady-state volume of distribution of pimobendan is 2.6 L/kg indicating that the drug is readily distributed into tissues. Food decreased the bioavailability of an aqueous solution of pimobendan, but the effect of food on the absorption of pimobendan from VETMEDIN tablets is unknown.

In normal dogs instrumented with left ventricular (LV) pressure transducers, pimobendan increased LV dP/dt_{max} (a measure of contractility of the heart) in a dose dependent manner between 0.1 and 0.5 mg/kg orally. The effect was still present 8 hours after dosing. There was a delay between peak blood levels of pimobendan and active metabolite and the maximum physiologic response (peak LV dP/dt_{max}). Blood levels of pimobendan and active metabolite began to drop

before maximum contractility was seen. Repeated oral administration of pimobendan did not result in evidence of tachyphylaxis (decreased positive inotropic effect) or drug accumulation (increased positive inotropic effect). Laboratory studies indicate that the positive inotropic effect of pimobendan may be attenuated by the concurrent use of a β -adrenergic blocker or a calcium channel blocker.

Effectiveness: In a double-masked, multi-site, 56-day field study, 355 dogs with modified NYHA Class II, III, or IV CHF due to AVVI or DCM were randomly assigned to either the active control (enalapril maleate) or the VETMEDIN (pimobendan) treatment group. Of the 355 dogs, 52% were male and 48% were female; 72% were diagnosed with AVVI and 28% were diagnosed with DCM; 34% had Class II, 47% had Class III, and 19% had Class IV CHF. Dogs ranged in age and weight from 1 to 17 years and 3.3 to 191 lb, respectively. The most common breeds were mixed breed, Doberman Pinscher, Cocker Spaniel, Miniature/Toy Poodle, Maltese, Chihuahua, Miniature Schnauzer, Dachshund, and Cavalier King Charles Spaniel. The 180 dogs (130 AVVI, 50 DCM) in the active control group received enalapril maleate (0.5 mg/kg once or twice daily), and all but 2 received furosemide. Per protocol, all dogs with DCM in the active control group received digoxin. The 175 dogs (126 AVVI, 49 DCM) in the VETMEDIN group received pimobendan (0.5 mg/kg/day divided into 2 portions that were not necessarily equal, and the portions were administered approximately 12 hours apart), and all but 4 received furosemide. Digoxin was optional for treating supraventricular tachyarrhythmia in either treatment group, as was the addition of a β -adrenergic blocker if digoxin was ineffective in controlling heart rate. After initial treatment at the clinic on Day 1, dog owners were to administer the assigned product and concurrent medications for up to 56±4 days.

The determination of effectiveness (treatment success) for each case was based on improvement in at least 2 of the 3 following primary variables: modified NYHA classification, pulmonary edema score by a masked veterinary radiologist, and the investigator's overall clinical effectiveness score (based on physical examination, radiography, electrocardiography, and clinical pathology). Attitude, pleural effusion, coughing, activity level, furosemide dosage change, cardiac size, body weight, survival, and owner observations were secondary evaluations contributing information supportive to product effectiveness and safety.

Based on protocol compliance and individual case integrity, 265 cases (134 VETMEDIN, 131 active control) were evaluated for treatment success on Day 29. See Table 2 for effectiveness results.

Table 2: Effectiveness Results for the 56-Day Field Study

	VETMEDIN® Group	Active Control Group
Treatment Success on Day 29	80.7% n=134	76.3% n=131
	88 of 101 dogs with AVVI	77 of 100 dogs with AVVI
	20 of 33 dogs with DCM	23 of 31 dogs with DCM
Treatment Success on Day 56	71.1% n=113	67.2% n=110
	66 of 85 dogs with AVVI	56 of 85 dogs with AVVI
	13 of 28 dogs with DCM	17 of 25 dogs with DCM
No increase in furosemide dose between Day 1 and Day 29	78.3% n=130	68.6% n=126

At the end of the 56-day study, dogs in the VETMEDIN group were enrolled in an unmasked field study to monitor safety under extended use, without restrictions on concurrent medications.

VETMEDIN was used safely in dogs concurrently receiving furosemide, digoxin, enalapril, atenolol, spironolactone, nitroglycerin, hydralazine, diltiazem, antiparasitic products (including heartworm prevention), antibiotics (metronidazole, cephalaxin, amoxicillin-clavulanate, fluoroquinolones), topical ophthalmic and otic products, famotidine, theophylline, levothyroxine sodium, diphenhydramine, hydrocodone, metoclopramide, and butorphanol, and in dogs on sodium-restricted diets.

Palatability: In a laboratory study, the palatability of VETMEDIN was evaluated in 20 adult female Beagle dogs offered doses twice daily for 14 days. Ninety percent (18 of 20 dogs) voluntarily consumed more than 70% of the 28 tablets offered. Including two dogs that consumed only 4 and 7% of the tablets offered, the average voluntary consumption was 84.2%.

Animal Safety: In a laboratory study, VETMEDIN chewable tablets were administered to 6 healthy Beagles per treatment group at 0 (control), 1, 3, and 5 times the recommended dosage for 6 months. See Table 3 for cardiac pathology results. The cardiac pathology/histopathology noted in the 3X and 5X dose groups is typical of positive inotropic and vasodilator drug toxicity in normal dog hearts, and is associated with exaggerated hemodynamic responses to these drugs. None of the dogs developed signs of heart failure and there was no mortality.

Table 3: Incidence of Cardiac Pathology/Histopathology in the Six-month Safety Study

Severe left ventricular hypertrophy with multifocal subendocardial ischemic lesions	One 3X and two 5X dogs ^a
Moderate to marked myxomatous thickening of the mitral valves	Three 5X dogs
Myxomatous thickening of the chordae tendinae	One 3X and two 5X dogs
Endocardial thickening of the left ventricular outflow tract	One 1X, two 3X, and two 5X dogs
Left atrial endocardial thickening (jet lesions) in 2 of the dogs that developed murmurs of mitral valve insufficiency	One 3X and one 5X dog
Granulomatous inflammatory lesion in the right atrial myocardium	One 3X dog

^a Most of the gross and histopathologic findings occurred in these three dogs

Murmurs of mitral valve insufficiency were detected in one 3X (Day 65) and two 5X dogs (Days 135 and 163). These murmurs (grades II-III of VI) were not associated with clinical signs.

Indirect blood pressure was unaffected by VETMEDIN at the label dose (1X). Mean diastolic blood pressure was decreased in the 3X group (74 mmHg) compared to the control group (82 mmHg). Mean systolic blood pressure was decreased in the 5X group (117 mmHg) compared to the control group (124 mmHg). None of the dogs had clinical signs of hypotension.

On 24-hour Holter monitoring, mean heart rate was increased in the 5X group (101 beats/min) compared to the control group (94 beats/min). Not counting escape beats, the 3X and 5X groups had slightly higher numbers of isolated ventricular ectopic complexes (VEs). The maximum number of non-escape VEs recorded either at baseline or in a control group dog was 4 VEs/24 hours. At either Week 4 or Week 20, three 3X group dogs had maximums of 33, 13, and 10 VEs/24 hours, and two 5X group dogs had maximums of 22 and 9 VEs/24 hours. One 1X group dog with no VEs at baseline had 6 VEs/24 hours at Week 4 and again at Week 20. Second-degree atrioventricular heart block was recorded in one 3X group dog at Weeks 4 and 20, and in one dog from each of the 1X and 5X groups at Week 20. None of the dogs had clinical signs associated with these electrocardiogram changes.

Treatment was associated with small differences in mean platelet counts (decreased in the 3X and 1X groups), potassium (increased in the 5X group), glucose (decreased in the 1X and 3X groups), and maximum blood glucose in glucose curves (increased in the 5X group). All individual values for these variables were within the normal range. Three 1X and one 5X group dogs had mild elevations of alkaline phosphatase (less than two times normal). Loose stools and vomiting were infrequent and self-limiting.

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

How Supplied:

VETMEDIN® (pimobendan) Chewable Tablets: Available as 1.25, 2.5, 5 and 10 mg oblong half-scored chewable tablets - 50 tablets per bottle.

NDC 0010-4480-01-1.25 mg - 50 tablets
NDC 0010-4482-01-5 mg - 50 tablets
NDC 0010-4481-01-2.5 mg - 50 tablets
NDC 0010-4479-01-10 mg - 50 tablets

Approved by FDA under NADA # 141-273

Marketed by:

Boehringer Ingelheim Animal Health USA, Inc.
Duluth, GA 30096

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448005-01

Revised 06/2020

US-PET-0205-2021

View from the Board

Laser Focus

Having recently spent my first nights ever in a human hospital, I have now seen in use many new-to-me high-tech tools meant to make work more efficient for the medical team and more comfortable for the patients. Some of these technologies have already or will eventually migrate to veterinary medicine, while others are not appropriate to us in terms of cost or application to animal patients.

But new isn't always better, and many veterinarians already have an older technology in our practice that may be underutilized—medical lasers.

Albert Einstein first introduced the concept of laser (light amplification by stimulated emission of radiation) in 1917. The first working laser was developed by Theodore Maiman at the Hughes Laboratory in 1960. From there, many scientists have explored types of lasers and their potential uses. Ultimately, different types of medical lasers were developed, and a broad spectrum of applications have been studied to uncover many therapeutic benefits. And new research is expanding how laser technology can be used in medicine and beyond. In fact, it is already at our fingertips, as you can even get a personal low-level laser therapy device from your local drugstore to reduce wrinkles.

Growing up as a child in the scientific community that is the home of Los Alamos National Laboratory, I remember seeing the terrifyingly powerful precursors to industrial hot lasers being applied on the rare family day when we were allowed a peek inside our parents' workplace. It seemed like something Dr. Evil from

Austin Powers would have loved to get his hands on! I also remember small lasers being developed to activate molecules and precisely cut metals into tiny parts to measure molecular activity or create the machines that measured these reactions.

We have been using laser therapy in our veterinary practice since opening ten years ago. Our most used protocols are for postoperative pain, arthritis, stomatitis, lick granulomas, and wound care. But I know that there is more that we could be doing.

I encourage you to explore laser therapy in more depth. This beneficial treatment modality can be used to build a bigger profit center along with our usual array of other useful tools and knowledge.

And, as always, wishing success and health to you and your team members as we continue to juggle the never-ending stressors of our changed work and life environments.



Margot K. Vahrenwald, DVM, CVJ, is vice president of the AAHA Board of Directors. She is owner of Park Hill Veterinary Medical Center in Denver, Colorado.

Expressing Gratitude After a Tough Year

AAHA-Accredited Hospital Day gives practices a reason to celebrate

Always held on July 22, AAHA-Accredited Hospital Day is celebrated each year to show appreciation for veterinary teams who uphold the highest standards in medicine, patient care, and practice management. AAHA awarded four cash prizes to hospitals who won a Facebook group contest by posting on social media about their #AAHADay festivities.

AAHA Day winners

1st Prize

North Shore Animal Hospital, Racine, Wisconsin

2nd Prize

Arizona Animal Wellness Center, Gilbert, Arizona

3rd Prize (tie)

Panorama Village Animal Hospital, Surrey, British Columbia, Canada

3rd Prize (tie)


Community Animal Clinic Inc., Wytheville, Virginia

AAHA-accredited members get details in the private AAHA-accredited Members Facebook group and download free social media posts at aaha.org/publicity.



AAHA MEETINGS AND EVENTS

NOVEMBER							DECEMBER							JANUARY						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
	1	2	3	4	5	6				1	2	3	4							1
7	8	9	10	11	12	13	5	6	7	8	9	10	11	2	3	4	5	6	7	8
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28	29	30					26	27	28	29	30	31		23	24	25	26	27	28	29
														30	31					

 Beyond Medicine Workshop

Please visit aaha.org to register and get up-to-date information.

DEAR AAHA

Dear AAHA,

Does AAHA have any resources on internal air quality?

—Air Quality in Denver

Dear Air Quality,

Great question. If your clinic is in an especially high-dust region or the environment easily collects fur, it may be best to have HVAC serviced quarterly, and to change furnace filters monthly. You could also explore boosting air exchange rates and increasing pressurization and ventilation.

OSHA does not have any specific air quality (IAQ) standards, but it does have guidelines available at osha.gov. There is a helpful chapter on HVAC in the *Practical Guide to Veterinary Hospital Design*, available in the AAHA Store (aaha.org/store). Your attorney may be able to help with language to clarify employee rights and responsibilities with regard to expectations of safe working conditions or with any state regulations regarding exposure to allergens.

—AAHA's Member Experience Team

Have a question you'd like AAHA to answer? Email us at dearaaha@aaha.org.



Congratulations, 2021 AAHA-Accredited Practice of the Year Award Finalists!

During the Connexity conference in September, AAHA presented its 2021 “AAHA-Accredited Practice of the Year” award to ZimmVet in Zimmerman, Minnesota (zimmvet.com). See their story in an upcoming issue of *Trends*. Huge kudos and congratulations to the three runners-up:



Arizona Animal Wellness Center

Gilbert, Arizona

arizonanimalwellnesscenter.com



Moore Animal Hospital

Fort Collins, Colorado

mooreanimalhospital.com



Travelers Rest Animal Hospital

Travelers Rest, South Carolina

travelersrestanimalhospital.com



In their own words:

“It’s vital that everyone in our organization understands and can share with our community why we are AAHA accredited and why our patients deserve only the best. Our team shares their passion for providing the AAHA standards when outlining a treatment plan, discussing the importance of safety in anesthesia and surgery, introducing preventive plans and vaccinations for all life stages, and providing oral healthcare recommendations. Our team speaks about the importance of providing the best care we can to every pet we care for because we believe in what we do and why we do it.”

In their own words:

“Being an AAHA-accredited hospital for 28 years, we take being the very best to heart. When our employees are first hired, we discuss what it means to be AAHA accredited and why it is important to our clients. All team members are involved in preparing for evaluation and improving as the newer standards are released.”

In their own words:

“By aligning with the vision of AAHA and voluntarily participating in comprehensive evaluations to improve our standards of care, we can help pet owners have a joyful life with their companion animals.”

Learn more and apply at aaha.org/awards.





NEW! AAHA Releases Guidelines for “Working” Dogs

The 2021 AAHA Working, Assistance, and Therapy Dog Guidelines help the entire veterinary team speak the language of the working dog community. They include:

- How to understand variations in preventive healthcare, behavior, handling, and communication with working dogs and their handlers
- Tools to build confidence when handling these high-value contributors to our communities

Learn more about the 2021 AAHA Working, Assistance, and Therapy Dog Guidelines at aaha.org/workingdog and look for them in the November/December JAAHA, *Journal of the American Animal Hospital Association*, as well as an executive summary in December Trends.

