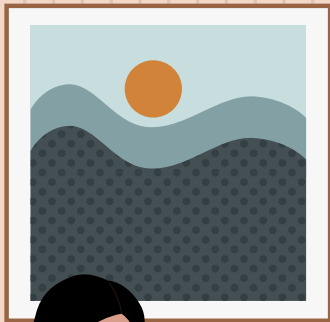
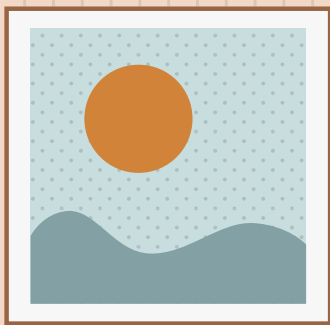


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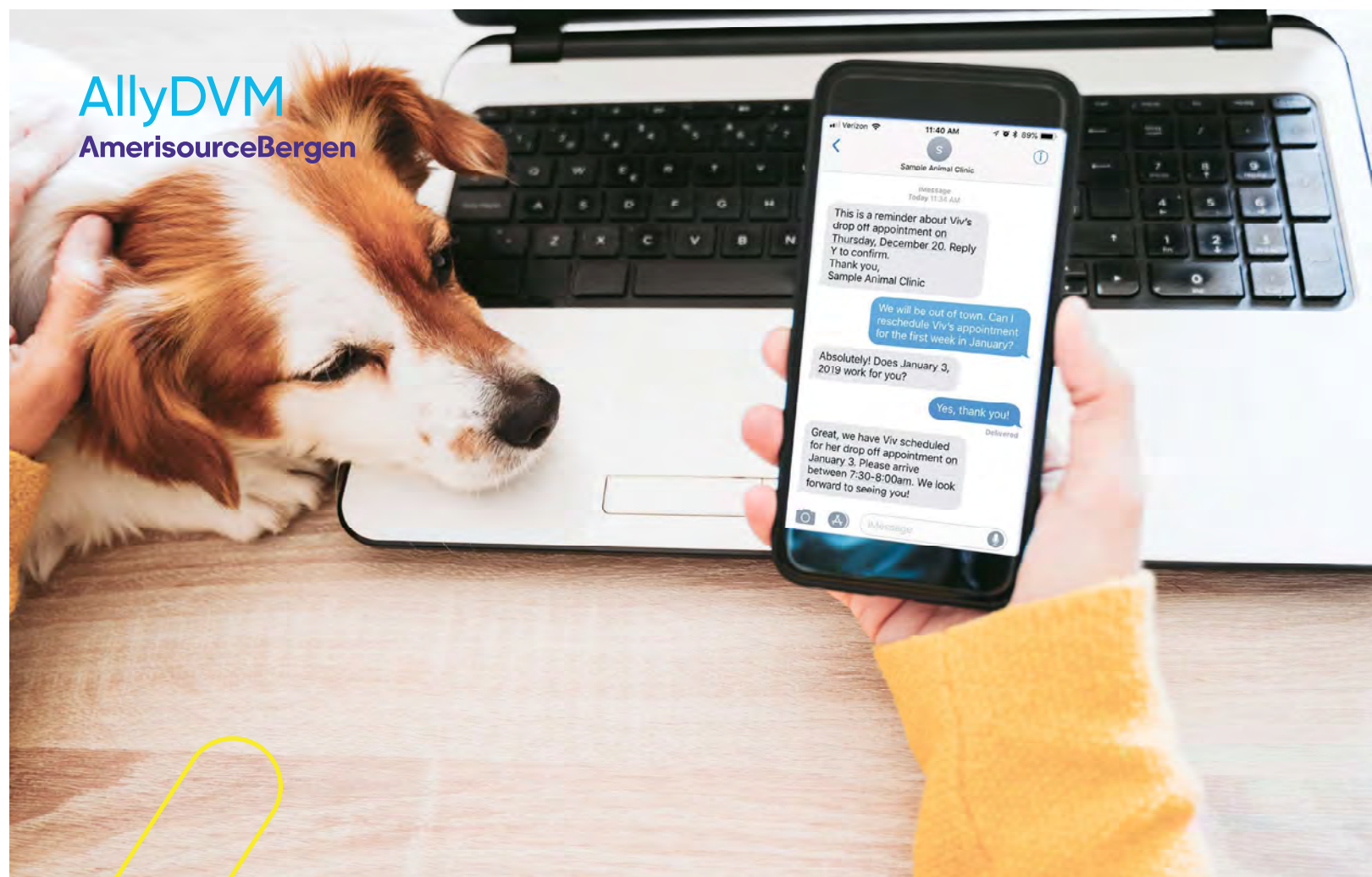
Practical Relationships

How to Co-Own a Practice Without Ruining a Relationship **28**



Sustainable Steps

Get Started on Reducing Your Impact on the Planet **35**



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Journal Highlights Abstracts of the current issue of *JAAHA*, *Journal of the American Animal Hospital Association*, are reprinted with permission. For masthead information, editorial review board, authors' guidelines, and subscription information, see the online publication at aaha.org or jaaha.org.

Subscriptions *Trends magazine* is provided to AAHA members as a member benefit (annual membership dues include \$60 for a subscription). Annual nonmember subscriptions: \$70. Single copies: \$20. To subscribe, call 800-883-6301.

Postmaster *Trends magazine*® (ISSN 1062-8266) is published 12 times per year (January, February, March, April, May, June, July, August, September, October, November, December) by the American Animal Hospital Association, at 14142 Denver West Parkway, Suite 245, Lakewood, CO 80401. Periodicals postage paid at Denver, Colorado, and at additional mailing offices. Canadian Post Agreement Number 40041253; send change-of-address information and blocks of undeliverable copies to P.O. Box 1051, Fort Erie, ON L2A 6C7. Printed in the USA. Postmaster: Send address changes to *Trends magazine*, 14142 Denver West Parkway, Suite 245, Lakewood, CO 80401.

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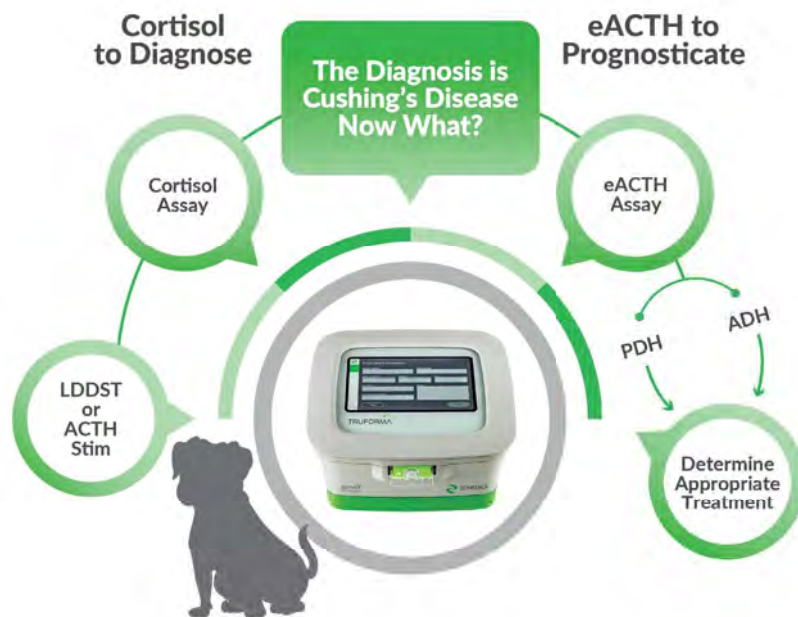
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features

28 Mixing Business and Life

Co-owning a practice with a significant other or friend without ruining the relationship
by Jen Reeder

35 Sustainable Steps

Get started on lessening your impact on the planet
by Maureen Blaney Flietner



28



35

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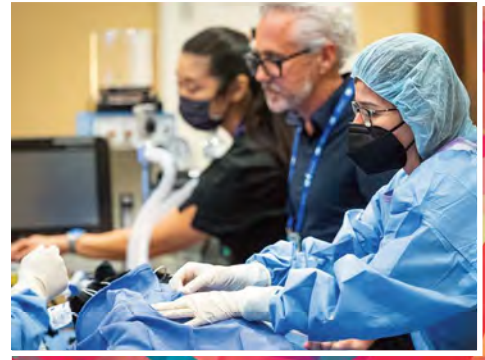
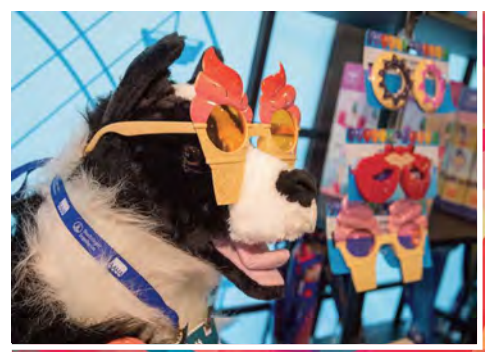
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departments



43 Get Smart

The Latest on CBD in Veterinary Medicine

Research, legislative, and dosing updates for the one of the hottest topics in vet med

49 Tech Support

How App-Based Software Helps Patients and Practices

Higher engagement and ease of communication is a win-win for all involved

55 Reach Out

The Secret of Branding

How to attract employees on Instagram and beyond

the usual

- 8** From the Editor's Desk
- 10** Inside AAHA
- 15** Notebook
- 23** JAAHA Abstracts
- 62** Advertiser Index
- 64** Employee of the Month



STRETCH THEIR PROTECTION

(2X longer!)

BRAVECTO[®]
PLUS

(fluralaner and
moxidectin topical
solution) for Cats



Get **double** the lasting flea,
tick, and heartworm protection
with **BRAVECTO[®] PLUS¹**



More stretching, less stressing!

Talk to your Merck Animal Health representative to learn more. Or, visit us.bravecto.com.


IMPORTANT SAFETY INFORMATION: The most commonly reported adverse reactions include vomiting, hair loss, itching, diarrhea, lethargy, dry skin, elevated ALT, and hypersalivation. **BRAVECTO PLUS** has not been shown to be effective for 2 months in kittens less than 6 months of age. For topical use only. Avoid oral ingestion. The safety of **BRAVECTO PLUS** has not been established in breeding, pregnant and lactating cats. Fluralaner is a member of the isoxazoline class. This class has been associated with neurologic adverse reactions including tremors, ataxia, and seizures. Neurologic adverse reactions have been reported in cats receiving isoxazoline class drugs, even in cats without a history of neurologic disorders. Use with caution in cats with a history of neurologic disorders. Use with caution in cats that are heartworm positive. The effectiveness of **BRAVECTO PLUS** to prevent heartworm disease after bathing or water immersion has not been evaluated. Please see full product information on page 9.

Reference: 1. BRAVECTO[®] PLUS [product label]. Madison, NJ: Merck Animal Health; 2019.

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 **MERCK**
Animal Health

from the editor's desk



RELATIONSHIPS ARE HARD. Can you imagine working together with your spouse, or a friend? (I work from home with my two canine colleagues, but they sleep all day so it's easy.) Believe it or not, there are some practice co-owners who are doing just that. How do they make it all work? You'll have to read this month's cover story to find out, but the trick is, they all do it differently.

Also this month, are you wasting energy? Inadvertently contaminating the soil, water, and air? Making strides toward environmental sustainability benefits not only the earth but your hospital, clients, patients, and yourself. Learn from those who are being proactive in our second feature on sustainability.

Do you know the difference between marketing and branding? This month, Danielle Lambert talks about how to attract top talent to your practice using the power of branding.

THE AAHA COMMUNITY

Thousands of your peers are already on AAHA Community. Come and be a part of the new platform designed to connect AAHA members online. Try it out today at community.aaha.org.

EMPLOYEE OF THE MONTH, NOW \$500!

Do you know an outstanding veterinary professional who deserves recognition—and 500 bucks? Well, look no further, because the new *Trends* Employee of the Month winner will now receive \$500, thanks to generous sponsorship from CareCredit. Nominations must be submitted by a staff member at an AAHA-accredited practice, or an AAHA affiliate member. Now you can enter online—just head over to aaha.org/publications/trends-magazine/employee-of-the-month.

COMING NEXT MONTH

Coming up in August: Cats are notoriously hard to read, but pain can be a factor in any changes in behavior. We will explore this next month with Alison Gottlieb, CVT, VTS(ECC). We'll also have articles on aftercare and dermatology and an executive summary of the new *2022 AAFP/AAHA Antimicrobial Stewardship Guidelines*.

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

—Ben Williams, Editor

BRAVECTO[®] PLUS

(fluralaner and moxidectin topical solution) for Cats

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

Description:
Each tube is formulated to provide a minimum dose of 18.2 mg/lb (40 mg/kg) fluralaner and 0.9 mg/lb (2 mg/kg) moxidectin. Each milliliter contains 280 mg of fluralaner and 14 mg of moxidectin.

The chemical name of fluralaner is (±)-4-[5-(3,5-dichlorophenyl)-5-(trifluoromethyl)-4,5-dihydroisoxazol-3-yl]-2-methyl-N-[2-oxo-2-(2,2,2-trifluoroethylamino)ethyl]benzamide. The chemical name of moxidectin is [2aE,4E,5R,6R,6'S,8E,11R,13S,15S,17aR,20R,20aR,20bS)-6'-(E)-1,3-Dimethyl-1-butanyl]-5',6',6',7,10,11,14,15,17a,20,20a,20b-dodecahydro-20,20b-dihydroxy-5',6,8,19-tetramethylspiro[11,15-methano-2H,13H,17H-furo[4,3,2-pg][2,6]benzodioxacyclooctadecin-13,2'-[2H]pyran]-4'-17(15H)-dione 4-(E)-[O-methylloxime]. Inactive ingredients: dimethylacetamide, glycofuro, diethyltoluamide, acetone, butylhydroxytoluene

Indications:
Bravecto Plus is indicated for the prevention of heartworm disease caused by *Dirofilaria immitis* and for the treatment of infections with intestinal roundworm (*Toxocara cati*; 4th stage larvae, immature adults and adults) and hookworm (*Ancylostoma tubaeforme*; 4th stage larvae, immature adults and adults). Bravecto Plus kills adult fleas and is indicated for the treatment and prevention of flea infestations (*Ctenocephalides felis*) and the treatment and control of tick infestations (*Ixodes scapularis* (black-legged tick) and *Dermacentor variabilis* (American dog tick)) for 2 months in cats and kittens 6 months of age and older and weighing 2.6 lb or greater.

Dosage and Administration:
Bravecto Plus should be administered topically as a single dose every 2 months according to the **Dosage Schedule** below to provide a minimum dose of 18.2 mg/lb (40 mg/kg) fluralaner and 0.9 mg/lb (2 mg/kg) moxidectin.

For prevention of heartworm disease, Bravecto Plus should be administered at 2-month intervals. Bravecto Plus may be administered year-round without interruption or at a minimum should be administered at 2-month intervals beginning at the cat's first seasonal exposure to mosquitoes and continuing until the cat's last seasonal exposure to mosquitoes. If a dose is missed and a 2-month interval between doses is exceeded, administer Bravecto Plus immediately and resume the dosing every 2 months.

When replacing a monthly heartworm preventative product, the first dose of Bravecto Plus should be given within one month of the last dose of the former medication.

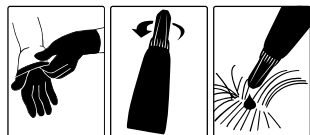
Dosing Schedule:

Body Weight Ranges (lb)	Fluralaner content (mg/tube)	Moxidectin content (mg/tube)	Tubes Administered
2.6 – 6.2	112.5	5.6	One
>6.2 – 13.8	250	12.5	One
>13.8 – 27.5*	500	25	One

* Cats over 27.5 lb should be administered the appropriate combination of tubes.

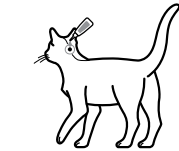
A veterinarian or veterinary technician should demonstrate or instruct the pet owner regarding the appropriate technique for applying Bravecto Plus topically to cats prior to first use.

Step 1: Immediately before use, open the pouch and remove the tube. Put on gloves. Hold the tube at the crimped end with the cap in an upright position (tip up). The cap should be rotated clockwise or counter clockwise one full turn. The cap is designed to stay on the tube for dosing and should not be removed. The tube is open and ready for application when a breaking of the seal is felt.



Step 2: The cat should be standing or lying with its back horizontal during application. Part the fur at the administration site. Place the tube tip vertically against the skin at the base of the skull of the cat.

Step 3: Squeeze the tube and gently apply the entire contents of Bravecto Plus directly to the skin at the base of the skull of the cat. Avoid applying an excessive amount of solution that could cause some of the solution to run and drip off of the cat. If a second spot is needed to avoid run off, then apply the second spot slightly behind the first spot.



Greasy, oily, or wet appearance may occur at the application site in some cats.

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

WARNINGS:

Human Warnings:
Not for human use. Keep this and all drugs out of the reach of children.

Do not contact or allow children to contact the application site until 2 hours post application.

Keep the product in the original packaging until use in order to prevent children from getting direct access to the product. Do not eat, drink or smoke while handling the product. Avoid contact with skin and eyes. If contact with eyes occurs, then flush eyes slowly and gently with water. If wearing contact lenses, eyes should be rinsed first, then remove contact lenses and continue rinsing, then seek medical advice immediately. Wash hands and contacted skin thoroughly with soap and water immediately after use of the product. If the product accidentally contacts skin and a sticky residue persists after washing, rubbing alcohol (70% isopropyl alcohol) can be applied to the area to remove the residue.

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

Precautions:
For topical use only. Avoid oral ingestion (see **Animal Safety**).