The 2021 AAHA Working, Assistance, and Therapy Dog Guidelines are supported by generous educational grants from the AAHA Foundation, Boehringer Ingelheim Animal Health USA Inc., CareCredit, Merck Animal Health, and Zoetis Petcare.

Working, assistance, and therapy dogs . . .

- Serve on the frontlines.
- Risk their lives to keep communities safe.
- Provide emotional support and physical assistance to those in need.

Beyond Police Dogs

Protection and Detection Dogs

- Military
- Bomb detection
- Drug detection
- Plant detection

Assistance Dogs

- Sight- and hearing-assistance
- Seizure and allergy detection

Therapy Dogs

- Goal-directed therapy
- “Happiness-delivery” pets



Congratulations

to the 2021 AAHA-Accredited Practice of the Year winner and finalists!

These awards recognize the outstanding achievements of AAHA-accredited practice teams. AAHA is proud to honor these award recipients for their contributions to the field of companion-animal medicine.

AAHA-ACCREDITED PRACTICE OF THE YEAR

ZimmVet

ZIMMERMAN, MINNESOTA

“The process of choosing a winner was no small feat because every veterinary practice deserves praise through these recent times. Yet we are happy to have ZimmVet leading the way in being an example of an AAHA-accredited practice.”

—AAHA Western Regional Manager Anthony Merkle, CVT; selection committee leader

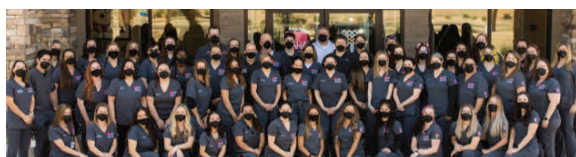


A ROUND OF APPLAUSE TO THE 2021 AAHA-ACCREDITED PRACTICE OF THE YEAR FINALISTS!



Moore Animal Hospital

FORT COLLINS, COLORADO



Arizona Animal Wellness Center

GILBERT, ARIZONA



Travelers Rest Animal Hospital

TRAVELERS REST, SOUTH CAROLINA

notebook

Pet Care Findings from NutriSense

In its recent poll, “Healthcare: A detailed look into you and your pet,” NutriSense (nutrisense.com) conducted a survey of pet owners to see, as they stated it, “where that balance lies between pet care and self-care.”

They looked at how much respondents would pay out of pocket to aid the recovery of their feline, canine, or other companions. They found that cat owners were willing to spend slightly more (\$3,000+) on their veterinary bills than dog owners (\$2,700+), although the lowest group by far was the “other pets” category (\$1,500+).

Other findings include the fact that 3 out of 10 Americans are willing to commit a crime to afford healthcare for their pet, and that people under the age of 35 take their pets to the vet more than they go to the doctor. Pet owners reported that regular checkups are the most important thing to a pet’s health, followed by eating healthy, exercise, taking vitamins, and testing blood sugar.

On average, Northeastern pet owners spend more annually on vet visits than those in the South or the West. Maine and Vermont pet owners spend \$2,000 or more on vet visits per year. Meanwhile, pet owners in Oregon, Louisiana, and Mississippi spend less than \$200 per year. Wyoming came in with the lowest annual average, with pet owners spending just \$10.

Raw Dog Food May Pose Dangers

New research, presented over the summer at the European Congress of Clinical Microbiology and Infectious Diseases and published in the *International Journal of Food Microbiology*, warns that “the trend for feeding dogs raw food may be fueling the spread of antibiotic-resistant bacteria.”

Researchers from the University of Porto in Portugal tested 55 samples of dog food, 14 of them frozen raw, for the bacteria enterococcus, which can cause urinary tract infections, blood infections, and meningitis, among other conditions. The study revealed that enterococci was present in more than half of the samples, including two raw brands. The samples were taken from various types of dog food—frozen raw, wet, dry, semi-wet, and treats—and encompassed 25 brands, which the researchers did not name. Twenty-one of the brands are sold in multiple countries, including both raw brands.

The researchers expressed alarm over the findings; The concern comes from the fact that this type of bacteria is often intrinsically resistant to antibiotics, meaning some species of enterococci can lead to outbreaks.

“This study shows that dog food from international brands is a vehicle of clinically relevant enterococci carrying resistance to last-resort antibiotics and relevant virulence genes, thus positioning pet food as an important source of antibiotic resistance spread,” say the authors.



Dog with a Giant Tongue Saved by a Veterinary Surgeon

The research of Raymond Kudej, DVM, PhD, DACVS, into brachycephalic breeds prepared him to perform what might be the first tongue-reduction surgery of its kind on a dog. Kudej is a professor and small animal surgeon at Cummings School of Veterinary Medicine who often works with brachycephalic dog breeds, such as bulldogs, pugs, and Boston terriers. After reading a study that reported that the proportion of air to soft tissue in brachycephalic dogs was decreased by approximately 60% compared with dogs with a medium-sized skull, he launched his own research into surgically reducing the size of the tongue to make breathing easier.

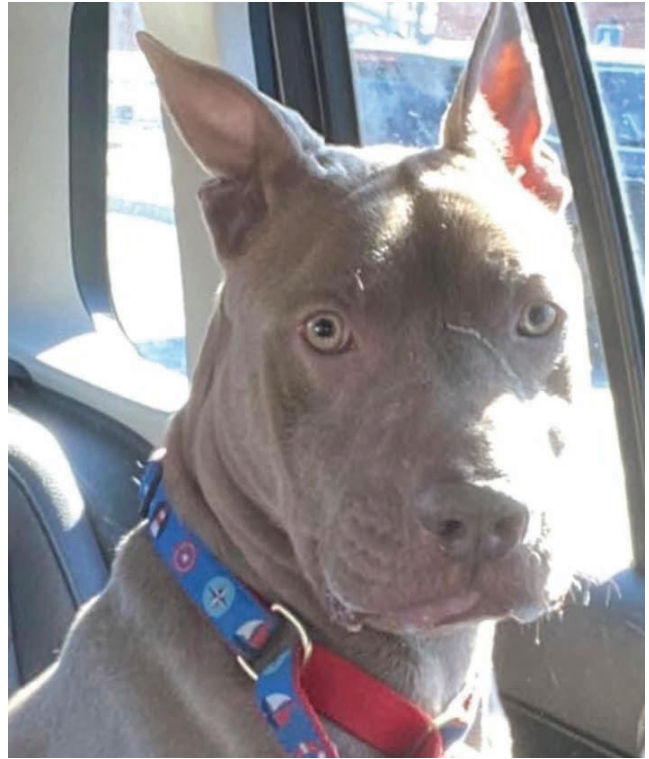
He received a call from Maureen Salzillo, director of Operation Pawsibility Project, about a rescued one-year-old pitbull named Bentley whose tongue was so big that it hung out of his mouth all the time. Because of the size of his tongue, it took Bentley more than 30 minutes to eat just one bowl of food.

“Dogs are stoic,” she said. “He figured it out. To eat or drink, he had to plunge his whole face into the bowl, and it made such a mess. He couldn’t swallow the right way. And he drooled in such copious amounts, it took multiple towels to mop it up.”

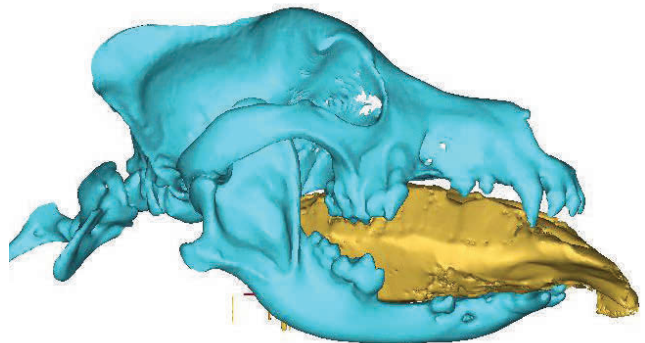
Kudej found that Bentley’s tongue was so heavy that the sheer weight of it pushing down on his teeth constantly caused them to grow sideways at a 90-degree angle. And his mandible, which is normally the shape of a small bowl that holds the tongue, was completely flat.

The shelter was able to raise the money needed for the operation, and Kudej performed a midline glossectomy, which reduces the size of the tongue by taking out tissue from the middle of the muscle as opposed to the sides, to avoid the arteries. Bentley has made a full recovery, and Kudej will present his research into tongue-reduction surgeries on brachycephalic dogs, including Bentley’s clinical case, at the 2021 American College of Veterinary Surgeons conference.

“Bentley’s case is one that I’ve never seen before, and I’ll probably never see again. I don’t believe in fate, but sometimes the stars just line up,” said Kudej.



Bentley, a grayish brown pit bull, received surgery for his oversized tongue.



This 3D reconstruction of Bentley’s CT scan shows Bentley’s front lower teeth growing straight out to the front due to the weight of his tongue (pictured in yellow).

QUOTE OF THE MONTH

“Business opportunities are like buses, there’s always another one coming.”

—Richard Branson, entrepreneur



Parasitologists Warn of Drug-Resistant Hookworms Spreading in Dogs

The American Veterinary Medical Association, AVMA, reports that veterinary parasitologists warn that multidrug-resistant hookworms are spreading in the US, and that veterinarians should watch for persistent infections.

Antoinette Marsh, PhD, is an associate professor at the Ohio State University College of Veterinary Medicine, president-elect of the American Association of Veterinary Parasitologists (AAVP), and chair of the AAVP task force. She says that the task force was formed, in part, to teach veterinarians that hookworms in the US can be resistant to common treatments and they should follow up on patients to verify the dewormers they prescribe are effective. She said that, until recently, veterinarians who encountered infections that persisted after courses of benzimidazole or pyrantel pamoate could usually rely on a combination course containing moxidectin to treat persistent hookworm shedding in dogs.

Marsh cited study results that indicate dogs with suspected or confirmed drug-resistant hookworms are becoming widespread in the Southeast, and they have been documented in the Northeast and California. Marsh stated that not all of the isolates are multidrug resistant. She said that drug resistance in hookworms likely developed through misuse of anthelmintics approved for administration to livestock. Some of those products contain the same active ingredients as prescription anthelmintics intended for dogs, but in different formulations and sometimes different routes of administration.

Marsh related that “when veterinarians use a dewormer, particularly in a dog with documented infection, it’s important to retest that dog 10 to 14 days later to ensure the dog is no longer shedding eggs or it has significant reduction in fecal egg counts following deworming.” She stated that it is recommended to monitor as long as shedding persists.

FDA Issues Warning Letter to Pet Food Producer

The US Food and Drug Administration (FDA) issued a warning letter to Midwestern Pet Foods, Inc., after inspections of its manufacturing sites revealed apparent violations of the Federal Food, Drug, and Cosmetic Act that were shared across the sites. The FDA reports that these conditions likely contributed to the illness or death of hundreds of dogs.

The initial inspection of Midwestern’s plant in Chickasha, Oklahoma, was triggered by reports of illness or death in dogs who had eaten SPORTMiX brand dry dog food manufactured by Midwestern. Samples of SPORTMiX were later found to contain levels of aflatoxin as high as 558

parts per billion (ppb). The FDA considers pet food to be adulterated if it contains more than 20 ppb of aflatoxin.

In January, the company voluntarily recalled these products, and in March, Midwestern recalled several brands of pet food manufactured at its plant in Monmouth, Illinois, after samples tested positive for salmonella. As of August 9, the FDA is aware of more than 130 pet deaths and more than 220 pet illnesses that may be linked to eating brands of pet food manufactured by Midwestern. Not all of these cases have been confirmed, and this count is approximate.

The FDA has requested a written response from the company stating the specific steps they have taken to correct any violations.

Ready to sell your practice?

As your exclusive representative,

- We offer competitive rates.
- We have a diverse range of experience with over 20 years of representing veterinarians.
- We will keep you informed.
- We are prompt, easy to work with, friendly, and return calls.
- We have a current database of independent and corporate buyers.
- We adhere to strict confidentiality.
- We deliver exceptional marketing, including a Matterport 3D virtual tour of your practice.
- We establish a fair market value for your practice by our Certified Valuation Analyst.
- We have a nationwide network of professionals, including tax specialists, recruiters, and attorneys.
- We facilitate the sale of one of the most significant transactions in your life.

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Is My Dog Right- or Left-Pawed?

At the 2021 Westminster Kennel Club Dog Show, scientists and veterinarians from Embark (embark.com) conducted field tests to determine if the diversity of dogs at Westminster is also present in their paw preferences. They state that just like humans, dogs can have limb dominance or paw preference when doing simple tasks like walking or reaching for something. Embark's preliminary data showed that 62% of dogs are right-pawed, which is in keeping with the 58.3% of dogs in the recent research they cited that showed a right paw preference. Recent human research found that 90% of people are right-handed.

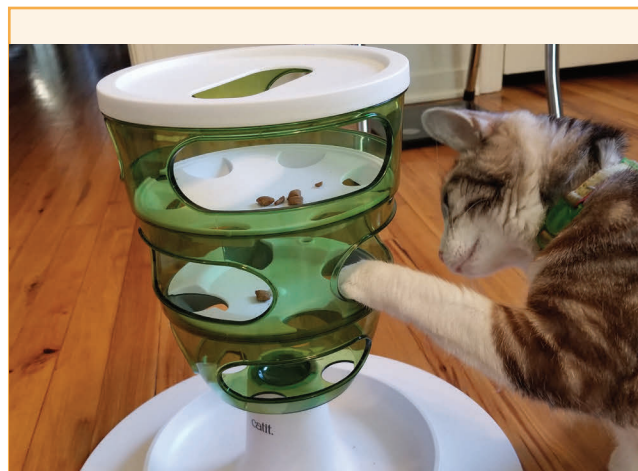
The Embark researchers report that while there currently is no genetic test, they devised a series of tests to help indicate paw preference in dogs. These include the step test, that observed which paw a dog uses first when beginning to walk from a still position (sitting or standing); the crate test, that determined which direction a dog turns to face forward after entering a crate of the appropriate size; and the tape test, that took note of which paw a dog uses to wipe a lightly adhesive piece of tape off their nose.

When the dogs were sorted into herding, terrier, and retriever categories, Embark's data showed that 36% of both herders and terriers were left-pawed, while 72% of retrievers were left-pawed. They cautioned that more data would be needed to verify this, as the retrievers was the smallest data pool.

US Pet Market Outlook Shows Positive Trends

Vetwatch reported on results from the Packaged Facts US Pet Market Outlook 2021–2022. They stated that usage rates for nonmedical pet care services show positive trends notwithstanding COVID-19 setbacks. Among dog owners overall, usage rates for these nonmedical services edged up from 44% in 2012/2013 to 50% in 2018/19, before dipping slightly because of the pandemic.