Fluralaner, one of the ingredients in Bravecto Plus, is a member of the isoxazoline class. This class has been associated with neurologic adverse reactions including tremors, ataxia, and seizures. Neurologic adverse reactions have been reported in cats receiving isoxazoline class drugs, even in cats without a history of neurologic disorders. Use with caution in cats with a history of neurologic disorders.

Use with caution in cats that are heartworm positive (see **Animal Safety**).

Bravecto Plus has not been shown to be effective in kittens less than 6 months of age.

The safety of Bravecto Plus has not been established in breeding, pregnant, and lactating cats.

The effectiveness of Bravecto Plus to prevent heartworm disease after bathing or water immersion has not been evaluated.

Adverse Reactions:
In a well-controlled U.S. field study, which included a total of 176 treated cats (135 with Bravecto Plus and 41 with a monthly topical active control), there were no serious adverse reactions.

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

Adverse Reaction	Bravecto Plus Group: Percent of Cats with the AR During the 120-Day Study (n=135 cats)	Active Control Group: Percent of Cats with the AR During the 120-Day Study (n=41 cats)
Vomiting	5.9%	12.2%
Alopecia (not at application site)	5.2%	2.4%
Pruritus	4.4%	12.2%
Application site pruritus	4.4%	4.9%
Diarrhea	3.7%	7.3%
Lethargy	3.7%	9.8%
Dry Skin	3.0%	0.0%
Elevated alanine aminotransferase (ALT)*	3.0%	0.0%
Hypersalivation	1.5%	1.5%
Application site alopecia	0.7%	0.0%

*ALT was greater than twice the upper reference range of 100 IU/L. These cats also had mild elevations of aspartate aminotransferase (AST) (less than twice the upper reference range of 100 IU/L). No clinical signs associated with liver disease were noted in these cats.

In well-controlled laboratory effectiveness studies, the following adverse reactions were seen after application of Bravecto Plus: pyrexia, tachypnea, mydriasis, pruritus, scabbing, and bloody stool.

Foreign Market Experience: The following adverse events were reported voluntarily during post-approval use of the product in cats in foreign markets: polydipsia, swelling of chin and lips, periorbital swelling, blepharospasm, pruritus, erythema, aggression, agitation, pyrexia, mydriasis, hypersalivation, hyperactivity, alopecia, and excessive grooming. These adverse events occurred within 48 hours of administration.

In a European field study for fluralaner topical solution for cats, there were three reports of facial dermatitis in humans after close contact with the application site which occurred within 4 days of application. In foreign market experience reports for Bravecto Plus, one veterinarian experienced tingling and numbness of the fingers, hand, and arm, and swelling of the hand and arm after getting Bravecto Plus on her fingers. Additional signs, including blurred vision and disorientation, occurred after taking an antihistamine.

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

Clinical Pharmacology:

Peak fluralaner concentrations are achieved between 3 and 21 days following topical administration and the elimination half-life ranges between 11 and 18 days. Peak moxidectin concentrations are achieved between 1 and 5 days following topical administration and the elimination half-life ranges between 20 and 30 days.

Mode of Action:

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

Moxidectin is for systemic use and is a semisynthetic derivative of nemadectin, belonging to the milbemycin group of macrocyclic lactones. It binds to gamma-aminobutyric acid (GABA) and glutamate-gated chloride channels of the nerves and muscles of the parasite resulting in hyperpolarization, paralysis and death.

Effectiveness:

In two well-controlled laboratory studies, Bravecto Plus was 100% effective against induced heartworm infections when administered 2 months prior to infection. Bravecto Plus was not effective when administered more than 2 months prior to infection.

In well-controlled laboratory studies, Bravecto Plus was effective against naturally and experimentally induced adult and experimentally induced 4th stage larval and immature adult *Toxocara cati* and *Ancylostoma tubaeforme* infections in cats.

In a well-controlled laboratory study, Bravecto Plus killed 100% of fleas within 12 hours after treatment and reduced the numbers of live fleas on cats by >99% within 12 hours after treatment or infestation for 2 months. In well-controlled laboratory studies, Bravecto Plus demonstrated >90% effectiveness against *Dermacentor variabilis* 48 hours after treatment or infestation for 2 months but failed to demonstrate ≥ 90% effectiveness beyond 2 months. In well-controlled laboratory studies, Bravecto Plus demonstrated ≥ 98.1% effectiveness against *Ixodes scapularis* 48 hours after treatment or infestation for 2 months.

Animal Safety:

Margin of Safety Study: In a margin of safety study, Bravecto Plus was administered topically to 9- to 13-week-old (mean age 12 weeks) kittens at 1X, 3X, and 5X the maximum labeled dose of 93.0 mg fluralaner/kg and 4.7 mg moxidectin/kg at three, 8-week intervals (10 kittens per group). The kittens in the control group (0X) were treated with mineral oil. There were no clinically-relevant, treatment-related effects on physical examination, body weights, food consumption, clinical pathology (hematology, clinical chemistries, coagulation tests, serum amyloid A, and urinalysis), gross pathology, histopathology, or organ weights. Single incidences of self-limiting hypersalivation in three kittens (one kitten in the 1X group and two kittens in the 3X group) and pruritus at the administration site in one kitten in the 3X group were observed on the day of dose administration. Cosmetic changes at the application site included matting/clumping/spiking of hair, wetness, or a greasy appearance.

Oral Safety Studies: In an oral safety study, one dose of Bravecto Plus was administered orally to 4- to 9-month-old kittens at the maximum labeled dose of 93.0 mg fluralaner/kg and 4.7 mg moxidectin/kg. The kittens in the control group were administered saline orally. There were no clinically-relevant, treatment-related effects on physical examination, body weights, food consumption, or clinical pathology (hematology, clinical chemistries, coagulation tests, serum amyloid A, and urinalysis). Five of six treated kittens experienced hypersalivation. One treated kitten experienced vomiting 2 hours after administration and another 8 hours after treatment. Treated kittens had reduced food consumption on the day of treatment.

In an oral safety study for fluralaner topical solution for cats, four out of six cats experienced coughing immediately after oral administration of the maximum labeled dose of 93.0 mg fluralaner/kg.

In a pilot oral safety study, adult cats orally administered 0.5X or 1X the maximum labeled dose of Bravecto Plus had foaming hypersalivation for up to five minutes and reduced food consumption on the day of dosing. One cat exhibited transient lacrimation from one eye during the first 15 minutes after dosing.

Safety in cats infected with adult heartworm (*Dirofilaria immitis*): Bravecto Plus was administered topically to cats infected with adult heartworm at 1X or 3X the maximum labeled dose of 93.0 mg fluralaner/kg and 4.7 mg moxidectin/kg (8 cats per group). The cats in the control group (0X) received mineral oil topically. Two untreated cats were found dead prior to dosing. There were no clinically-relevant, treatment-related effects on body weights, clinical pathology (hematology, clinical chemistry, and coagulation profile), gross pathology or histopathology. Self-limiting hypersalivation due to grooming was observed on the day of treatment in both treatment groups (6/8 cats in the 1X group and 7/8 cats in the 3X group). In addition, three treated cats (2/8 cats in the 1X group and 1/8 cats in the 3X group) developed adverse neurologic signs during the study and were euthanized due to quality-of-life concerns. Clinical signs in one cat in the 1X group included vomiting, depression, vocalization, and ataxia 38 days that included ataxia, paresis, and muscle tremors 25 days after dosing. A cat in the 3X group exhibited depression, dehydration, a hunched position, and inability to stand 22 days after dosing. Heartworms were found in the epidural space in the second cat of the 1X group and the cat in the 3X group.

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

Storage Conditions:

Do not store above 77°F (25°C). Store in the original package in order to protect from moisture. The pouch should only be opened immediately prior to use.

How Supplied:

Bravecto Plus is available in three tube sizes to treat cats ranging in weight from 2.6 lb – 27.5 lb (1.2 kg to 12.5 kg). Each tube is packaged individually in a pouch. Product may be supplied in 1 or 2 tubes per carton.

Approved by FDA under NADA # 141-518

Rev: 08/2019



View from the Board

Not Your Mentor's Technology

I am dating myself when I tell you I remember the days of using a physical week-at-a-glance appointment book. While we always had a computer loaded with the most up-to-date version of our practice information management software (PIMS), it served mainly as a client and patient information database with invoicing capabilities. We recorded basic, limited information about clients and patients in the PIMS while still utilizing the paper medical records. I would spend a half a day every month setting up the patient vaccine and lab work reminders to print on a noisy dot-matrix printer. Even once we added the appointment book module to the PIMS, the paper version sat on the front desk until everyone could trust the accuracy of the electronic information.

Later, practices were able to continuously innovate by adding new modules to accommodate service offerings such as boarding and integrate with other technologies such as lab and radiology equipment. PIMS evolved to include complete medical records including SOAP exam templates, surgical and hospitalization notes, and treatment plans for practices that desired a more paper-light operation. PIMS lab integration from accession assignment to receipt of results has existed for many years; however, sending results electronically via email and texting is now an integral feature for practices desiring to streamline communication.