Overall, the report states that dog grooming remains the marquee nonmedical pet care service, with usage rates rising from 25% in 2012/13 to 41% in 2018/19, dipping only slightly in the wake of COVID-19. The standout in usage rate growth over the 2012/13 to 2020/21 period was pet insurance. The percentage of dog owners with pet insurance increased from 8% to nearly 13%, reflecting ongoing pet owner concerns about pet healthcare costs but also continuing determination to provide pet dogs with veterinary care.



When cats were offered the choice of readily available food in a tray or working for it using a simple puzzle, cats most often chose the free food.

Cats Prefer to Get Free Meals Rather Than Work for Them

A new study from researchers at the University of California, Davis, School of Veterinary Medicine showed that when given the choice between a free meal and performing a task for a meal, cats would prefer the meal that doesn't require much effort. The results are surprising for cat behaviorists, researchers report, because most animals prefer to work for their food—a behavior called *contrafreeloading*. The results were published in *Animal Cognition*.

“There is an entire body of research that shows that most species including birds, rodents, wolves, primates—even giraffes—prefer to work for their food,” said lead author Mikel Delgado, PhD, a cat behaviorist and research affiliate at UC Davis. “What’s surprising is out of all these species, cats seem to be the only ones that showed no strong tendency to *contrafreeload*.”

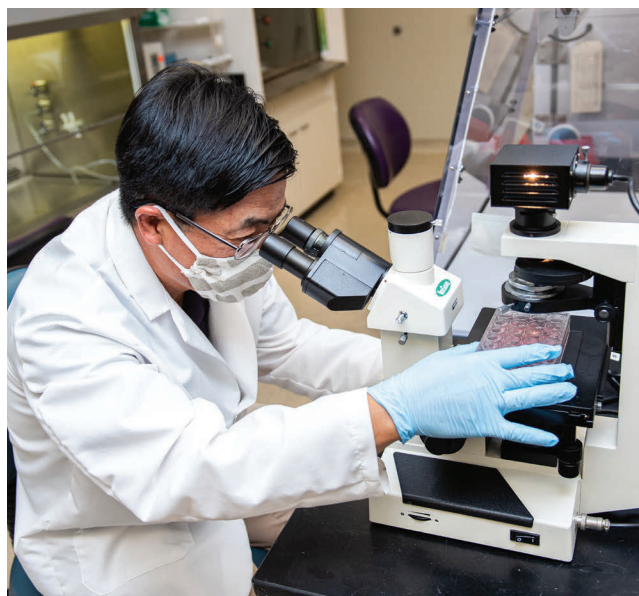
Cats who were part of the study wore activity monitors. The study found that even cats who were more active still chose the freely available food. Why cats prefer to freeload remains unclear to researchers. Delgado said the food puzzles used in the study may not have stimulated their natural hunting behavior, which usually involves ambushing their prey.

NIH Grant Supports Collaborative Research into COVID-19 Treatment

Kansas State University has received a five-year, \$3.7 million grant from the National Institutes of Health's National Institute of Allergy and Infectious Diseases to research a new treatment method for the COVID-19 virus. Kyeong-Ok "KC" Chang, DVM, PhD, a virologist at the Kansas State University College of Veterinary Medicine, is the principal investigator for the project, "Small Molecule Inhibitors Against 3C-Like Protease of SARS-CoV-2." The project's goal is to complete development of a drug for preclinical studies, ultimately leading to a COVID-19-specific antiviral therapeutic treatment.

"There is currently an urgent and unmet need for the discovery and development of antiviral therapeutics for the treatment of SARS-CoV-2, the causative agent of COVID-19," Chang said.

Yunjeong Kim, DVM, PhD, a virologist from Kansas State University, serves as co-principal investigator along with William C. Groutas, a medicinal chemist at Wichita State University; Stanley Perlman, a professor of microbiology and immunology from the University of Iowa; and Scott Lovell, a structural biologist at the University of Kansas. Chang's group has been working on antiviral drug development against both human and animal coronaviruses for over a decade, with a focus on protease inhibitors.



Kyeong-Ok "KC" Chang, virologist with Kansas State University's College of Veterinary Medicine, recently received a \$3.7 million grant to further development of COVID-19 therapeutic treatment.

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.

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

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References:

¹ Data on file at Boehringer Ingelheim.

² ProZinc[®] (protamine zinc recombinant human insulin) [Freedom of Information Summary]. Duluth, GA: Boehringer Ingelheim Animal Health USA, Inc.; 2019.

³ ProZinc[®] (protamine zinc recombinant human insulin) [Freedom of Information Summary]. St. Joseph, MO: Boehringer Ingelheim Vetmedica, Inc.; 2009.

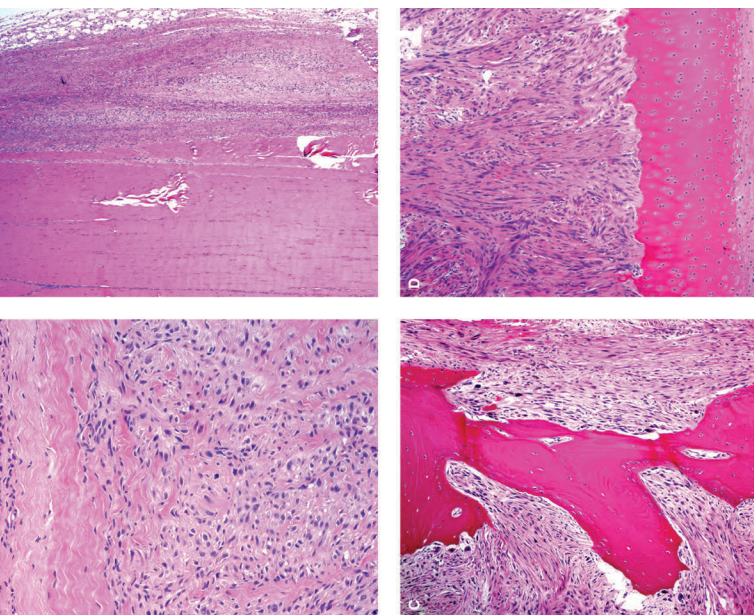
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JAAHA

JOURNAL OF THE AMERICAN ANIMAL HOSPITAL ASSOCIATION

ABSTRACTS



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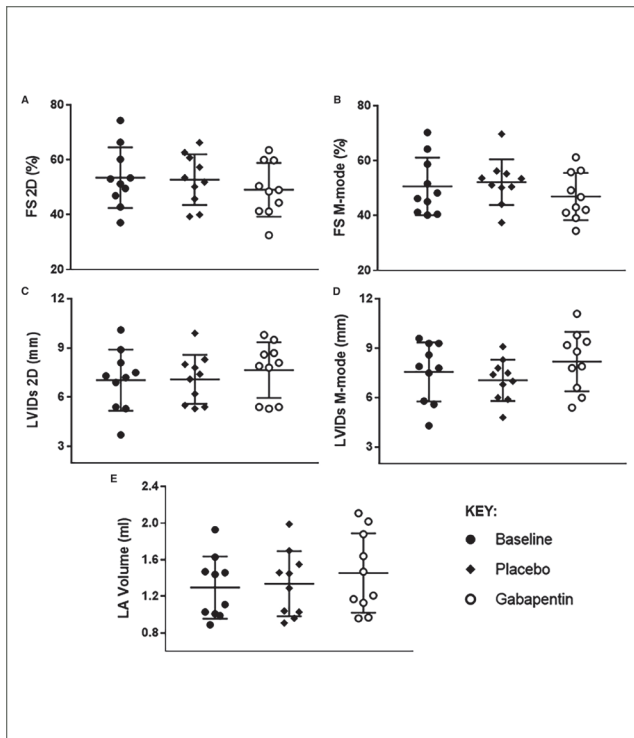
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GUIDELINES

2021 AAHA Working, Assistance, and Therapy Dog Guidelines

The guidelines are the first comprehensive consensus report on veterinary healthcare recommendations for working, assistance, and therapy dogs. This category of canine patients includes a broad assortment of animals, some with well-defined functions and others that provide a more generalized support role. The guidelines discuss recommendations for dogs trained for protection, odor/scent detection, service functions for people with diagnosed disabilities or physical limitations, emotional support, and therapeutic intervention. Although the term is often used to describe dogs providing animal-assisted activities, true therapy dogs provide goal-directed therapy, often under the supervision of a healthcare professional such as an occupational therapist or psychologist. Many working dogs undergo extensive training and have rigorous physical demands placed upon them. These factors make working, assistance, and therapy dogs inherently valuable and impose a need for a high level of primary veterinary care as described in the guidelines. Because working dogs have a particularly close relationship with their handlers, a trust relationship between the practice team and the working-dog client is imperative.



ORIGINAL STUDIES

Hemodynamic, Echocardiographic, and Sedative Effects of Oral Gabapentin in Healthy Cats

Meghan E. Allen, Nicole L. LeBlanc, Katherine F. Scollan

The study objective was to evaluate sedative, hemodynamic, and echocardiographic effects of cats receiving single-dose, oral gabapentin. A prospective, double-blinded, placebo-controlled, crossover study was conducted with 10 client-owned cats. Vital parameters, physical exam, blood pressure, echocardiography, and sedation scoring were performed at each visit within 2 hr of receiving either a placebo or gabapentin capsule. Vital parameters, blood pressure recordings, and echocardiographic measurements were compared between baseline, gabapentin, and placebo; interobserver agreement for sedation scoring and correlation between variables were also evaluated. Seven of 10 cats exhibited mild sedation within 120 min after receiving gabapentin, and no adverse events occurred. Significant differences were detected with two-dimensional fractional shortening ($P = .022$), left ventricular internal diameter in systole using M-mode ($P = .014$), and left atrial volume ($P < .0001$). Interobserver agreement for sedation scoring was near-perfect ($\kappa = 0.84$). No significant correlation was found for gabapentin dosage and sedation score. Single-dose oral gabapentin is well tolerated in healthy cats and produces a modest decrease in several echocardiographic parameters of systolic function; however, all affected variables remained within established reference ranges. These results suggest gabapentin may be an appropriate sedative to administer before echocardiography in cats necessitating mild sedation.

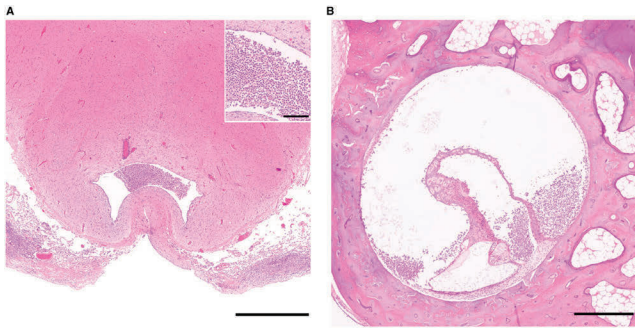
CASE REPORTS

Invasive Tendon Sheath Fibrosarcoma Causing Radial Osteolysis in a Golden Retriever

Mary Coleman, Matthew R. Cook, Roy R. Pool, Vincent A. Wavreille, Megan Brown, Laura E. Selmic

This case report details a previously undescribed malignancy of the tendon sheath in a golden retriever. This dog originally presented with lameness of the left forelimb, at which point radiographs revealed a monostotic, lytic lesion of the distal radius with overlying soft-tissue swelling. A fine-needle aspirate was performed, and cytology was compatible with a sarcoma, with the primary differential being an osteosarcoma. After amputation, the leg was submitted for histopathology, which revealed inconsistencies with a typical osteosarcoma lesion, including lack of osteoid deposition. Second opinion histopathology showed a fibrosarcoma that appeared to have originated in the tendon sheath of an extensor tendon and then secondarily invaded the radius. At the time of publication, ~17 mo after amputation, the dog continues to do well without any evidence of recurrent or metastatic disease.



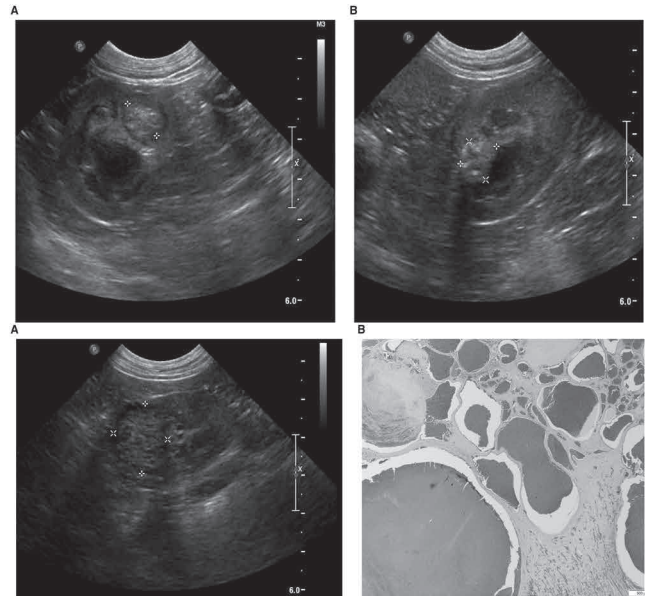


CASE REPORTS

Enterococcus spp. Meningoencephalitis, Ventriculitis, and Hypophysitis in a Dog

Bridget Harvey, James Tarrant, Megan McClosky, Olivia Nathanson, Stephen Cole

A 13 yr old spayed female Yorkshire terrier was hospitalized for a dull mentation, anorexia, presumptive gastroenterocolitis, and a suspected gastrointestinal bleed with melena. Despite supportive therapy, the patient's clinical signs persisted. Throughout hospitalization, the patient became progressively dull to stuporous with a progressive hypernatremia. On day 3 of hospitalization, the patient acutely developed neurological signs with a neuroanatomical localization consistent with a process at the caudal cranial fossa. Per the owner's wishes, the patient was euthanized with necropsy performed. Histopathology revealed a suppurative meningoencephalitis, ventriculitis, hypophysitis, otitis interna, and an ulcerative pharyngitis. Aerobic culture collected from the area of the pituitary gland grew an *Enterococcus* spp. Enterococcal meningoencephalitis is rare in humans but has not been reported in veterinary medicine. In future cases of canine bacterial meningitis, *Enterococcus* spp. should be considered. Because of the inherent resistance patterns of *Enterococcus* spp., targeted antibiotic selection would be required for treatment.



CASE REPORTS

Ultrasonographic Features of Presumed Renal Telangiectasia in Three Pembroke Welsh Corgis

Katherine Logwood, Dominique Penninck, Kara Priest, Emmanuelle Marie Butty

Renal telangiectasia has been reported in Pembroke Welsh corgis with chronic hematuria; however, the sonographic features of these lesions have never been described. Two dogs with confirmed renal telangiectasia and one dog with presumptive renal telangiectasia were identified in a medical record search. All dogs had one or more variably sized renal nodules identified on abdominal ultrasound. The nodules in two of the three dogs had were similar, appearing hyperechoic with numerous punctate hypoechoic foci throughout. None of the nodules showed evidence of hemodynamic flow on Doppler ultrasound. Renal telangiectasia should be considered as a benign differential diagnosis, particularly in Pembroke Welsh corgis.

CASE REPORTS

Electrolyte Derangements, Hyperlactatemia, and Cardiac Abnormalities Secondary to Refeeding in Three Dogs: Case Report

Catherine Crecraft, Jennifer Prittie

Three dogs that presented to the emergency service in severely emaciated body conditions were admitted to the hospital for monitoring and refeeding. During their hospitalization, all three dogs developed electrolyte derangements or required supplementation to prevent hypophosphatemia and hypomagnesemia. Additionally, all dogs developed hyperlactatemia, which was suspected to be secondary to thiamine deficiency. Two dogs were reported to have cardiac abnormalities, including cardiac arrhythmias, systolic dysfunction, and spontaneous echogenic contrast. These cases highlight the complexity of refeeding syndrome and its associated complications that extend beyond electrolyte deficiencies.

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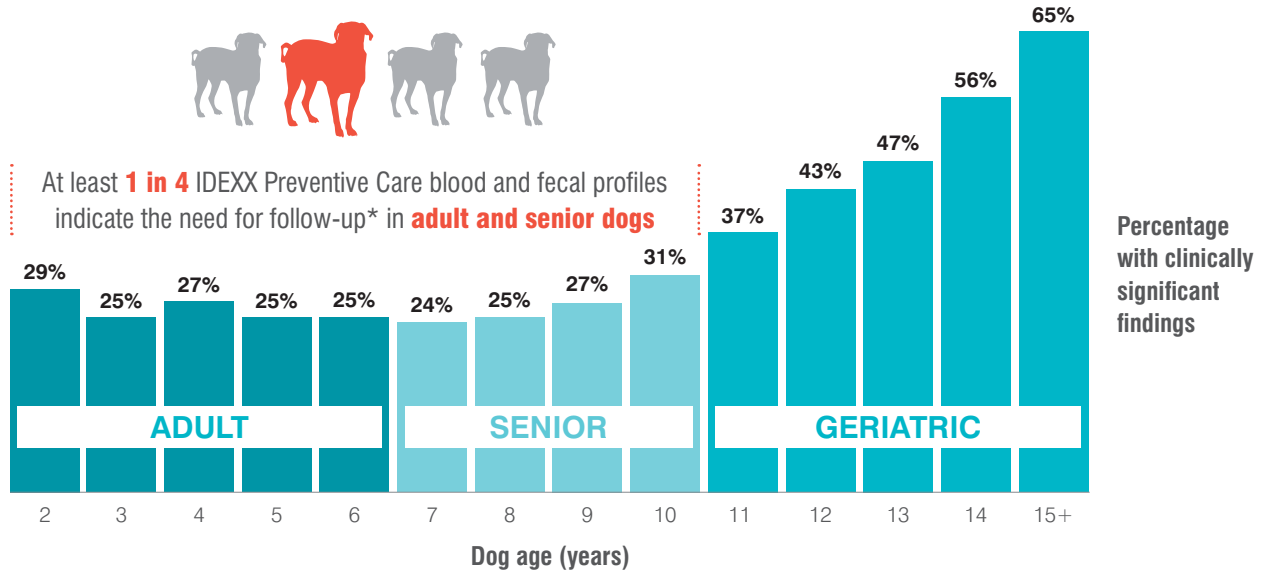
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IDEXX

New evidence supports the value of preventive care profiles on all adult dogs

Preventive care profiles aren't just for senior and geriatric patients



Dogs as young as 2 years of age had clinically significant findings based on results of preventive care bloodwork and fecal testing¹

Of the nearly 30,000 canine profiles included in this analysis, there was little variation in the rate of clinically significant findings between adult dogs and senior dogs.

The study was based on an analysis of IDEXX Preventive Care profiles (including the following categories: Chem 22 including the IDEXX SDMA[®] Test, IDEXX CBC testing with reticulocyte parameters, the Lab 4Dx[®] Plus Test, and Fecal Dx[®] antigen testing) run as part of wellness visits. While the number of clinically significant findings for each of these testing categories varied by age, all categories were important for adult, senior, and geriatric dogs.

These results are similar to a previous analysis that included cats as young as 2 years²

The previous analysis from more than a quarter of a million wellness visits that included a chemistry profile with an IDEXX SDMA[®] Test and a CBC, revealed significant findings required follow-up in:

- 1 in 7** adults (cats aged 2–8 years; dogs aged 3–6 years)
- 1 in 5** seniors (cats aged 9–13 years; dogs aged 7–10 years)
- 2 in 5** geriatrics (cats aged 14+ years; dogs aged 11+ years)

Routine preventive care testing has distinct medical benefits

There is ample evidence to support routine preventive care visits that include diagnostic testing. Results of routine bloodwork and fecal testing help veterinarians detect diseases and conditions, leading to earlier interventions that help patients of all ages live healthy lives for as long as possible. Once a veterinarian has baseline values, she/he can monitor trends and, if necessary, create individualized treatment plans. If no abnormality is detected, veterinarians and staff can—and should—celebrate the good news with clients. By communicating the value of every test result, practices reinforce the importance of routine wellness checks and the central role that clients play in the health of their pet. It's a win-win!

Review preventive care data and case studies at idexx.com/1in4

*Due to "clinically significant findings," which would indicate the need for follow-up, further consideration, or a change in action by the clinician. Clinical significance based on rules determined by an IDEXX veterinarian panel.

References

1. Data based on analyses of **29,795** canine wellness profiles (Chem 22 including IDEXX SDMA[®] Test, IDEXX CBC testing with reticulocyte parameters, the Lab 4Dx[®] Plus Test, and Fecal Dx[®] antigen testing) associated with wellness visits; testing performed at IDEXX Reference Laboratories on July 13, 2016–February 28, 2019. Represented U.S. regions by proportion of included profiles: Northeast (32.0%), South (41.3%), Midwest (17.4%), West (7.6%), and region not reported (1.7%).

2. Data on file at IDEXX Laboratories, Inc. Westbrook, Maine USA.





Happy in the



Country

Veterinarians Thriving in Small
Towns Across North America

by Constance Hardesty, MSc

*Note: This is Part One of a two-part series profiling
veterinarians in rural areas.*

ROLLING FIELDS. A DOZEN CATTLE. The weary but kind large animal veterinarian rattling down country roads in a beat-up pickup truck.

Well, not quite.

The countryside covers most of North America. In some areas, the local farm may count more animals than the surrounding towns have people, and the shortage of rural veterinarians is serious and real.

Alongside it, however, there's another story to be told. The countryside is speckled with small towns serving colleges, tourists, inland shipping, mines, mills, or factories. To get a better view of practice in today's America, *Trends* reached out to veterinarians in rural and small towns. Some planted roots early. One returned home after decades away. All are thriving in place.

These are their stories.



Farrah Austin, DVM, and Tom Austin, DVM

Farrah Austin, DVM, and Tom Austin, DVM Owners, Grace Animal Hospital, Bridgeport, West Virginia

On a satellite map, Bridgeport, West Virginia, looks like a real-estate dream: location, location, location! The nearby crossroads of two major highways puts the town within easy reach of Morgantown and Charleston, West Virginia; Pittsburgh, Pennsylvania; Washington DC; and Columbus, Ohio.

In a way, location is what drew the husband-and-wife team Tom and Farrah Austin to Bridgeport from Southern California.

Tom was born in Charleston and grew up in Ripley, about 110 miles from Bridgeport. Most of his family still lives in the area. He began his veterinary career in Ripley as a mixed animal practitioner, and for a while, it looked as if he might stick close to home, too. Then opportunity called.

"I moved to California in 1982, when Orange County was still mostly rural," he says. "I had a very good opportunity to work in a large, multidocor practice, gain invaluable experience, and advance my career." The area's rural character allowed Tom to continue his mixed animal practice until circumstances changed.

"I started there doing small animal and equine practice. However, the area was growing rapidly and the horse population got squeezed, so I went to strictly small animal practice," he says. "After only a couple of years I was able to become a partner in the practice, which rooted me to the area for almost thirty very enjoyable years."

Farrah followed a different career path. Born and raised on the west coast of Congo, Africa, she attended college in California and earned her veterinary degree from the University of California, Davis. After graduation, she chose small animal practice, working in Southern California.

You might think a couple of southern California veterinarians might retire to the beach, but the doctors weren't ready to dig their toes in the sand just yet. With Tom's special interest in orthopedic and small-tissue surgery and Farrah's interest in holistic medicine (she's a certified veterinary acupuncturist), they decided to open Grace Animal Hospital in Bridgeport in 2011. "We named Grace Animal Hospital after God's amazing grace to us," she says.

"Selling the practice in Southern California and returning to my West Virginia roots has been a very positive move," Tom says. "I see it as a new chapter in my life and career with more to come." In addition, they note that "we have an amazing team of individuals who all share in our

vision and who are proud to be a part of our hospital family. This gives me great happiness and makes the job that much more meaningful and rewarding.”

This is Farrah’s first foray into practice ownership, and she’s found it a fruitful experience. “Having the freedom to make our own decisions for how we want the hospital to run, what services we offer, and the standard of medicine and care we provide to our clients and patients are some of the reasons I really enjoy practice ownership,” she says.

Farrah adds that she and Tom “knew from day one that we wanted the hospital to be AAHA accredited.” That helped with the start-up.

“It didn’t seem as though we had to worry about gaining new clients or advertising,” Tom says. “We have always relied on word-of-mouth referrals, and our practice has continued to grow. Our AAHA membership, the AAHA standards, and member benefits helped with that, and it also helped us to put into place good practice and financial management systems.”

Holistic medicine and acupuncture are very well received in the area, Farrah is happy to report. “We have clients who drive from all over the state to have these services performed. I think more and more people are seeing the value in integrative medicine and there is a demand for it. Most of the patients I see for this are either from word-of-mouth or recommendation from their regular veterinarian as part of a treatment plan.”

There is also little competition, she notes. “There are only a couple other practices in our state that provide companion animal holistic and integrative medicine. There are a few local vets that do acupuncture, but I am the only certified acupuncturist in our area.”

So, what would the doctors say to veterinarians considering a mid-career move?

“There are a lot of good things about living in a small town, too many to list them all here,” Tom says. “But there are advantages to living and practicing in larger metropolitan areas as well.”

Farrah agrees. “Each veterinarian must know his or her own self and choose what is right for them.”



Guylaine Charette, DMV

Guylaine Charette, DMV
Owner, Pembroke Animal Hospital,
Pembroke, Ontario

Pembroke, Ontario (population 15,000), is nestled between the Ottawa River and the enormous Algonquin Park. A hobby farm near Guylaine Charette’s home has horses and llamas, and she often sees wolves, moose, and turtles. As work-from-home allows people the flexibility to choose a rural lifestyle, Pembroke is growing.

Charette came to Pembroke directly from veterinary school. “I am a city girl, and I was not looking for life in the country,” she says. “I was looking for an AAHA-accredited practice close enough to my family (two hours away), and

“I love that I can take my lunch break outside and look at the [Ottawa] River landscape in my practice’s backyard.”

—GUYLAINE CHARETTE, DVM, PEMBROKE, ONTARIO

the opportunity to become fluent in a second language appealed to me. I am French-speaking and studied veterinary medicine at Université de Montreal, in French.”

Pembroke offered opportunities that would be hard to find in a large city. “As a rural vet, I have had so many opportunities to develop a wide expertise in surgery, internal medicine, dermatology, and behavior,” Charette says.

Another plus: collaborating with area hospitals in sharing on-call services, helping local animal shelters, and working together for better patient outcomes.

And the setting can't be beat. “Our hospital is located directly beside the Ottawa River,” Charette says. “I love that I can take my lunch break outside and look at the river landscape in my practice's backyard.”

But a rural companion animal practice has its challenges, too. After a long day at work, a doctor and veterinary technologist remain on-call to handle emergencies. And, with the closest referral hospital at least 80 miles away, referring a patient to a board-certified specialist means a full-day commitment for the client.

On the other hand, “less access to veterinary specialists affords us the possibility to offer broader services, including surgery, dentistry, internal medicine, some oncology treatments, and behavior counseling,” Charette says. The hospital even has a training center for puppies and adult dogs.

But “because the cost of living is lower here and our clients' disposable income may be lower than in other areas, we may charge less for similar procedures than we would if we were in a big city,” Charette adds.

As AAHA president (2019–2020), Charette met veterinarians from urban, suburban, and rural practices. All veterinarians share certain opportunities and challenges, she notes.

“The entire profession is under great pressure from the shortage of staff,” she says, adding that all practice owners must “provide the best management structure to ensure that our workplace culture fosters employee wellness, that we can provide decent compensation, and that we reinvest in our hospital.”

“As veterinarians, we are all equally motivated to stay current with new medical and surgical trends as well as provide wellness medicine and the best quality care. We are advocates for our patients and their human families,” she adds.

Charette credits accreditation for helping her practice meet high standards. “AAHA accreditation evens out the playing field. We may practice in a small community, but thanks to the AAHA standards, our hospital provides the high quality of care that is typical of an AAHA practice,” she says. As proof, she can point to her own experience. Pembroke Animal Hospital was AAHA Practice of the Year in 2016.

To veterinarians considering rural practice, Charette says, “Yes, you can have a well-managed and profitable hospital!”



Sandra Robinette, DVM

Sandra Robinette, DVM
Owner, Escanaba Veterinary Clinic,
Escanaba, Michigan

Escanaba, Michigan (population 12,108), is a port city on Lake Michigan's Little Bay de Noc in the state's Upper Peninsula (UP). The town is named for a nearby river, and Escanaba was the name of an Ojibwa village in the area. It's a great place to chill: In winter, the average high hovers below freezing and the average low is 6 degrees. (The coldest temp on record is -28 degrees!) It's not the snowiest city in the US (that's Syracuse, New York, at 128 inches per year), but it averages a respectable 52 inches per year.

Saundra Robinette, DVM, owner of the AAHA-accredited Escanaba Veterinary Clinic, was raised in the area. When she graduated from veterinary school, her husband already had a teaching job in Escanaba, and for several years, the couple maintained a long-distance marriage.

After working as an associate in small animal medicine, Robinette took charge of her career by pursuing a rotating internship. “I was burnt out, and the internship was my out, my way of changing things up,” she remembers.

The internship at Michigan Veterinary Specialists changed her professional life. “It really allowed me to build my confidence and become so much better: better with differentials, more comfortable with interrupting diagnostics, more comfortable with recommendations for advanced diagnostics and treatments.”

A later stint at Fox Valley Animal Referral Center in Appleton, Wisconsin, was another great learning experience, thanks to specialists who “loved teaching and allowed us to grow as doctors,” she says.