The data in our PIMS also serves as our window into the financial health of the practice. Inventory represents one of the most significant costs for veterinary hospitals as well as, on average, 25% of gross income. Tracking inventory with attention to optimal quantities on hand, ordering, receipt, and pricing of cost of goods sold is integral to running a financially healthy practice. Sound financial management requires careful analysis of the valuable data in the PIMS to gauge the practice's adherence to industry standards and identify areas of opportunity. However, even just a few years ago, most practices were only utilizing a small portion of the capability in their PIMS.

Then in 2020 came the COVID-19 pandemic. As the pandemic proved, practices already utilizing the full capabilities of their PIMS were able to adjust to curbside services and electronic communications with less disruption as they had an existing digital client communication strategy. Delivery of recommendations and laboratory results were streamlined for the more "connected" practices. The pandemic also brought staffing challenges that necessitated the utilization of more electronic communication. Email and texting became part of the solution to a relentless volume of phone calls, allowing for more flexible timing of the communication and even some remote employee options. We utilized a new texting platform that integrated with our PIMS, detailing entire conversations from curbside arrival to discharge and automatically syncing in the medical record without an employee needing to transcribe the notes. Client adoption was widespread, and we continue to use texting today.

Clients are increasingly demanding 24/7 access to appointment scheduling and to their pets' medical history through the use of pet portals and apps. The available veterinary hospital apps can be used to educate, incentivize, inform, and reward clients. From our experience, utilizing an app that integrates well with your PIMS will encourage use by both your team and clients. I encourage you to explore the apps and consider the digital solutions in this issue of *Trends*. ✨

Cheryl Smith, CVPM, is a director on the AAHA board. She earned her bachelor's degree in agricultural economics from Cornell University in 1985 and entered the world of veterinary medicine when she married a veterinarian. In 1994, her husband opened Galway Veterinary Hospital in Galway, New York, and as their children grew, so did Smith's involvement with the AAHA-accredited practice, where she now serves as hospital administrator. Smith became a certified veterinary practice manager in 2009, and she graduated from the Veterinary Management Institute in 2011.



Leadership Change Announced at JAAHA

The *Journal of the American Animal Hospital Association (JAAHA)* team said farewell to long-time Associate Editor and Section Editor Linda Ross, MS, DVM, DACVIM, in March 2022 and welcomed a new Associate Editor into the role.

“Linda has been outstanding in her dual roles of Associate Editor and Section Editor,” said JAAHA editor-in-chief Alan Rebar, DVM, PhD, DACVP. “Her vast experience and expertise in companion animal medicine have made her an invaluable resource not only in identifying and recruiting exceptional section editors and reviewers but also in dealing with the many technical, complex, and sometimes controversial issues that fall to the editor in chief.”

Ross, an associate professor emeritus at the Tufts University Cummings School of Veterinary Medicine, is a board-certified specialist in small animal internal medicine, with a special interest in nephrology, urology, and endocrinology. During her time at JAAHA, she was an Internal Medicine Section Editor for the journal and worked as the Associate Editor with Rebar from 2015 to 2022.

“Since the beginning of her tenure, Linda has always been my collaborator and peer in regard to setting the course for JAAHA policies,” Rebar added. “She will be missed.”

The entire JAAHA team would like to extend their heartfelt gratitude to Ross for her years of service to JAAHA and contributions to the profession and wish her all the best in her future endeavors.

Ann Hohenhaus, DVM, DACVIM, officially took over the role of Associate Editor in March and will also take over

Ross’ position as a Section Editor for the journal. Hohenhaus is currently Senior Veterinarian, Director of Pet Health Information at the AAHA-accredited Schwarzman Animal Medical Center (AMC) in New York City.

“The *Journal of the American Animal Hospital Association* has been a constant resource during my veterinary career,” said Hohenhaus. “I’m honored to take on this new role and look forward to working with the JAAHA team.”

Hohenhaus is double-board certified in small animal internal medicine and oncology and maintains a clinical practice in oncology, internal medicine, and primary care. At AMC, Hohenhaus also creates content related to pet health care and the role of pets in public health, pens the AMC blog, hosts a monthly SiriusXM radio show and podcast, and serves as AMC hospital spokesperson for various media outlets.

“I am thrilled that Dr. Ann Hohenhaus has agreed to join JAAHA as Associate Editor and a Section Editor for Internal Medicine,” Rebar said. “She is an outstanding clinician who is widely published and is recognized nationally and internationally for her expertise in companion animal medicine and oncology. She brings great energy and enthusiasm as well as new ideas to her new roles with JAAHA. I look forward to our partnership.”

The AMC is the world’s largest nonprofit animal hospital with more than 120 veterinarians providing medical care across more than 20 specialties and services. AMC, the only Level 1 veterinary trauma center in New York City, also operates an emergency service, which is open 24 hours, every day of the year.

Find JAAHA online at jaaha.org.

JAAHA[®]
JOURNAL OF THE AMERICAN ANIMAL HOSPITAL ASSOCIATION



Research Recap

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

SPOTLIGHT ON AAHA MEMBERSHIP VALUE

From the **OMNIBUS SURVEY**



Each year, we celebrate AAHA-accredited Hospital Day on July 22. What better time than that to spotlight what AAHA members value most about their membership?

We asked AAHA-accredited members what they considered to be the most valuable AAHA membership benefits. Not surprisingly, AAHA accreditation–related benefits (some more obvious than others!) figured highly in the top responses.

57% said they most valued the clinical benefits of the accreditation and evaluation process

32% said they most valued the benefits of the accreditation evaluation process for their team members

29% said they most valued exclusive use of the AAHA accredited logo

28% said they most valued access to AAHA's sample protocols

We also asked AAHA members what they would miss if they no longer had AAHA membership. Accountability, accreditation, and access to resources topped the list.

28% said they would most miss the accountability of maintaining AAHA accreditation, and access to the *AAHA Standards of Accreditation*®

21% said they would most miss telling clients about their practice's AAHA accreditation, and the status that comes along with that

21% said they would most miss exclusive access to AAHA resources and publications

Look for more AAHA Research highlights next month.

Questions or feedback about the Omnibus or Outlook Survey? Email us at research@aaha.org.

This month in AAHA's Publicity Toolbox . . .

Here are the downloadable social media images available for AAHA-accredited members at aaha.org/publicity:

National Lost Pet Prevention Month

Independence Day July 4

Pet Fire Safety Day July 15

AAHA-accredited Hospital Day July 22

National Mutt Day July 31

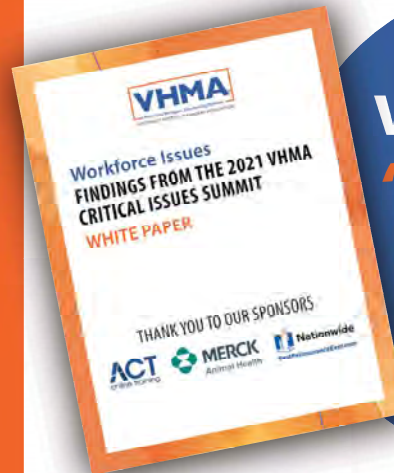
Don't forget:

AAHA-accredited Hospital Day—July 22

is YOUR day! Download social media images, find celebration ideas, and more in AAHA's Publicity Toolbox.



VETERINARY HOSPITAL MANAGERS ASSOCIATION



**VHMA's New
"Workforce
Issues"
White Paper**
Free Download

How can veterinary practices retain a skilled workforce?

VHMA, committed to supporting the distinct educational and resource needs of veterinary management professionals, tackles this issue in its newest white paper.

This 23-page publication is divided into six key sections:

- State of the Veterinary Hospital Workforce
- Workforce Conditions and Trends
- Workforce Opportunities: Examining the Practice Operation Model
- Conditions Created by Retention Issues
- Discussion of the Future
- Next Steps for Veterinary Professionals

The white paper can be downloaded free at

www.vhma.org

Central LINE

THE AAHA PODCAST

AAHA is excited to bring you a brand-new series of conversations hosted by Dr. Katie Berlin to help veterinary teams simplify the journey towards excellence—which we know encompasses so much more than the medicine.

CENTRAL LINE, the official podcast of the American Animal Hospital Association, aims to help veterinary professionals in all roles, from client care to practice owner, provide exceptional care for animals and the people who love them.

You'll hear from thought leaders and experts in hospital management, workplace culture, mental health, communication, and patient care, and gain valuable insights on tackling the most persistent pain points in veterinary medicine today.

Join us as Central Line takes you to the heart of exceptional veterinary care.


Don't miss a single conversation!

Subscribe on all major podcast platforms or on YouTube. Transcripts available at aaha.org/podcast.



Episodes







 Empowering Veterinary Technicians to Advocate for Their Patients—and Themselves, with Tasha McNerney, BS, CVT, CVPP, VTS



 This One's for the CSRs (and Anyone Else Who Talks to People), with Debbie Boone, CVPM

Not a subscriber yet?