Pregnant with her second child, she was ready to close the gap in her long-distance marriage, “so I set out to buy the Escanaba Veterinary Clinic and start watering the roots I had in this town,” she says.

Her AAHA-accredited practice provides the quality care that both Robinette and her clients expect.

“We may not have a specialist next door or just down the road, but they are really only a few hours away and an easy trip if our clients want to use them. We have a good support team, are well supplied, and have great diagnostic tools.” In addition, she says that “good communication with the client explaining what you can and cannot offer is key. Then, expectations are not left unmet.”

Her practice faces the profession’s most pressing challenges. “I think most of the veterinary field faces many of the same issues. We are challenged with price points. Wanting to be affordable for our clients but also wanting to offer our employees a good life,” she said. “We are all struggling with too many client needs and not enough time. I could hire another full-time veterinarian and still not have enough appointments in the day for pets in need.”

Robinette also stresses the importance of vet techs. “The truth is, more than a veterinarian, we need trained help. I don’t know of a hospital right now that is not in need of more licensed veterinary technicians. We could get so much more done with more technicians. They seem to enter into the field, but they do not stay. It is a hard job, both physically and emotionally, soul-sucking sometimes. If veterinarians feel underpaid, how do our LVTs feel? They really struggle to make ends meet as well. It seems they come into the career just to turn around and find a new profession. It is very sad.”

After-hours care can also be a strain, even though her practice uses Guardian teletriage service. “Prior to using Guardian, people would be upset about finances or having ER fees, and we would have to hear about how we don’t care about pets or are letting their dog die,” she says. “This service has eliminated these conversations, which has been a huge relief.”

But, with specialist services a few hours away, even teletriage can’t solve the problem. “If I could make one thing go away, it would be on-call. Let’s be honest: it is the hardest part of practicing where I do. In the month of May, I was called in 28 times,” she says.

“I am happy to have cared for the pets, but it is challenging after working all day to be up late or in the early morning and then again working all day. You cannot be good for anyone when this happens. You are not a good doctor, a good wife, a good mom, a good pet mom, a good coworker. You get burnt out, and it is a struggle to do a good job functioning with normal life,” she says.

“We need more trained veterinary technicians. That should be a goal for our profession. We are all in need of them, and rural areas are struggling even more than the cities.” ✧



Constance Hardesty, MSc, tells stories about the people, medicine, and technology serving our animal companions.

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Coping with Board Complaints

Protecting Your License—and Yourself

by Jen Reeder

THE WOMAN WITH THE BULLDOG SUPPOSEDLY WANTED A “SECOND OPINION” when she arrived at AAHA-accredited New Frontier Animal Medical Center in Sierra Vista, Arizona. The dog had been diagnosed by a board-certified internal medicine specialist with a nasopharyngeal mass, which was severely obstructing the dog’s breathing.

The dog passed out four times while Pam Drake, DVM, met with the woman, who told the veterinarian of 35 years that she wanted the mass surgically removed—from what Drake explained was an inoperable area.

The client confessed she’d been up all night holding her dog’s chin up because he’d pass out any time it dropped, and that in addition, she couldn’t afford radiation. Ultimately, she opted for euthanasia, then sent an angry

email two days later that read, “I brought my dog to you for surgery, and you put him to sleep. That wasn’t what I wanted.”

“I knew the handwriting was on the wall, and it was going to be problematic,” Drake said.

Sure enough, the following week, Drake received a letter from the state veterinary board. The client had filed a complaint against both Drake and the internal medicine veterinarian whom she originally consulted.

Every state veterinary board operates differently, but in Arizona, virtually every complaint goes to an investigative committee, Drake learned. She had to submit all her paperwork and write an account of what happened. The technician who was present for the

end-of-life discussion and euthanasia also submitted an affidavit. The process took several months and was capped by a phone interview with the investigative committee. The board ruled she'd done nothing wrong.

“What helped me get through this was that my staff was superb at documenting every conversation we had with her,” she said. “And our practice has very well-written paperwork that she had signed saying she was electing euthanasia and giving me permission to do it. So it was a matter of all the i's being dotted and t's being crossed.”

Still, the experience was extremely upsetting.

“The emotional toll that it takes is very real because here you are in this situation. This dog is obviously suffering. You're trying to help this person through a difficult time. And then that's the backlash you get,” she said. “It really feels like a betrayal and makes you very cautious about dealing with people.”

Complaints on the Rise

When a client files a false report or even a valid claim with a state veterinary board, it can be stressful, time-consuming, and potentially expensive—and during

the pandemic, complaints have been spiking. So it's important to take steps now to protect both your license and mental health should the situation arise.

Drake said it's helpful to keep in mind that state veterinary boards typically aim to be educational rather than punitive. She found the board members to be professional and compassionate throughout the process.

Mark McConnell, BVMS, MRCVS, chief medical officer of Lakefield Veterinary Group, former AAHA president, and former chair of the Oregon Veterinary Medical Examining Board, said he served on his state's veterinary board for about a decade as a way to give back to the profession. He feels the “vast majority” of state boards want to be of help to veterinary professionals while offering consumer protection.

“If you are following AAHA standards and if you are providing excellent, impeccable medical records, that is often your best defense,” he said.

When medical records are clear, complete, well documented, and legible and tell a story that makes sense, the board tends to believe the documentation, according to McConnell.

He noted that board complaints must fall under the provision of a state's Veterinary Practice Act, which don't typically regulate business practices such as hours of operation or fees.

“There may be a client upset about the money. And when they realize that the practice act doesn't address finances, then they may look at the medicine,” he advised. “So that's another reason why your medical records need to be impeccable.”

Michelle Cave, a spokesperson for the California Department of Consumer Affairs, which oversees the Veterinary Medical Board, agreed that detailed records are the most important piece of evidence. In fact, if the records are inadequate, that itself could be cause for discipline, but it may not lead to a license being suspended or revoked, she noted.

“We want to make sure that you're still able to keep your livelihood and do what you love, but here are the



guidelines according to statute, and you have to follow these,” she said. “If it’s evident that the individual is a repeat offender of the same thing, then that’s when the board has to bring down the hammer and be more punitive.”

She said all complaints are thoroughly investigated, and about 90% do not result in disciplinary action or citation. The board typically receives around 1,300 complaints per year, mainly from pet owners, but again, that has jumped during the pandemic. At the end of the fiscal year 2020/2021, the board had received 25% more complaints over the prior fiscal year, according to Cave.

Positive Culture and Self-Care

Beth Armstrong, CVT, RVT, CFE, CCFP, and former AAHA practice consultant, said a strong, empathetic practice culture can help a member of the team through the stress of being reported to a state veterinary board.

“Just because your doctor has been reported doesn’t mean there is something wrong with your doctor,” she said. “So being supportive to your doctor during that moment—or to anyone during that moment—is really important, because it’s really hard to deal with that.”

Self-care should start before an accusation since it can be so challenging to start new habits during a particularly stressful time, according to Donna Hamilton, MD, MS, a former board-certified pediatrician and now a trauma-informed wellbeing strategist and CEO of Manifest Excellence.

“I’m a big fan of being proactive and preventive care,” she said. “This would be a phenomenal time to being to think about what your self-care and stress management practices are.”

While people might hear the term “self-care” and think of pampering or meditation, it can also involve eating well, exercising, laughing, cleaning up household clutter, and going to the doctor.

“When you’re faced with a major stressor, it’s common to begin to feel a little bit ill or sick or have physical ailments,” she said. “So, if you at least know that you’ve had your well checks, then it’s easier to perhaps compartmentalize.”



She recommends finding and seeing a therapist or other mental health professional before a crisis arises—even just a time or two—to have a relationship in place when faced with mounting challenges. People who have experienced childhood abuse or other traumas should pay particular attention to self-care, since the stress of feeling attacked can heighten the nervous system response, she emphasized.

One daily wellness tool is doing a “brain purge” before bed: write down your mental to-do list and then forget about it so you can relax into sleep. In that same vein, journaling can help. Try writing down thoughts and concerns in a notebook or on a sheet of loose-leaf paper that you then tear up to dodge the sometimes unwanted pressure of preserving unhappy thoughts.

Melanie Goble, DVM, owner of Renewed Strength Veterinary Services in Manitowoc, Wisconsin, and treasurer of Not One More Vet (NOMV), a veterinary peer-to-peer support group, said when someone files a formal report or complains online or at the clinic veterinarians should think about their last 100 cases.

“If one went wrong out of 100 cases, that is still a 99% success rate,” she said. “Most of the day, all our things go right, but we let that one thing really bog us down. As individuals, we have to learn to deal with our perfectionism.”

Though she’s quick to note NOMV doesn’t promote toxic positivity, she said it can help to end each day by thinking about three good things that happened. Instead of overarching concepts like “I have my health,” focus on specific instances like “I got a really good parking spot at the store” or “My kids didn’t fight today.”

Since it can be easy for clients to be mean—though Goble’s never had a complaint filed with a state board, she’s had clients threaten physical violence, and one cruel man told her she should kill herself—she suggests practices celebrate client kindness on social media to model good behavior.

“For your clinic Facebook pages, try putting up things like, ‘Shout out to Fluffy’s mom, who dropped off a thank-you card and flowers,’ or ‘We had a really stressful



Veterinary License Defense: What You Need to Know

One simple way to protect yourself and your livelihood is an insurance coverage called veterinary license defense (VLD). If a claim is filed against your veterinary license with the state veterinary board, your insurance carrier assigns a defense attorney—well-versed in your state’s veterinary practice act and board investigations—to help guide you through the process.

It’s more affordable than you may think. For instance, the AVMA’s Professional Liability Insurance Trust (PLIT) program offers an endorsement for veterinary license defense with three options, including up to a \$100,000 defense limit with an annual premium of just \$135/year.

Linda Ellis, DVM, Director of Trust Veterinarians for the AVMA Trust, said VLD is a small price to pay for

peace of mind, particularly since board complaints are increasingly common owing to the public’s awareness of state licensing boards, the internet, social media, and, now, the pandemic.

“It is extremely easy for a client to make a board complaint,” she said. “All they have to do is call the state board, send a letter, or go online and fill out a form. It takes 15 minutes of their time, and it’s going to really affect that veterinarian for 1 to 2 years, or possibly longer. That’s why we highly recommend every veterinarian have VLD to protect themselves and protect their license.”

She noted that it’s important to enroll in coverage before a license complaint is ever made, as the coverage must be in place on the date of the incident the client is complaining about in order to respond.

For more information, visit: avmaplit.com/vld.

day today with a lot of really tragic cases, but Tigger's mom brought us a plate of brownies and it brought a bright spot to an otherwise horrible day.' That's how we show people to be nice," she said. "People can't be mean if they're giving a heartfelt gift."

On the veterinary side, Goble said it's imperative to practice "CYA medicine" in today's litigious society.

"My first recommendation is to actually read your state practice act and know what it says," she said.

Goble is a relief veterinarian licensed in five states, so she keeps extremely detailed notes and always follows the most stringent rules to the letter of the law.

For instance, in Wisconsin, veterinarians are required to offer clients every possible treatment option—including doing nothing. So, if a dog has a broken leg, she'll explain possible treatments and add, "I have to tell you, you have the option of doing nothing. That is neglect, but you have that option."

When a client becomes upset or angry, she recommends saying something like, "Let's stop for a minute and talk about this in X number of days," if it's something that can wait. Then try mediation; many professionals offer it specifically for veterinary clinics. NOMV also has a volunteer mediator who can help.

If the conflict does culminate with a client filing a report with the state veterinary board, don't be afraid to reach out for support, Goble emphasized.

"When we're in the middle of the badness, it's okay to come to NOMV and say, 'Hey, I need a shoulder to lean on. I need a support structure because I can't stand up on my own,'" she said. "And we'll be there. That's a promise we can always make. You are not alone." ✖



Award-winning journalist Jen Reeder is incredibly grateful to the veterinary teams across the country who work so hard to help people and pets in their communities.





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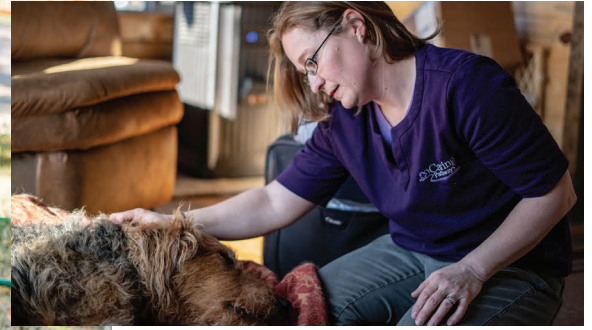
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Left: Caring Pathways veterinarian Mavi Graves, DVM, performing a hospice appointment in a client's front yard.

Above: Caring Pathways veterinarian Megan Coveyou, DVM, providing compassionate end-of-life pet care for a client in the comfort of their own home.

Check out AAHA's End-of-Life Care Guidelines

The 2016 AAHA/IAAHPC End-of-Life Care Guidelines are available for download at aaha.org/guidelines.

How Accreditation Will Change End-of-Life Veterinary Care

AAHA Accreditation Has Arrived in an Industry That Needed It

IN SEPTEMBER 2020, AAHA ANNOUNCED IT WAS LAUNCHING a new and highly specialized accreditation program for veterinary practices that specialize in end-of-life care (EOLC). The AAHA End-of-Life Care program includes practices that offer mobile (in-home) or clinic-based euthanasia services, support for animal hospice care, or palliative care programs administered by pet owners.

The first veterinary practice to seek and receive AAHA end-of-life care accreditation is Colorado-based Caring Pathways, which specializes in mobile euthanasia services and hospice consulting in the Denver area.

“This accreditation is very different from anything that we’ve ever offered before,” said Margaret Spalletta, CVT, an AAHA veterinary consultant who evaluated Caring Pathways. “We have never developed a very integrated

network of standards specifically for one of our areas of interest. We’ve learned a lot, and we’re very proud of this model because it’s going to help our traditional practices and our mobile veterinarians. We’re going to be bringing this to such a wider array of people in the industry than we ever have before.”

When facing dire health situations, many pet owners prefer to keep their animals in the home environment where anxiety is reduced for the animals and for their human families. This creates a fresh set of challenges for veterinarians, who for the most part aren’t specifically trained to work in the field caring for sick, injured, or aging animals.

Mobile veterinary care has been around for years, but now mobile end-of-life care is a rapidly growing niche, which prompted AAHA to respond.

“AAHA recognized that the mobile end-of-life industry was growing rapidly without a lot of oversight,” explained Kathleen Cooney, DVM, CHPV, CCFP, who helped AAHA draw up the *2016 AAHA/IAAHPC End-of-Life Care Guidelines*. “AAHA created the standards to provide some of that oversight, helping these mobile end-of-life services blend together the wonderful things that hospitals have been doing for so long and making sure that the fundamentals for pain management were there and that there are good employee manuals in place.”

This accreditation is not available to practices that offer euthanasia or hospice care support as a part of a comprehensive menu of services. They must provide end-of-life care exclusively or have a separate department solely dedicated to providing it.

Navigating the AAHA Accreditation Rules

The AAHA end-of-life care accreditation standards do not include the strict protocols for “normal” accreditation. Individual veterinarians maintain their autonomy to customize services as they see fit and according to client needs. What the AAHA standards do is set parameters to make sure practices are acting responsibly and are offering pets and pet owners the very best in modern evidence-based medical services.

As an example of the latter consideration, end-of-life veterinary care practices must administer sedatives to animals before euthanasia can be performed.

“We have a set of mandatory standards they must adhere to; those are black and white,” Spalletta said. “If they answered ‘no’ to that standard, it would make it very hard for them to pass anesthesia. Therefore, they would not be able to be accredited for end-of-life.”

AAHA practice consultants rely on guidelines for end-of-life care that the association developed in cooperation with the International Association for Animal Hospice and Palliative Care (IAAHPC) in 2016. AAHA has an ongoing relationship with the IAAHPC, which offers a comprehensive certificate training program for veterinarians who’d like to specialize in animal hospice care.

Currently, all evaluations for accreditation are being performed remotely. This method works quite well for

both sides, as AAHA practice consultants can observe veterinarians in action without causing any distraction.

Caring Pathways Earns First-Ever EOLC Accreditation

In business since 2010, Caring Pathways offers mobile euthanasia services to pet owners in the greater Denver metropolitan area and beyond. They also consult with pet owners interested in home-administered hospice care for their terminally ill cats and dogs.

“We’re really excited to be the first AAHA-accredited end-of-life care practice,” said Chelsea McGivney, DVM, the Caring Pathways general manager. “Caring Pathways has worked really, really hard to pioneer the way when it comes to excellent at-home end-of-life care. This is something our team is really proud of, and to make sure that we continue to grow and improve, we’re going to keep working with AAHA to continue meeting the accreditation standards.”

Caring Pathways is exclusively mobile. All the euthanasia procedures occur in pet owners’ homes or other special environments that pet owners request. In some cases, the practice also helps clients design animal hospice care plans, and their trained veterinarians will continue monitoring those plans once they’re implemented.

They provide essential auxiliary services to pet owners as well, including grief counseling and assistance with after-death cremation or burial. Caring Pathways takes responsibility for every aspect of a euthanasia procedure, relieving their clients of the need to handle difficult tasks at an emotionally trying time in their lives.

“A big part of what we do is interacting with the clients—not just the veterinarians that go into the homes but, of course, our client care team,” McGivney said. “They’re the ones who are on the phone, scheduling those appointments. They get to be the first impression of the company, walking the client through what the experience is going to be like. I would say everybody on the team has a really important role in creating the most positive experience out of a really hard situation.”

Caring Pathways helps translate the best intentions of pet owners into meaningful action, McGivney believes. “It really celebrates that human-animal bond,” she said of

“These pets become our family members, and you realize that when you’re able to help a family say goodbye to this family member in the comfort of their home.”

—CHELSEA MCGIVNEY, DVM, CARING PATHWAYS GENERAL MANAGER

her company’s services. “These pets become our family members, and you realize that when you’re able to help a family say goodbye to this family member in the comfort of their home.”

Caring Pathways recently hired Cooney as their Chief Medical Officer. In addition to being on the AAHA end-of-life care guidelines task force, she is a past president of IAAHPC and also founded the Companion Animal Euthanasia Training Academy in 2017.

Despite the coincidental timing, Caring Pathways didn’t hire Cooney specifically to help them achieve AAHA accreditation. “Caring Pathways brought me on because of my wealth of experience in end-of-life care for pets,” Cooney said. “I’m very well known for my pioneering work in this space with animal hospice, palliative medicine, and euthanasia.”

There was a confluence of interest between Cooney’s work and the needs of Caring Pathways. Responding to industry trends, they hope to leverage her expertise in animal hospice care to expand that part of their business. They also hired her to help them complete the next phase of their development, as they seek to form partnerships or franchise-style relationships with other end-of-life care veterinary practices nationwide.

“We are looking for quality end-of-life services around the US that can benefit from joining forces with Caring Pathways,” she said. “We’re looking to acquire services that can use Caring Pathways’ expertise from the business side of things and the medical side.”

“That’s one approach, and the other approach is to identify those communities that are underserved with end-of-life mobile support, and then we can start up new Caring Pathways ventures in those areas,” she continued. In cases like these, Cooney confirms that local veterinarians will be recruited to join the extended

Caring Pathways family, creating company satellites in new locations.

Caring Pathways is anxious to spread their brand name quickly now that they’ve gained special prestige by becoming the first veterinary practice to secure AAHA end-of-life accreditation. This is an advantage Cooney plans to pass on to company affiliates.

“When we’ve got a service that is interested in joining the Caring Pathways family, part of my due diligence is to spend time with them and see where they’re at with things,” she explained, “so that we can understand what it’s going to take to get them up to Caring Pathways level standards and AAHA level standards, which we think is really good for veterinary medicine in the industry.”

In this sector of veterinary practice, authoritative oversight has long been lacking. If an established company with a nationwide presence can convince clients they’ll be getting the best available end-of-life care for their pets, that company will enjoy a significant marketing advantage over its competitors. In the meantime, the reputation of the end-of-life care industry as a whole will be enhanced.

This can all be an outgrowth of AAHA end-of-life care accreditation, which Caring Pathways has all to themselves for the time being.

Easing the Pain of Euthanasia

Most pet owners can tell when their animal companions are ready to move on. But in most instances, they will still want to talk things over with their veterinarian to make sure they’ve exhausted every possibility and have no other option to stop their loved one’s suffering. They may want their veterinarian to perform one last evaluation of their pet to make sure there is no other humane option available.

“There are absolutely signs to watch for,” said Spalletta, explaining how veterinarians with end-of-life care expertise will proceed when asked to evaluate a sick or aging pet. “They can be very hidden at times, and they can also be very obvious. Usually, if they’re just not acting themselves, if they’re just really depressed, just kind of down and out, energy levels can kind of go by the wayside. They’re not themselves.”

Pet owners will have often noticed these things, but hearing them confirmed by a trained expert will make them feel more secure in their judgment that euthanasia may be the best choice.

Even in the home environment, when the moment arrives, it can be an incredibly difficult process for the pet

owner to handle. At these times, the veterinarian must be both empathic and composed.

“It’s just being in the moment, trying to stay calm and professional,” Spalletta explained. “It’s about keeping the pet as comfortable as possible because they may be in pain, or they may be in and out of consciousness. They may have just been given the sedative and they’re dysphoric, they’re not able to be cognizant, and it’s very hard for the pet owner to see their pet in that frame of mind.”

“That’s one of the things that we are trying to help with,” she continued, speaking of AAHA practice consultants like herself who work with veterinarians seeking advice on how best to manage an in-home euthanasia procedure. “It’s just the communication surrounding the euthanasia process and how it should go.”

Caring Pathways is highly sensitive to the emotional needs of both pet parents and their animals, which is why they chose the mobile model over traditional office-based euthanasia services.

“One of the benefits is that not only the pet’s last memories but also the family’s last memories of their pet don’t have to be of a sterile vet clinic or an unfamiliar environment,” said McGivney. “Everybody can be comfortable.”

In one IAAHPC survey, 40% of pet owners said they would not return to their veterinarians following a negative euthanasia outcome. The new AAHA accreditation program is designed to make sure this problem is avoided by guaranteeing that practices will manage these procedures professionally, sensitively, and compassionately for the benefit of pet owners and their animal companions alike.

The Animal Hospice or Palliative Care Alternative

Animal hospice care is not a new concept. But this option remains unfamiliar to many pet owners.

The hospice care option offers an alternative to immediate euthanasia. Care plans are designed by veterinarians but only following careful consultations with the pet owners who request them.

There are several reasons why pet owners may ask veterinarians about animal hospice care:

- While they may be intellectually prepared for their

AAHA’s standards for End-of-Life Care Accreditation are different from the normal accreditation standards. This set of unique standards is designed explicitly for practices that specialize in end-of-life care and euthanasia. Below is a sampling of some of those standards:

- Anesthetic and sedation agents must be administered by a veterinarian or trained practice team member under the supervision of a veterinarian.
- During established hours of service, a practice team member must be prepared to travel to a client’s home in emergent situations.
- The practice team must provide training in end-of-life topics, animal hospice services, and the concept of hospice-supported natural death to local emergency veterinary teams to elevate the understanding of end-of-life support.
- The practice team should educate the client on the stages of natural death, including physical and behavior changes to expect and identify in their pet.
- At least one member of the team should hold certification from the International Association for Animal Hospice and Palliative Care (IAAHPC).
- Practice team members should follow a documented support program to help them identify and recognize signs of depression, burnout, and compassion fatigue, and team members are actively encouraged to practice self-care.

pet's death, emotionally, they may not be ready to consider euthanasia just yet

- They may want to be more directly involved in offering care for their pets, believing they can get better results or make their pets feel more comfortable
- They may want to protect their pets (and to some extent themselves) from the constant stress involving going to the clinic for frequent appointments
- They may want their pets' last days or weeks to be as relaxing and pain-free as possible
- They may want to try something different, feeling that current treatment plans aren't producing the maximum possible results
- They may no longer be able to afford to pay for expensive clinical procedures and medications
- They may want to allow their pets to have a pain-free yet still natural death as an alternative to euthanasia

At Caring Pathways, personalized, in-home hospice treatment routines are worked out in advance during consultations between veterinarians and family members. The process begins with an initial assessment.

"We do offer in-home hospice and palliative care appointments," McGivney explained, "if a family isn't sure and they want to have their pet evaluated by a veterinarian, or if they know they're just not ready yet but they want their pet to be kept as comfortable as possible, the veterinarian can go into the home, not just to evaluate the pet but to evaluate the environment and make recommendations around medication modifications to keep the pet as comfortable as possible."

A veterinarian's involvement will continue after hospice care begins. They will make regular follow-up visits and recommendations for adjustments in treatment protocols that can further relieve an animal's pain or otherwise make their lives more convenient. If it becomes clear that the animal's quality of life is worsening and that palliative care is only prolonging their suffering, they will speak to the family about their concerns in the most gentle and compassionate way possible.

When asked about how long an animal hospice care program usually lasts, Chelsea McGivney said that with her company, "it's typically pretty short, usually just a couple of weeks between the time the client calls us to come in and evaluate the environment to when they're ready to say

goodbye. But it can be up to six months. It's at the point when the families decide they no longer want to pursue further diagnostics, and they aren't going to be pursuing expensive therapies. They really just want to keep their pet as comfortable as possible, so typically not very long."

Accreditation Means Transformation, One Practice at a Time

There are approximately 135 million dogs and cats currently residing in American households (and tens of millions of other animals as well). According to statistics compiled by the market research firm IBIS World, in 2021, there were only 2,647 veterinary practices in the United States offering animal hospice care services, which averages out to 1 service for every 51,000 dogs and cats.

This statistic shows that the niche is underserved, which means that the number of practices exclusively offering end-of-life care services will likely grow at an accelerated pace in the years ahead. This should make AAHA accreditation all the more valuable as veterinary practices in this specialty area search for ways to gain an edge over the increasing competition.

This new form of accreditation may also have an impact on related animal care practices down the road.

"These standards will help the animal hospice and end-of-life industry in a broader sense," Cooney predicts. "That might be in senior rescues, geriatric rescues, hospice rescues, or shelters. Those are out there across the United States, and they don't have a lot of oversight. People can look upon what AAHA built and say, 'alright, what do we learn from that?' Then we can start to do some audits and monitoring of services that might otherwise not have a lot of monitoring. That's going to be really good for patient welfare and certainly for industry protection."

The end-of-life care industry is entering a new phase that should benefit veterinary practices and pet owners equally. Accreditation means much greater quality control—a type that consumers of these services are eventually going to demand. ✧



Sarah Ratliff and her husband live on an organic farm on the Caribbean island of Puerto Rico. She feels fortunate to call herself a corporate America escapee turned eco-organic farmer, writer, and published book author.



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Guidelines

Getting Started with Lasers

5 Questions for Janice Huntingford, DVM, DACVSMR



How do I decide whether or not to get a laser for my practice?

I think any veterinary practice can benefit from offering laser therapy as one tool for treating painful patients. This noninvasive therapy is appreciated by the clients, who enjoy seeing their pet being treated with a therapy that works quickly and is the latest technology.

Because the pet generally needs multiple sessions, the client becomes more bonded to the practice and feels more involved in their pet's care. In addition, the therapy itself is often delivered by veterinary nurses, freeing up the doctor for other tasks. Laser can be a profit center for most practices and one that is well appreciated by the clients.

What conditions benefit from laser therapy?

In my practice we use laser therapy primarily for pets in pain who have osteoarthritis, tendon/ligament injuries, traumatic injuries, disc disease, otitis, and surgical incisions. It is part of our

multimodal treatment of pain. The main clinical benefits I see are decreased pain and inflammation and improved healing.

How much training do I need to start using the laser?

Training should be provided by any company selling a quality product. In-house or virtual training is essential and necessary for the veterinary staff to feel comfortable delivering the therapy. Basic understanding of laser usage, safety protocols, and which conditions could benefit from laser therapy should be outlined in any training course. Ongoing and advanced training that includes the latest scientific evidence should be provided by the laser company.

How much marketing do I need to do to be profitable?

Additional external marketing on your website and social media often brings in new clients who are interested in treating pets experiencing pain; however, internal marketing to existing clients will reap benefits as well. If pain

scoring and the discussion of painful conditions is part of every examination, the practitioner may identify many patients who could benefit from laser therapy.

Most laser companies can help you design a simple marketing program that would serve the needs of your practice. Your clients whose pets are being treated with laser therapy are often your best source of marketing—they love posting pictures of their pet being treated with the laser while wearing “rock star” goggles!

What kind of clinical results can I expect from using lasers?

For acute conditions, pain relief is often immediate but may require daily treatment if there is significant pain. Chronic conditions may benefit from cumulation of therapy and these conditions are often treated 2 to 3 times weekly. When combining laser with physical therapy, the result are more effective. Most pets will feel better right after therapy, and owners often notice reduced pain and improved mobility. ✖

Janice Huntingford, DVM, DACVSMR, is a 1984 graduate of the Ontario Veterinary College, University of Guelph, in Guelph, Ontario. She is certified in chiropractic, acupuncture, rehabilitation, and pain management. In 2015, she became a diplomate of the American College of Veterinary Sports Medicine and Rehabilitation. She has coauthored several textbook chapters, has published several peer-reviewed manuscripts, and continues to speak nationally and internationally on pain management and rehabilitation.