See what you missed—and what's coming up

-  Beating the Bad Review Blues
-  Talking to Clients about Science
-  Marketing when You Can't Take New Clients
-  Strengthening Bonds through Technology
-  A Team Approach to Pain Management

notebook



FDA Finishes Veterinary Drug Compounding Guidance

The US Food and Drug Administration (FDA) issued a 22-page final guidance, entitled “Compounding Animal Drugs from Bulk Drug Substances,” that they say will help protect animal health by recognizing the need for access to certain compounded animal drugs. The guidance describes the agency’s approach to situations in which veterinarians use unapproved compounded drugs to provide appropriate care for the medical needs of the diverse species they treat. The FDA states that it “recognizes that this final guidance covers a wide range of stakeholders and [that it] plans to focus on education and stakeholder engagement before shifting resources toward inspectional activities in fiscal year 2023.”

A blog post by the American Veterinary Medical Association states that “throughout the FDA’s development of this guidance [. . .] the AVMA has actively communicated our profession’s needs for compounded products. [. . .] The final guidance reflects many changes made in response to advocacy by the AVMA.”

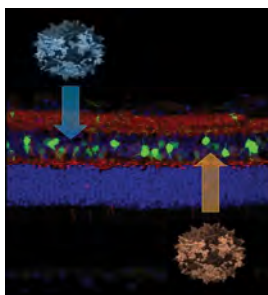
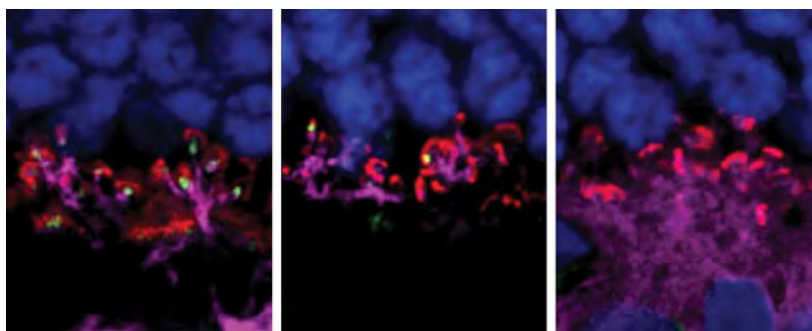
Correcting Night Blindness in Dogs

Researchers in the University of Pennsylvania (UPenn) School of Veterinary Medicine and colleagues have developed a gene therapy that restores dim-light vision in dogs with a congenital form of night blindness, offering hope for treating a similar condition in people.

Researchers report that people with congenital stationary night blindness (CSNB) are unable to distinguish objects in dim-light conditions. Previously, UPenn researchers learned that dogs could develop a form of inherited night blindness with strong similarities to the condition in people, and they identified the gene responsible.

In the journal *Proceedings of the National Academy of Sciences*, researchers reported on a gene therapy that returns night vision to dogs born with CSNB. They say that the success of this approach, which targets a group of cells deep in the retina called ON bipolar cells, charts a significant step toward the goal of developing a treatment for both dogs and people with this condition, as well as other vision problems that involve ON bipolar cell function.

Dogs with CSNB that received a single injection of the gene therapy began to express the healthy LRIT3 protein in their retinas and were able to navigate a maze in dim light. The researchers report that the treatment also appears lasting, with a sustained therapeutic effect of a year or longer.



Above: A single injection of gene therapy containing a normal version of the LRIT3 gene resulted in lasting restoration of night vision in dogs affected by a form of congenital stationary night blindness similar to one affecting humans.

Left: Researchers have used different strategies to ferry gene therapy to the middle layer of the retina, where ON bipolar cells are located. The therapy they developed specifically targets these cells, avoiding side effects.

US Biofirm Plans to Make Hypoallergenic Cats Using CRISPR Gene Editing

Researchers at Virginia-based biotech company InBio report progress toward developing a hypoallergenic cat in an article published online in *The CRISPR Journal*. Company researchers have deleted the genes for the allergy-causing protein in cat cells as a first step toward creating cats that don't trigger allergies. "The estimated timeline for this is several years," said Nicole Brackett, who leads the CRISPR cat team at InBio.

The company reports that about 15% of people have allergic reactions to cats. The main cause of this is a small protein called Fel d 1 that is secreted by salivary and skin glands. It is spread over cats' fur when felines clean themselves and can become airborne as the fur dries.

The team deleted Fel d 1 subunit genes from cat cells growing in culture using the CRISPR genome editing technique. The next step will be to delete all copies of the two genes at once and to confirm that this prevents cells from making the Fel d 1 protein. At that time, the team reports they will try to create cats that lack the genes. "[We have] no particular cat breeds in mind at the moment," said Brackett.



Veterinary Alumni Launch Fund to Support Wellbeing Efforts

Cornell alumni Bruce Christensen, DVM, encountered personal struggles during his career and lost a classmate and close friend who suffered from mental health issues. "All of those elements came together and really made me feel like, if there is something we can do about these issues—we should," Christensen said.

The school reports that this idea crystallized into the College of Veterinary Medicine Wellbeing and Mental Health Fund, spearheaded by Christensen and classmate Ericka Mendez, DVM. If successfully endowed at the required \$100K amount, the fund would offset costs associated with the curricular adjustments already underway and programmatic efforts at the college.

"It is our hope that as students engage with the reality of mental health challenges in our profession and use their time in veterinary school to develop resilience and positive coping strategies, we can reduce individual crises and increase overall personal peace and happiness for those who follow us," Christensen and Mendez wrote in a letter to their classmates.

Ukususha/iStock via Getty Images. DrAfter123/DigitalVision Vectors via Getty Images.



Zoetis Foundation Announces Nearly \$5 Million in Grants to Advance Animal Care Initiatives

The Zoetis Foundation announced that it will distribute \$4.9 million during its first round of 2022 grants. Funding was pledged in support of veterinary scholarships, diversity and inclusion programming, and mental wellness in the United States as well as livestock farmers and veterinary livelihoods around the world.

“People who care for animals are at the center of everything we do. As veterinarians and farmers continue to face mounting challenges, we are thrilled to fund a variety of organizations that are identifying innovative solutions and making a positive impact in our communities,” said Jeannette Ferran Astorga, president of the Zoetis Foundation and executive vice president of corporate affairs, communications, and sustainability at Zoetis, in a press release.



Taking a One Health Approach to Muscle Loss Research

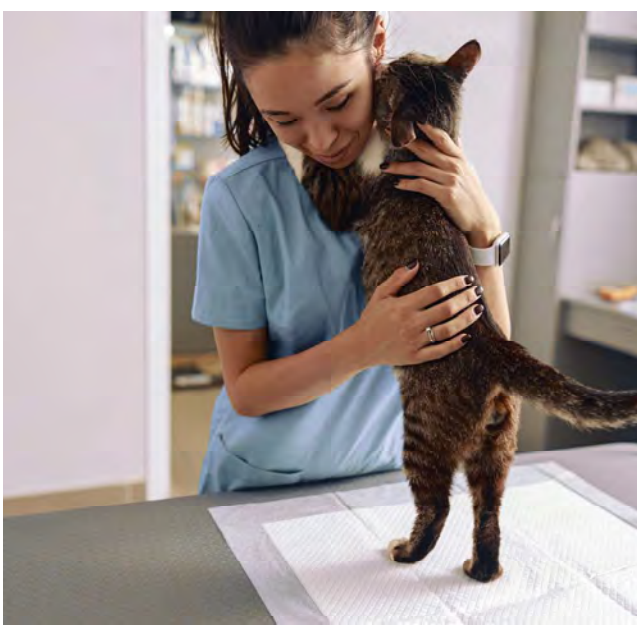
Two Tufts University scientists are researching how a One Health collaboration between animal and human health researchers can achieve better outcomes for both people and pets. They report that sarcopenia is a syndrome seen frequently in both humans and companion animals.

Veterinary nutritionist Lisa Freeman, DVM, PhD, and Roger Fielding, associate center director of the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts, collaborated to present a session at a recent conference. They report that Fielding is an expert in sarcopenia in humans, and Freeman wanted to see if the international conference he was helping to organize could include information on sarcopenia in animals. To that end, the recent International Conference on Frailty and Sarcopenia Research, held in Boston, included a satellite summit, “Sarcopenia Across Species: A One Health Approach.” The goal was to get more scientists who are working on human muscle wasting and frailty as it affects healthy aging to talk with scientists studying similar issues in companion animal health.

“It’s simply not as effective or efficient to study muscle wasting in parallel,” said Freeman, a professor of clinical nutrition at Cummings School of Veterinary Medicine.

Just as humans are living longer, so too are cats and dogs. As the population of elderly companion animals increases, it becomes easier to study naturally occurring diseases and conditions that, like sarcopenia, develop as a part of aging.

“We can each learn so much more from each other and by working together,” said Fielding, who is also a senior scientist on the center’s sarcopenia team and professor of biochemical and molecular nutrition and medicine. “I thought it was a great idea.”



Misconceptions Surround the Roles of Veterinary Technicians

A North American Veterinary Community (NAVC) survey of more than 1,000 pet owners revealed that pet owners trust and have positive feelings toward credentialed veterinary nurses/technicians. The results also stated that there are significant misconceptions about their responsibilities, education, and skills.

The survey indicated:

- 47% were unaware that the role of the credentialed veterinary nurse/technician consists of performing medical tasks and procedures.
- 73% thought that the veterinary technician role involved cleaning cages, removing animal waste, and feeding or grooming pets (responsibilities typically performed by less experienced and noncredentialed staff).
- 63% did not know credentialed veterinary nurses and technicians are the animal healthcare equivalent of registered nurses.
- 20% mistakenly thought that veterinary nurses/technicians have less than two years of higher education. They are also unaware of the national exam needed to achieve a license or the requirements for continued education to maintain that license.

“Like their counterparts in human healthcare, credentialed veterinary nurses and technicians are also highly skilled professionals, providing life-saving and life-enhancing care for pets as well as emotional support,” said Harold Davis, BA, RVT, VTS, NAVC board president, in a release. “Respondents indicated they value veterinary nurses/technicians; now it’s up to us to do a better job by educating pet owners how vital they are to the veterinary healthcare team so their skills can be better leveraged for the benefit of animals everywhere,” he said.

Vegan Diets for Dogs May Be Linked to Better Health

A United Kingdom study of more than 2,500 dogs that explored the links between dog diet and health outcomes found that nutritionally sound vegan diets may be healthier and less hazardous than conventional or raw meat-based diets. Researchers at the University of Winchester published their findings in the journal *PLOS ONE*.

Researchers analyzed data from guardians of 2,536 dogs fed a conventional meat, raw meat, or vegan diet. The survey examined seven indicators of ill health, including unusual numbers of veterinary visits, medication use, progression onto a therapeutic diet after initial maintenance on a vegan or meat-based diet, guardian opinion and predicted veterinary opinion of health status, percentage of unwell dogs, and number of health disorders per unwell dog.

The researchers report that statistical analysis of the results suggested that dogs on conventional diets were less healthy than dogs on raw meat or vegan diets. They also report that while dogs on raw meat diets appeared to be healthier than those on vegan diets, several factors impacted that conclusion. These include the fact that in the study, dogs on raw meat diets were significantly younger than dogs on vegan diets, which could help explain why they appeared to be healthier. Also, dogs on raw meat diets were less likely to be taken to a veterinarian—researchers say that while this could be a sign of better health, prior research has indicated that guardians of dogs on raw meat diets are less likely to seek veterinary advice.





Study: Cannabis Poisoning Cases in Pets Have Increased Significantly

Researchers surveyed veterinarians in the US and Canada and report mounting cases of cannabis poisoning among pets. Richard Quansah Amissah of the Ontario Veterinary College at the University of Guelph in Ontario, Canada, and fellow researchers published their findings in the journal *PLOS ONE*.

Researchers state that pets who are exposed to cannabis may experience symptoms of cannabis poisoning with varying degrees of severity. To improve understanding of cannabis poisoning in pets, Amissah and colleagues analyzed survey data from 251 veterinarians based in Canada or the US. The survey included questions about cannabis poisoning cases encountered by participants over several previous years.

Statistical analysis of the responses showed that the number of cannabis poisoning cases jumped significantly in both the US and Canada following the 2018 legalization of cannabis in Canada. The authors note that the postlegalization boost could be explained by increased cannabis use, but that increased reporting may have contributed as well.

The authors stated that “this is an important topic to study in the light of recent legalization of cannabis in Canada and across multiple states. In order to understand the mechanisms underlying cannabis-induced toxicosis in pets, and to develop treatments for it, we need to first understand what it looks like; this is what we had hoped to accomplish with this survey, and we believe that these findings will help us get a better handle on this understudied topic.”

Your solution to the PRICING PUZZLE

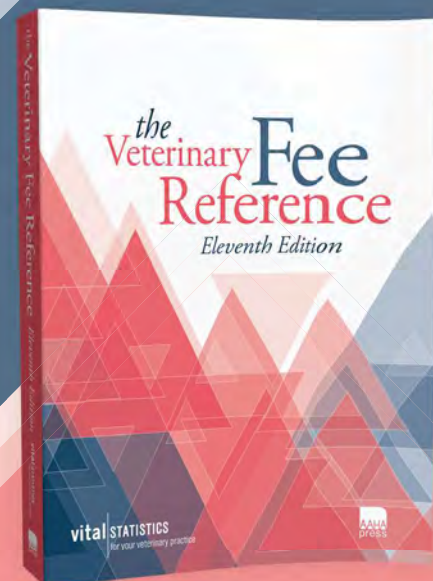
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- NexGard® (afoxolaner) is **FDA-approved to prevent Lyme infections** by killing black-legged ticks.
- It's **safe for puppies** as young as 8 weeks, weighing as little as 4 pounds.
- The savory, beef-flavored chew was **designed with compliance in mind**:
 - **NexGard is the leader among flea and tick brands in average number of months of flea and tick control** purchased per patient per year.*²
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IMPORTANT SAFETY INFORMATION: NexGard is for use in dogs only. The most frequently reported adverse reactions include vomiting, pruritus, lethargy, diarrhea and lack of appetite. The safe use of NexGard in pregnant, breeding, or lactating dogs has not been evaluated. Use with caution in dogs with a history of seizures or neurologic disorders. For more information, see the full prescribing information or visit [NexGardClinic.com](https://www.NexGardClinic.com).

*Assessment was conducted by IDEXX and leveraged veterinary clinic PIMS transaction level data for 2021. This analysis included veterinary practices with consistent data from 2019 to 2021. To be included, patients needed to have at least one parasiticide transaction in 2020 and 2021. The analysis was limited to loyal patients, where loyalty was defined as having one flea/tick control brand during the full three-year period. The average number of months of NexGard purchased per year was 6.8. The average number of months of BRAVECTO purchased per year was 6.7. This analysis overestimates the duration of efficacy for BRAVECTO. For comparison purposes, each BRAVECTO chew was assessed as providing three months of flea & tick protection versus the labeled 12-week coverage for fleas and three species of ticks, and 8-week coverage for Lone Star ticks.

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

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YOUR CLIENTS DON'T.

HEARTGARD® Plus (ivermectin/pyrantel) has tools available to help you educate your clients about the real risks of heartworm disease. With HEARTGARD Plus, you're recommending:

- ✓ Safe and trusted heartworm disease prevention that's still #1 after 33 years¹
- ✓ The #1 dog-preferred, real-beef chew that makes compliance enjoyable for pets and pet owners²
- ✓ Highly effective control of five species of common intestinal parasites^{3,4}
- ✓ Prevention backed by the HEARTGARD Plus Satisfaction Guarantee



Get clinic support at **HEARTGARDClinic.com**

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

¹ Data on file at Boehringer Ingelheim. ² Data on file at Boehringer Ingelheim. ³ Ascarid for Dog, Companion Animal Parasite Council, <https://capcvet.org/guidelines/ascaris/>. Accessed December 2, 2020. ⁴ Hookworms for Dog, Companion Animal Parasite Council, <https://capcvet.org/guidelines/hookworms/>. Accessed December 2, 2020.

CHEWABLES

CAUTION: Federal (U.S.A.) law restricts this drug to use by or on the order of a licensed veterinarian. **INDICATIONS:** For use in dogs to prevent canine heartworm disease by eliminating the tissue stage of heartworm larvae (*Dirofilaria immitis*) for a month (30 days) after infection and for the treatment and control of ascarids (*Toxocara canis*, *Toxascaris leonina*) and hookworms (*Ancylostoma caninum*, *Uncinaria stenocephala*, *Ancylostoma braziliense*).

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Marketed by
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Duluth, GA 30096

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Rev. 08-2018

1050-1999-04.

US-PET-0199-2020.

Brief Summary: Before using NexGard[®] (afoxolaner) Chewables, please consult the product insert, a summary of which follows.

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

Description: NexGard is a soft chewable for oral administration to dogs and puppies according to their weight. Each chewable is formulated to provide a minimum afoxolaner dosage of 1.14 mg/lb (2.5 mg/kg).

Indications: NexGard kills adult fleas and is indicated for the treatment and prevention of flea infestations (*Ctenocephalides felis*), and the treatment and control of *Ixodes scapularis*, *Dermacentor variabilis*, *Amblyomma americanum*, and *Rhipicephalus sanguineus* infestations in dogs and puppies 8 weeks of age and older, weighing 4 pounds of body weight or greater, for one month. NexGard is indicated for the prevention of *Borrelia burgdorferi* infections as a direct result of killing *Ixodes scapularis* vector ticks.

Dosage and Administration: NexGard is given orally once a month, at the minimum dosage of 1.14 mg/lb (2.5 mg/kg). See full product insert for dosing table and details.

Warnings: Not for use in humans. Keep this and all drugs out of the reach of children. In case of accidental ingestion, contact a physician immediately. Keep NexGard in a secure location out of reach of dogs, cats, and other animals to prevent accidental ingestion or overdose.

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

The safe use of NexGard in breeding, pregnant or lactating dogs has not been evaluated.