Don't Be Afraid to Say Yes to Referrals



If your patient's skin disease is not improving or improves but returns, consider dermatology referral.

Dermatology Referrals Can Help Your Practice Grow

by Terri Bonenberger, DVM, DACVD

One of my favorite shows is “Say Yes to the Dress,” a reality show following the progress of sales associates, managers, and brides on the way to finding that perfect wedding dress. Common themes include overwhelming advice of friends and family, helping the bride (and occasional bridezilla) overcome personal challenges, and staying on budget. Believe it or not, this can be a lot like a day in the life of a veterinarian.

As a dermatologist, I know that veterinary dermatology can be a frustrating specialty—many of the diseases we treat are common and chronic (hello, canine atopic dermatitis!). Allergic skin disease, recurrent pyoderma, and otitis externa are among the most common conditions seen by primary care veterinarians (PC DVMs). But interestingly, veterinary dermatology has one of the lowest referral rates in specialty medicine. Why is that?

It's Only Skin, Right?

Unfortunately, chronic skin disease is often significantly debilitating for both owners and pets alike. A 2019 study from *Veterinary Dermatology* evaluating caregiver burden identified that a significantly greater caregiver burden was felt by veterinary dermatology clients. This is consistent with our expectations. However, the study also found that in the presence of good skin disease control, caregiver burden can be just as low (or normal) as

general veterinary clients with a healthy dog, and this is good news! Another study focusing on caregiver burden found that dermatology treatment that is effective and understood by the pet owner also leads to reduced owner distress, translating into less stress for PC DVMs. These factors are ways that specialty care from a board-certified veterinary dermatologist can help satisfy your clients and patients.

Challenging Common Assumptions—What the Research Shows

It's common in daily life to make assumptions, especially when we don't have enough information to fill in the gaps. In many cases, we assume that a client will not be interested in referral, that referral could be harmful to our relationship with the client, or that referral will negatively impact the practice's financial bottom line.

1. Improved Client Trust and Satisfaction

The American College of Veterinary Dermatology conducted a survey of 300 clients who had seen their PC DVMs for a dermatology problem followed by care from a board-certified veterinary dermatologist. The survey found that 73% of clients became frustrated if the PC DVM could not solve the initial complaint by the third visit. How many complex cases of canine atopic dermatitis, recurrent pyoderma, or pseudomonas otitis can be "solved" in three 15-minute visits? Unfortunately, client frustrations are often displaced onto the veterinarian regardless of how well the veterinarian practices medicine.

The study revealed that the three-visit tipping point often resulted in the

client seeking a second opinion from another PC DVM and not returning to the original clinic (even for nondermatologic complaints). Interestingly, most clients within the study were not referred until the fifth visit. It was estimated that if these clients had been referred prior to the third visit, they would have saved an average of 25% in medical costs. The majority of the clients surveyed reported they would have been more satisfied with their veterinarian if they had offered referral earlier.

TIP: You may risk increasing costs and ultimately losing clients by delaying a dermatology referral.

2. Improved Patient Outcome

If your patient's skin disease is not improving or improves but returns, consider dermatology referral. Two of the most common chronic conditions dermatologists treat are atopic dermatitis and chronic otitis externa. Early referral resulting in improved clinical outcomes helps to prevent the chronic, scarring changes that often lead to more complex infection management (multidrug-resistant methicillin-resistant staphylococcus infections) or invasive procedures (such as TECA-BO for end-stage ear disease).

In patients you have diagnosed with atopic dermatitis, consider referral for allergy testing. A recent study from *Veterinary Dermatology* revealed that a larger proportion of allergy patients started on hyposensitization therapy under the care of a dermatologist had better compliance and more successful patient outcomes.

A 2019 study from *Veterinary Dermatology* compared treatment

outcomes for chronic canine otitis externa in primary care and dermatology specialty practices. The study found that dogs with chronic otitis externa had better long-term outcomes when treated by board-certified veterinary dermatologists (in addition to treatment already received by PC DVMs) than when those dogs were managed by their PC DVM alone. Importantly, the more chronic the inflammation, the more prolonged the discomfort for the dog, with increased chances that irreversible pathologic changes occur, resulting in recommendations for palliative therapies such as ear canal ablation surgery.

TIP: It is never inappropriate or too early to offer referral to a dermatologist. In addition, many dermatology cases require comanagement by a dermatologist and PC DVM.

My Tips on Maximizing Referral Success (Hint: Plant the Seed Early!)

Guidelines for referral are often lacking in veterinary school education, and when to refer will vary based on a PC DVM's personal comfort level in managing various skin diseases. Start the discussion early in cases of allergic dermatitis or recurrent otitis. Address the symptoms (pruritus, infection), but discuss the underlying causes and long-term therapy options.

Clinical signs it may be time for a veterinary dermatologist:

- Three or more visits with the same problem with partial to poor response. This can indicate chronic disease or possibly disease mimicry (treating a dog

for presumed allergic dermatitis that actually has cutaneous lymphoma). In cases of chronic disease, our goals are early intervention to prevent the chronic, scarring changes that can occur within the skin and ears.

- Allergy testing shows that further action is required. Intradermal testing remains the gold standard because the test assesses for allergen-specific IgE within the skin (the affected organ). Reputable serologic allergy tests do exist, but simply running the test does not equate with successful long-term management of allergic dermatitis.
- Atypical lesions or a sudden change to a pet’s skin condition. These cases often require skin biopsy or other nonroutine diagnostics (e.g., tissue cultures for opportunistic bacterial or fungal infections) that are expensive to most clients. In these cases, sample selection and knowing a complete list of differential diagnoses are especially important. Offering referral prior to performing these expensive tests can save you

and the client from the frustration of inconclusive results and the need for repeat testing.

- Ulcerative diseases affecting the skin, nasal planum, foot pads, and/or mucocutaneous junctions. When present, these lesions could be an early sign of a bad disease (e.g., autoimmune, vasculitis, fungal infection) that might be treated best if diagnosed early.

If you are struggling with poor client compliance:

- Much of what we treat in dermatology is chronic and not curable, so your best remedy for this is setting a client’s expectations through excellent communication. Since the onset of COVID-19, many veterinary practices are experiencing a surge in demand for services and client communications via phone call, text, and email. If you’re finding it challenging to address complex dermatology cases in the allotted appointment slots or keep up with the extensive communication these cases

require, referral may be beneficial.

- Most initial dermatology exam visits are one hour, with recheck exams routinely 30 minutes, giving us more time for these cases. In addition, our dermatology technicians are one of our secret weapons! These specially trained technicians educate clients every day (via phone calls, texts, and emails) and help us proactively manage disease flare-ups. In most cases, long-term medications and therapies (Cytopoint, Apoquel, topical and dietary therapies) continue to be refilled by the PC DVM (representing a continued revenue source) with the benefits of guidance from a veterinary dermatologist.

Final Thoughts

Like a bride-to-be looking for the perfect wedding dress, don’t be afraid to ask for help! It is important that PC DVMs and veterinary dermatologists develop strong working relationships that are mutually beneficial for both parties.

Most dermatologists are happy to provide complementary consultations, work-in emergency dermatology referrals, and provide local continuing education for PC DVMs who are our partners and consistently refer their clients and patients. This benefits all parties involved! To find a dermatologist in your area, visit acvd.org under the “Find a Dermatologist” tab. ✨



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Common Barriers to Dermatology Referral	What the Studies Show
Pet owners’ perception of higher costs for seeing a specialist	Studies show early referral can reduce costs through better management of chronic disease (allergic dermatitis, chronic otitis)
Fear of looking less competent if referral is made	Studies show client satisfaction decreased if referral not offered if condition not “solved” after a 3-visit tipping point
Fear of losing clientele	Chronic dermatology cases are one of most common causes of “veterinary shopping,” resulting in a loss of clientele
Fear of losing revenue	With comanagement from dermatologist, long-term medications and therapies (Cytopoint, Apoquel, topical and dietary therapies) can be refilled by the PC DVM

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References: 1. Canine diabetes mellitus; can old dogs teach us new tricks? Catchpole B, Ristic JM, Fleeman LM, Davison LJ. *Diabetologia* 48:1948-1956, 2005. 2. Feline diabetes mellitus in the UK: The prevalence within an insured cat population and a questionnaire-based putative risk factor analysis. McCann TM, Simpson KE, Shaw DJ, et al. *J Feline Med Surg* 9:289-299, 2007.

Lumbosacral Conditions in Dogs

Integrative Medical Considerations

by Narda G. Robinson, DO, DVM, MS, FAAMA, and Mike Petty, DVM, CCRT, CVPP, DAAPM



Introduction

Diagnosing and treating lumbosacral (LS) pain can become a frustrating experience for veterinary practitioners. Many conditions present with one or all of the following signs: ataxia, paresis, paralysis, loss of normal neurologic reflexes, and pain. In this article, we seek to achieve two aims: 1) Assist veterinarians in investigating the cause of LS disease or dysfunction, and 2) Consider nonsurgical treatment options with a special emphasis on integrative medicine and rehabilitation measures.

LS Disease

The term “LS disease” describes an array of disorders that likely include the L7-S1 junction but typically affect the caudal back and sacral region more broadly. Given the prominent neurovascular structures in the pelvis, one could see neurologic involvement as in cauda equina syndrome (CES) and LS stenosis; myofascial dysfunction; degeneration of intervertebral disks, ligaments, and bone; tenderness to palpation; postural abnormalities; gait disturbances; and biomechanical compensatory patterns. See Box 1 for additional differentials.

Regardless of the etiology, practitioners could more precisely identify sources of pain and mechanical dysfunction by improving their evaluation. They could also “up their game,” that is, offer more

Plate 1

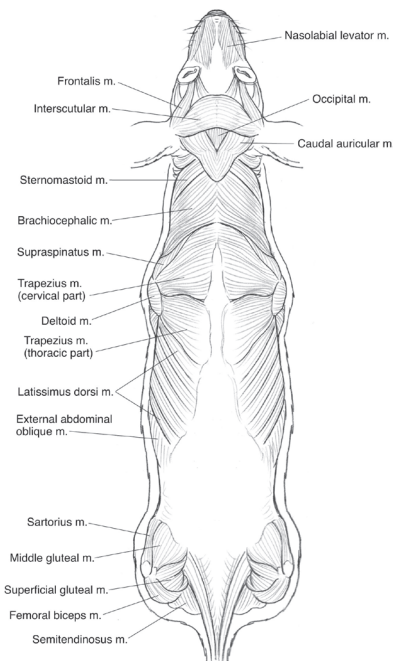
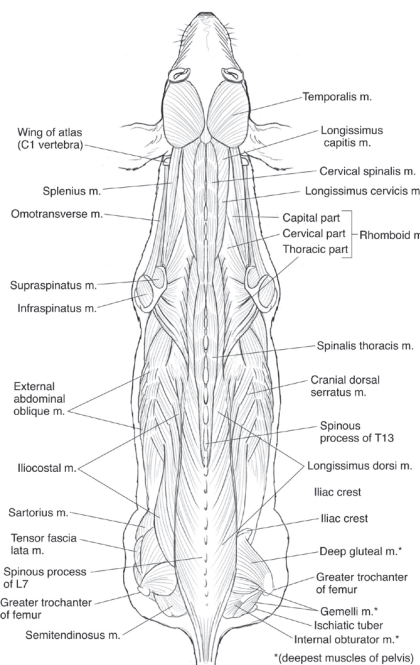


Plate 2



These plates identify muscles of the superficial (Plate 1) and deep layers (Plate 2) as a reminder of the interconnectedness of the LS region with numerous other structures, including the thoracolumbar fascia (the white diamond outlined in Plate 1).

complete care and pain resolution by including science-based integrative medicine and rehabilitation modalities in their treatment plan. See Table 1 for ideas on including methodologies such as medical acupuncture, massage, photomedicine, and rehabilitation to improve outcomes and help reduce the need for surgery.

Diagnosis

Without advanced imaging and diagnostic procedures such as magnetic resonance imaging (MRI), computed tomography (CT), and lumbar puncture, the primary care practitioner may not be able to fully characterize the underlying problems. For many dog owners, the cost of these diagnostics may be beyond their financial reach, and in most cases, one could institute an integrative medicine sequence to determine whether the condition appears to respond. The good news is that when dogs are presented with lumbosacral issues, the same therapies can be applied to all of them; only those dogs who do not improve with therapy typically need further testing.

For this article, we are going to primarily look at the diagnosis and treatment of three similar presentations: LS disease, intervertebral disc disease (IVDD), and degenerative myelopathy (DM).

Every diagnosis starts with a good clinical history. Allopathic medicine tends to jump right into an exam and lab tests. Most of us do not take the time to start with a thorough history, beginning with what is going on in the animal's home life. For example, did you recently move to a new house with stairs or wood floors?

Did a new animal join the household that might be “roughhousing” with the patient? Has a new person taken over as the dog's primary caregiver? All of these things can impact a pre-existing condition (having to use stairs, for example) or cause a new one (an injury from roughhousing). And, of course, we should ask the usual history questions about trauma, onset, previous episodes, previous surgery, urinary or fecal incontinence, trouble positioning or experiencing pain during defecation or urination, and so on.

After acquiring a thorough history, our key next steps include observation, physical examination, and a comprehensive myofascial palpation to identify areas of myofascial restriction and tenderness. Plates 1 and 2 identify muscles of the superficial and deep layers as a reminder of the interconnectedness of the LS region with numerous other structures, including the thoracolumbar fascia (the white diamond outlined in Plate 1 (Superficial Muscles)).

Physical Exam

The physical exam begins with a hands-off distant observation. We look for postural abnormalities, movement alterations, and physical changes. All three conditions (LS disease, IVDD, and DM) may have similar presentations: clicking nails or knuckling of the back feet when walking, a limp tail or one that is tucked or less mobile, and difficulty changing positions.

If time permits, we prefer to begin our assessment as the dog exits the car and walks in from the parking area. This way, they are less guarded in

hiding their pain. It also allows us to see them walk on nonslip surfaces. Continue observing the dog while discussing the history with the caregiver in the exam room. This may help to differentiate between signs of pain and neurologic involvement; you may find both.

Observational Signs

Too commonly, we tend to dismiss signs of pain and dysfunction as “behavioral” or idiosyncrasies of the patient. This uninformed attitude underestimates the amount of physical debility an animal is exhibiting and risks missing the opportunity to intervene meaningfully in their care. To help offset this habit, please review the list below and keep it handy as a reminder to evaluate these features each time you encounter a dog with suspected LS problems.