Adverse Reactions: In a well-controlled US field study, which included a total of 333 households and 615 treated dogs (415 administered afoxolaner, 200 administered active control), no serious adverse reactions were observed with NexGard.

Over the 90-day study period, all observations of potential adverse reactions were recorded. The most frequent reactions reported at an incidence of > 1% within any of the three months of observations are presented in the following table.

Table 1: Dogs with Adverse Reactions.

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

¹ Number of dogs in the afoxolaner treatment group with the identified abnormality.

² Number of dogs in the control group with the identified abnormality.

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

Post-Approval Experience (July 2018): The following adverse events are based on post-approval adverse drug experience reporting. Not all adverse events are reported to FDA/CVM. It is not always possible to reliably estimate the adverse event frequency or establish a causal relationship to product exposure using these data.

The following adverse events reported for dogs are listed in decreasing order of reporting frequency for NexGard: Vomiting, pruritus, lethargy, diarrhea (with and without blood), anorexia, seizure, hyperactivity/restlessness, panting, erythema, ataxia, dermatitis (including rash, papules), allergic reactions (including hives, swelling), and tremors.

Effectiveness: See full product insert for details regarding Effectiveness.

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

In a well-controlled field study, no adverse reactions were observed from the concomitant use of NexGard with other medications.

Contact Information: For a copy of the Safety Data Sheet (SDS) or to report suspected adverse drug events, contact Boehringer Ingelheim Animal Health USA Inc. at 1-888-637-4251. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or www.fda.gov/reportanimal.

The information provided here is not comprehensive. The full FDA-approved product insert is available at www.nexgardfordogs.com. Consult your veterinarian for further information.

Product approved by FDA under NADA # 141-406

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Reference package insert: 1050-4493-09 Rev. 11/2019

Brief summary preparation date: 08/2020

US-PET-0735-2020

RETROSPECTIVE STUDIES

Utility of Spleen and Liver Cytology in Staging of Canine Mast Cell Tumors

Megan Brown, Jessica Hokamp, Laura E. Selmic, Rachel Kovac

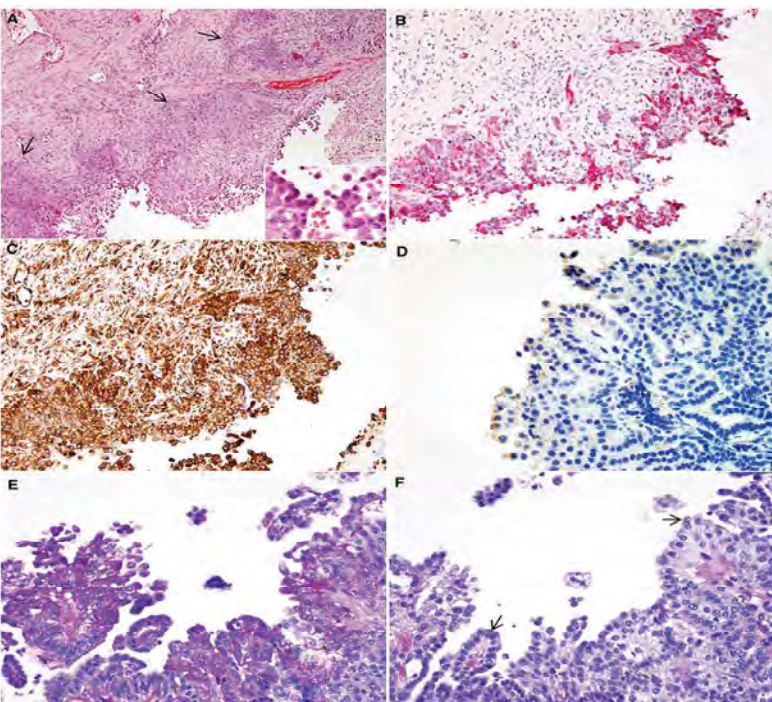
Abdominal ultrasound with spleen and liver cytology is part of routine staging for canine mast cell tumors (MCTs). However, such tests are associated with increased morbidity and cost. Therefore, the objectives of this study were to determine if spleen cytology was predictive of liver cytology in canine MCTs and if any patient or tumor variables were associated with spleen and/or liver metastasis. Records of dogs with MCTs and cytology of spleen and liver were reviewed. Two hundred five patients were included. Overall, 22 (10.7%) patients had metastasis, with 21 (10.2%) and 13 (6.3%) having spleen and liver metastasis, respectively, and 12 (5.9%) having both. For patients with a positive (or negative) spleen cytology, the odds ratio of having a positive (or negative) liver cytology was 233.49. However, a negative spleen cytology had a higher predictive value (0.99) than a positive cytology (0.54). Finally, the presence of local and systemic signs and tumor size were associated with spleen, liver, and/or spleen or liver metastasis. These results suggest that spleen cytology is predictive of liver cytology in staging of canine MCTs, and increasing tumor size and presence of local or systemic signs are associated with an increased risk of visceral metastasis.

RETROSPECTIVE STUDIES

Cystoscopic Abnormalities in Dogs Presented for Episioplasty

Alexander Estrin, Dana L. Clarke, David E. Holt

A recessed vulva is a conformational abnormality that predisposes affected dogs to urinary tract infections. An episioplasty can be recommended for correction of this abnormality when medical management of recurrent urinary tract infection fails. The objective of this study was to investigate the type and incidence of urogenital abnormalities visualized by cystoscopy in dogs presenting for episioplasty. Medical records of 29 dogs that presented for an episioplasty and had a concurrent or prior cystoscopy were reviewed. Eleven of the 29 dogs had urogenital abnormalities diagnosed on cystoscopic evaluation, and 1 dog was diagnosed with a urogenital abnormality during vaginal examination while under general anesthesia. Ten of the dogs with urogenital abnormalities had a corrective procedure performed, 8 of which were cystoscopically assisted. Cystoscopy provides the ability to directly visualize the urinary tract and obtain samples for biopsy and culture and facilitates correction of some anatomic abnormalities that may predispose the patient to developing recurrent urinary tract infections. Cystoscopy should be considered as a routine part of a thorough evaluation of the urinary tract in cases presenting for episioplasty.



58.4 JUL/AUG 2022

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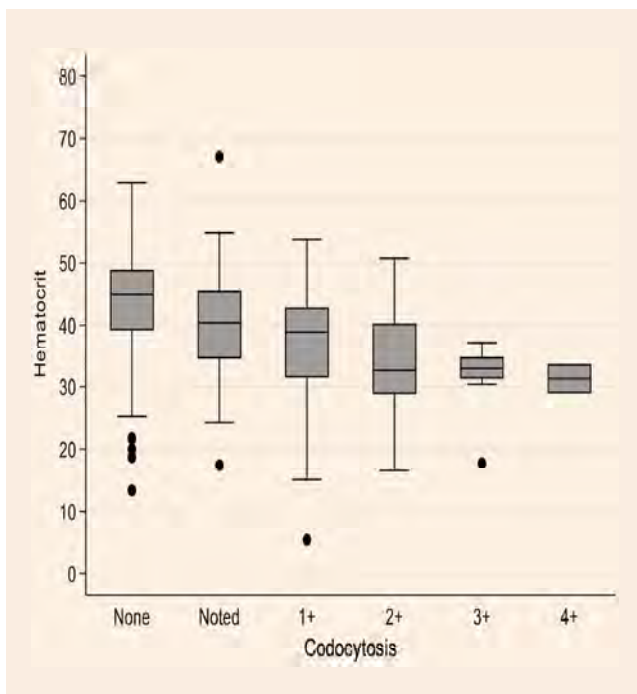
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RETROSPECTIVE STUDIES

Complete Blood Counts and Blood Smear Analyses in 312 Diabetic Dogs (2007–2017)

Tanner S. Slead, Andrew D. Woolcock, J. Catharine Scott-Moncrieff, Joanne B. Messick, George E. Moore

Diabetes mellitus is a common endocrinopathy in dogs that has been associated with various biochemical changes and comorbid diseases, but hematologic abnormalities have been rarely reported. The aim of this retrospective study was to evaluate complete blood count and blood smear alterations and to describe their relationship with, and incidence of comorbid diseases in, diabetic dogs. Three-hundred twelve diabetic dogs, 286 dogs diagnosed with systemic, nondiabetic illnesses, and 506 healthy dogs were identified during the study period. Groups were compared using contingency tables and logistic regression. Associations between statistically significant complete blood count and blood smear alterations and comorbidities were evaluated using multivariable analysis. High-grade codocytosis and anisocytosis were identified more frequently in diabetic dogs, whereas high-grade reactive lymphocytosis and keratocytosis were identified less frequently ($P < .001$). Diabetic dogs with high-grade codocytosis had lower red blood cell, hemoglobin, hematocrit and higher white blood cell counts ($P < .001$). Diabetic ketoacidosis was diagnosed more frequently in diabetic dogs with high-grade codocytosis when compared with those with low-grade codocytosis ($P < .001$) or when compared with any other cell morphologic alterations. This study suggests that blood smear analysis should be a routine part of the evaluation of diabetic dogs.