- Signs of pain
- Knuckling
- Kyphosis
- Moves whole back as a unit
- Bilateral hind limb lameness
- Wiggly butt; may have a “sashay” as the dog walks to avoid movement of lower back
- Interrupted whole body shake (see Glossary)
- Signs of a neurologic problem
- Paresis/paralysis
 - Particularly over the lumbosacral region
 - Flattened (most common), erect, or disheveled hair

Myofascial Palpation Evaluation

(See Plates 1 and 2 for muscular anatomy review.) With a whole-hand palpation applied in a slow, cross-fiber direction to each muscle/

Glossary

Interrupted Body Shake

Most dogs, when standing from a down position, will shake their entire body. However, if it hurts somewhere, they will either not shake that part or stop completely when they reach a painful area. For example, a dog with IVDD at the T/L junction will shake through most of the thorax but stop just before the junction. Another example is a dog with hip dysplasia. They will shake all of the way down their back but not their pelvis.

Hair Coat Changes

All vertebrae share pathways with organs, muscles, and skin. The observant practitioner may notice that the hair coat is flattened or disheveled over a portion of the spine that corresponds to a dysfunction at that part of the spinal cord.

Transitional Vertebrae

Discovering transitional vertebrae and what they mean can be an important diagnostic tool. When there is chronic irritation secondary to CES, oftentimes either the last lumbar vertebra will react by starting to look like the first sacral vertebra or the first sacral vertebra will start to look like a lumbar vertebra. The exact reason for this inflammatory response is unknown. Always take a lateral radiograph that includes the entire lumbar spine and sacral spine. Then, count the lumbar vertebrae, and if the number is either six or eight and the corresponding sacral vertebrae are either four or two, then this is pathognomonic for CES—no MRI necessary!

myofascial structure, assess for areas of tenderness, restriction, or “noticing” from the animal as they may turn toward you, breathe a bit faster, or move away. The myofascial evaluation should approximate a massage. It should never be painful or induce fear. Rather, this opportunity should mark the beginning of a relationship of trust between the patient and the practitioner. Take your time, be thoughtful, examine each muscle from end to end, and record your findings to compare with future treatments. The integrative medicine measures outlined in Table 1 rely heavily on the myofascial palpation exam as a scientific approach that addresses actual physical and functional problems—not mystical, metaphorical, imaginary energies.

During the exam, you might note symptoms such as:

- Restrictions of the muscles in the lumbosacral region (entire pelvis, trunk, caudal abdomen, and pelvic limbs)
- Fascial restrictions in the region
- Tenderness to palpation
 - Especially over the LS junction
- Warmth over LS region

Neurologic Exam

Many providers skip the neurologic exam or perform it ineptly. Learn to perform at least these three tests and do them well. Doing so will help you avoid misdiagnosing animals in the future.

1. Conscious proprioception (CP)

determines whether the problem is neurologic. It does not localize the lesion.

- To check for this, many practitioners will flip a foot upside down and let go. This leads to false negatives as

dogs with loss of CP can still feel their foot, they just don't know where it is in space (i.e., the conscious proprioception part!). To avoid this “touch” reaction, flip the foot upside down, hold it in place at least three seconds while supporting weight over that leg, then let go. If they immediately flip it right side up, then the CP is normal. If not, this indicates early neurologic problems—the inability of an animal to know where their foot is in space. This is often the first thing to go with any neurologic impairment.

2. Crossed extensor reflex tests

provides information about the presence of an upper motor neuron (UMN) lesion. The limb that straightens (and perhaps both will) to a pinch of the opposite limb's toe (hence the term “crossed” extensor) is considered positive. Under normal circumstances, this reflex will be inhibited. Thus, an interruption in the integrity of connections within the spinal cord will allow this hardwired reflex to manifest. Perform the test in the thoracic limbs and pelvic limbs. A positive crossed-extensor reflex in the thoracic limbs *and* the pelvic limbs suggests a UMN lesion in the neck but does not rule out additional lesions more caudal. A positive reflex only in the pelvic limbs indicates the possibility of a UMN lesion from T3 to L3. Finding evidence of a crossed extensor reflex does not mean that the animal requires surgery. On the contrary, a

I It is always a good idea to run a basic panel on your patients with lumbosacral conditions.

comprehensive knowledge of the neurologic status of a patient informs the science-based integrative medicine provider and rehabilitation practitioner about where and how to most safely and judiciously address the problems.

- A crossed extensor test involves putting a dog in lateral recumbency. A sharp pinch is given to the “down” paw while holding the “up” limb lightly in your hand. A normal reflex is to feel the “up” paw push down, even slightly. An abnormal reflex is to have no reaction whatsoever in the “up” paw.

3. **Panniculus response** is a twitching or crawling of the skin when it is stimulated with a small-gauge hypodermic or acupuncture needle in the paraspinal region. I start this test in the pelvic region and work my way up. If you can get all the way to the head and there is not panniculus, then the test is unreliable. But if you can consistently get the dog’s skin to react at the same point, that is the approximate area of the spinal lesion.

Laboratory Testing

It is always a good idea to run a basic panel on your patients with lumbosacral conditions. Not only do you need to know that they are healthy for any medications, botanicals, or supplements that you might want to dispense, but you also want to rule out problems that can mimic pain, such as the following.

- Anemia can mimic ataxia.
- Diabetes mellitus can cause diabetic neuropathy.
- Any organ issue can cause a dysfunction in the shared myotome. Just like a person having a heart attack can feel arm pain, things like kidney disease and pancreatitis can exhibit pain in areas along the spine.

In addition, every dog with a lumbosacral condition should have a genetic test for degenerative myelopathy. It is a simple test that can be done in your clinic with a cotton swab, or you can have clients do it themselves and send it in.

Radiology

To best narrow the diagnosis, we prefer to obtain radiographs of the lumbar spine and LS junction. Although we can feel heat and see a pain reaction during palpation, we can’t immediately know what the issue is. Radiology can help us differentiate between

- Spondylosis
- Spondylitis
- Osteosarcoma
- Calcified and narrowed disc spaces indicating chronic or acute disc disease
- Transitional vertebrae (see Glossary)

Specialty diagnostics are sometimes the last resort of the recalcitrant case, but rarely does the practitioner need to send an animal off if they are careful to follow the diagnostic steps previously listed.

Diagnosis of Three Featured Diseases

Degenerative Myelopathy (DM)

I am surprised by the number of dogs that come through my practice who have never been tested for DM. It is no longer considered a “German Shepherd disease.” It is also just about the least expensive diagnostic we can run and leaves no doubt when the results come in, positive or negative. However, there are some hallmarks of DM that will make you put this at the top of your differential list after your exam:

- Slow onset of signs.
- Although owners may think a dog is acting how it is from pain, it is usually a nonpainful disease. Look for neurologic issues as noted earlier.
- When you do firm palpation at the L/S junction, most dogs with DM couldn’t care less. If it is a dog with cauda equina syndrome, they almost always react, sometimes dramatically.

Cauda Equina Syndrome (CES)

As just mentioned with the diagnostic description of DM, a painful response to palpation of the L/S junction puts CES high on my list of possibilities. These dogs may have both the neurologic signs of DM and the pain signs listed earlier. I rely heavily on radiographic changes to help confirm my diagnosis:

- Presence of a transitional vertebra.
- Spondylosis between L7 and S1, often more advanced than spondylosis elsewhere in the lumbar spine.
- Sclerosis of the caudal endplate of L7 or the anterior endplate of

Table 1

LS-Associated Problem	Integrative Rehabilitation Approach	Mechanisms of Action
Neurologic compression of spinal nerves and nerve roots as well as peripheral nerves in the region	<ul style="list-style-type: none"> • Medical acupuncture 	Neuromodulation of spinal nerves, peripheral nerves, autonomic nerves; relaxation of compressive soft tissues, thereby improving sensorimotor communication/control and reducing nociceptive inhibition of motor function.
Urinary/fecal incontinence	<ul style="list-style-type: none"> • Medical acupuncture 	Neuromodulation of somatic and autonomic pathways involved in the control of micturition and anal tone.
Local inflammation affecting arthrodistal structures, muscles, fascia, intervertebral disks, vessels, and nerves	<ul style="list-style-type: none"> • Medical acupuncture • Photomedicine (contraindicated with neoplasia) 	Anti-inflammatory effects of each modality, including reduction of excess sympathetic nervous system tone and shift in cytokine profiles away from proinflammatory to anti-inflammatory.
Myofascial restriction, shortening, and dysfunction, causing more compression, pain, and mechanical dysfunction	<ul style="list-style-type: none"> • Medical acupuncture • Medical massage • Photomedicine • Careful stretching and possibly gentle traction 	Reduction in heightened sympathetic tone, resolution of taut bands and trigger points, relaxation of muscle tissue, softening of tissue through mechanical influences or photobiomodulation. Reduction of compressive effects of restricted fascial envelopes for improved comfort and function.
Loss of muscle tone and bulk	<ul style="list-style-type: none"> • Medical acupuncture • Medical massage • Photomedicine • Tailored therapeutic exercise 	Recovery of stability, strength, and ability to ambulate with comfort. Reduction of nociceptive inhibition of motor function. Improvement of sensory awareness of back and limbs for improved postural support.
Compromised circulation in vertebral venous plexuses, lymphatic vessels, and local arterial supply	<ul style="list-style-type: none"> • Medical acupuncture • Photomedicine 	Vasodilatory/vasomodulatory benefits through relaxation of vessel walls and normalization of autonomic tone.

S1. Sclerosing is usually seen as a bright white area of calcification and indicates some kind of chronic inflammation.

Intervertebral Disc Disease (IVDD)

In dogs, the spinal cord usually ends at L6, although variation is possible. This means that a narrow disc between L6 and L7 needs to be interpreted with caution before calling it IVDD. But a narrow or calcified disc further up the spinal column can mimic the pain and dysfunction of CES and the paresis seen in DM.

Every diagnosis starts with a good history and a complete physical examination

Treatments

Therapy for these conditions differ slightly, with treatment of CES and IVDD aimed toward reducing pain and maintaining or improving function and treatment of DM aimed more at preserving neurologic function and muscle mass as long as possible.

With the advent of the use of medical acupuncture and physical rehabilitation therapy in veterinary medicine, the question of how to treat these dogs is receiving more intense scrutiny. When presented with CES or IVDD a decade or more ago, it seemed that the only option we were told about was surgery—“a chance to cut is a chance to cure.” With acupuncture and rehab, and in the right hands, the outcomes of therapy are similar to that of surgery. And, of course, this avoids the cost, pain, and anatomic intrusion of spinal surgery. This doesn't mean that surgery should be avoided at all costs, but it should be the last resort and not the first step. See Table

1 for an outline of how integrative rehabilitation modalities address specific components of LS dysfunction.

Pharmaceuticals can also help with the pain associated with CES and IVDD, and almost all of my cases are put on something. Because of the side effects of corticosteroids, I always reach for NSAIDs first. Most cases respond just fine to NSAIDs. Other common choices are gabapentin and amantadine, whose side effects can usually be managed with changes in dosing.

Degenerative myelopathy cases have a harder row to hoe when it comes to both treatment and prognosis. These cases progress no matter what we do, but we have the ability to slow that progression dramatically with acupuncture and physical rehabilitation. To date, no drugs have been shown to vastly improve the outcome of DM cases.

Conclusion

Every diagnosis starts with a good history and a complete physical examination. This is even more important when diagnosing conditions that can cause lower back pain or neurologic function. However, this often requires the primary care veterinarian to refresh themselves on different examination techniques and to know when to refer if they are unable to perform these techniques themselves. ✨



Mike Petty, DVM, CCRT, CVPP, DAAPM, is in private practice in Canton, Michigan. He is a frequent national and international lecturer on topics related to pain management. Petty offers commentary on each Pain Case of the Month.

List of Other Problems Causing Caudal Back Issues

- ▶ Cauda equina syndrome
- ▶ Fibrocartilaginous embolism
- ▶ Neoplasia
- ▶ Spondylitis/osteomyelitis
- ▶ Fracture/trauma
- ▶ Hemivertebrae
- ▶ Tick paralysis
- ▶ Diabetic neuropathy
- ▶ Toxoplasmosis
- ▶ Neospora caninum
- ▶ Iliopsoas muscle dysfunction
- ▶ Primary malignant neoplasm (e.g., osteosarcoma, fibrosarcoma, hemangiosarcoma, nerve sheath tumor)
- ▶ Metastatic neoplasia (e.g., prostatic)
- ▶ Polyarthropathies
- ▶ Pelvic limb disorders (e.g., stifle dysfunction, coxofemoral degeneration or dysplasia)
- ▶ Myasthenia gravis
- ▶ Metabolic disorders leading to weakness
- ▶ Inflammation
- ▶ Fracture/luxation

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PROFESSIONAL VETERINARY FORMULAS

Employee of the Month



NAME:
Emi Castillo

PRACTICE NAME:
**Pet Care Veterinary Hospital,
Virginia Beach, Virginia**

OCCUPATION:
Veterinary Assistant

SPECIALTIES/CERTIFICATIONS:
AVA from NAVTA

YEAR STARTED IN VET MEDICINE: 2017

YEARS WITH PRACTICE: 1

Each month in *Trends*, we will spotlight a team member from an accredited practice.

Do you have an outstanding employee? They can be anyone: veterinarian, technician, customer service representative, kennel worker.

Let us know at trends@aaha.org and you can win \$100!

Why Is Emi So Awesome?

Emi started at our practice at the onset of pandemic craziness. She quickly became an invaluable member of the team and in less than a year has become fully cross-trained as a veterinary surgical assistant and veterinary receptionist, along with supporting our inventory manager in counts and ordering. She is loved for her calm, cool demeanor and sense of humor. She is also a go-to for any of the technological and computer issues we have on a regular basis.

How Does She Go Above and Beyond?

Emi is the type of employee to arrive early and stay late. She is knowledgeable and humble. She speaks up when things are done incorrectly, and she wants to learn and be the best employee and person she can be.

She's at the beginning of her career in the veterinary world and already has the knowledge and experience that most people take years to learn.

She takes on challenges and conquers them. She's a calming voice and reassuring attitude. Even during a crazy week or rush hour, she's got the attitude that helps ease the staff's weary heads.

She's gentle with the patients and puts them first. She is quick on her feet. She also has vast knowledge of random trivia—you want her on your team during trivia night. She also knows some Spanish!

In Her Own Words

Why do you love your job? We have a really good team of people here. It's a very rewarding, hands-on career. It's not repetitive. I feel like I'm contributing to something bigger than myself.

Pets at home: I have a dog named Piper and a bearded dragon named Ummagumma.

What brought you to the profession: I wanted to be a veterinarian as a young kid. I saw a handout about the veterinary assistant program at Tidewater Community College and signed up. Going to school first and having an internship was a good choice.

Hobbies outside of work: I enjoy hammocking at parks and hanging out with friends (pre-pandemic), photographing pets and nature, video games, and playing music (piano and bass).

Favorite book/show: Saturday Night Live ✨



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