ORIGINAL STUDIES

Associations Between Atopic Dermatitis and Anxiety, Aggression, and Fear-Based Behaviors in Dogs

Lindsay R. McAuliffe, Colleen S. Koch, James Serpell, Karen L. Campbell

The goal of this study was to determine if anxiety, aggression, and fear-related behaviors are more common in pruritic dogs with atopic dermatitis than nonpruritic, healthy dogs. One hundred forty-one pruritic dogs >1 yr of age with a clinical diagnosis of atopic dermatitis and a >3 mo history of pruritus were recruited. Dog owners completed a behavioral survey (canine behavioral assessment and research questionnaire) and a pruritus scale (pruritus visual analog scale). Pruritic, atopic dogs showed significant increases in fear- and anxiety-related behaviors as well as aggression compared with a large control group of healthy dogs. Stranger-directed aggression, owner-directed aggression, familiar-dog aggression, dog-directed fear, nonsocial fear, touch sensitivity, excitability, and attention-seeking behaviors were all increased in the study group. Trainability was decreased in the study group. Chronically pruritic dogs experience fear and anxiety and are more likely to display aggression. This is an important welfare issue for these animals. Early recognition of the behavioral derangements that can be associated with chronic pruritic skin disease could allow early intervention with a multidisciplinary approach for these patients, thus improving patient and owner quality of life and long-term treatment outcomes.

CASE REPORTS

Mediastinal Serous Cavity Mesothelioma in Two Dogs

Sean P. McDonough, Peter V. Scrivani, Karine Gendron, May Tse

The mediastinal serous cavity (MSC)—well documented but seldom recognized in the caudal mediastinum—is embryologically derived from the omental bursa. Mesothelioma arising from the MSC in two dogs is described. Both dogs presented with acute life-threatening hemorrhagic pleural effusion. Contrast computed tomography revealed a large solitary spherical-to-cylindrical tumor in the caudal mediastinum with variably thick, contrast-enhancing walls with lobular to frond-like proliferations that arose circumferentially and projected internally into a single, variably sized, fluid-attenuating lumen. The wall and lumen corresponded to the serous membrane and serous cavity of the MSC. Surgical exploration confirmed that both tumors arose from the mediastinum. Both had similar histologic findings, and special stains were necessary for definitive diagnosis. The tumor was nonresectable in one dog, and it was euthanized intraoperatively. The other survived 7 mo. An MSC mesothelioma should be considered a possible cause of hemothorax in dogs that may be detected on thoracic radiography and computed tomography. Differential diagnoses include esophageal foreign body or neoplasm, paraesophageal diaphragmatic hernia, MCS

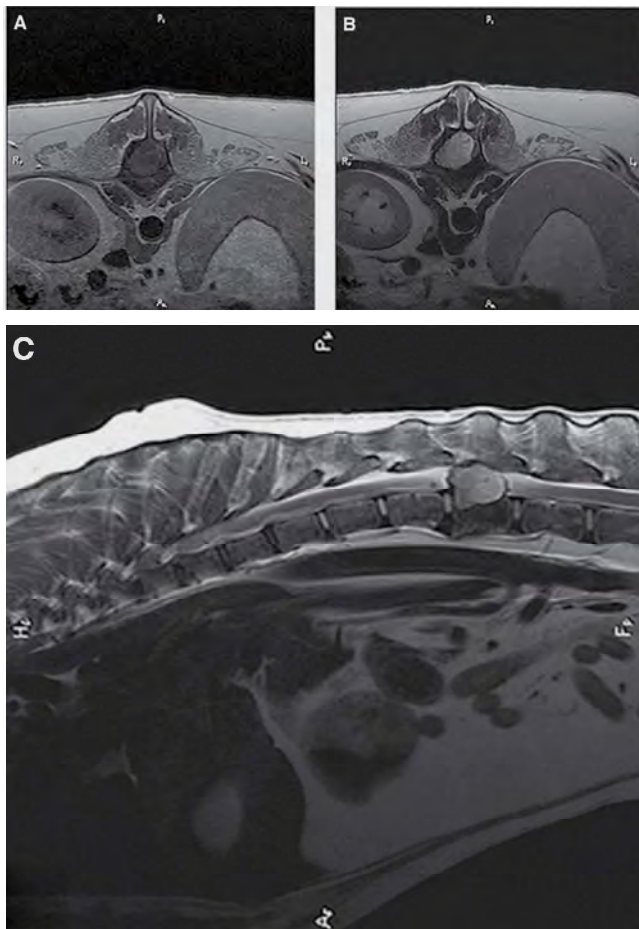
empyema, and pulmonary adenocarcinoma, with thoracic computed tomography helping to rule out foreign body and diaphragmatic hernia. For confirmed neoplasms, histochemistry and immunohistochemistry should be performed to differentiate between mesothelioma and pulmonary adenocarcinoma.

CASE REPORTS

Diagnosis and Treatment of a Spinal Intraosseous Keratinized Cyst of L1 in a Dog

Jessica Villm, Rebecca Windsor

An 8 yr old female spayed golden retriever presented for a 3 wk history of progressive pelvic limb ataxia. MRI revealed a well-circumscribed T2-weighted hyperintense, T1-weighted poorly contrast-enhancing extradural mass to the right of the spinal cord at the level of L1 causing severe spinal cord compression. A right-sided hemilaminectomy was performed to remove the mass, and histopathology revealed an intraosseous keratinized cyst. A complete neurologic recovery was made within 2 wk following the surgery. This case illustrates a rare diagnosis and the first case report describing MRI findings and favorable clinical outcome after surgical management of a spinal intraosseous keratinized cyst.

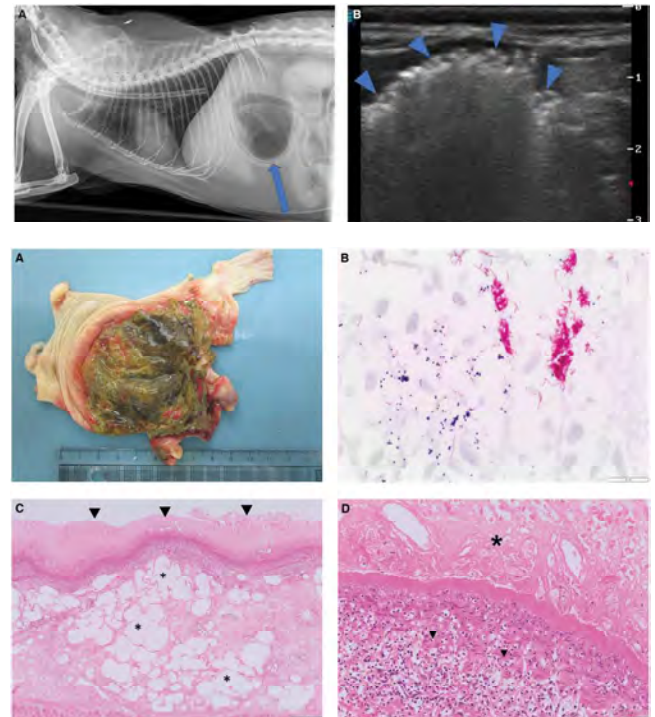


CASE REPORTS

Feline Emphysematous Gastritis in a Cat with Pancreatitis and Secondary Hepatic Lipidosis

Emily Fulton, Gawain Hammond, Francesco Marchesi, Marta Hernández Pérez, Alison E. Ridyard

A 7 yr old female neutered domestic shorthair was presented with a 2 mo history of lethargy and hyporexia progressing to anorexia. Initial diagnostics indicated pancreatitis with secondary hepatic lipidosis. Supportive care, including the placement of an esophageal feeding tube, was initiated. The feeding tube was removed traumatically by the cat and thus replaced. The cat acutely deteriorated while hospitalized, developing marked hypersalivation and an obtunded mentation. Radiographs were taken to confirm placement of the feeding tube in case tube dislodgement was contributing to the hypersalivation; results confirmed appropriate positioning and gastric pneumatosis. Despite intensified medical management, the patient suffered cardiopulmonary arrest 7 days after hospital admission. Post-mortem examination confirmed necrotizing gastritis with emphysema alongside segmental mucosal necrosis in the jejunum, focal pancreatic necrosis, and diffuse hepatic lipidosis. Gas in the gastric wall is a rare finding in veterinary medicine and can arise due to gastric pneumatosis or emphysematous gastritis; there are scant reports of either in feline medicine. This report documents a case of emphysematous gastritis in a cat with concurrent pancreatitis and hepatic lipidosis. The cat developed emphysematous gastritis without undergoing gastrointestinal surgery which is currently the only reported feline predisposing factor for development.



CASE REPORTS

Outcome of Localized Bile Duct Carcinoma in Six Dogs Treated with Liver Lobectomy

Atsushi Maeda, Sho Goto, Ryota Iwasaki, Koji Yamada, Mami Murakami, Hiroki Sakai, Takashi Mori

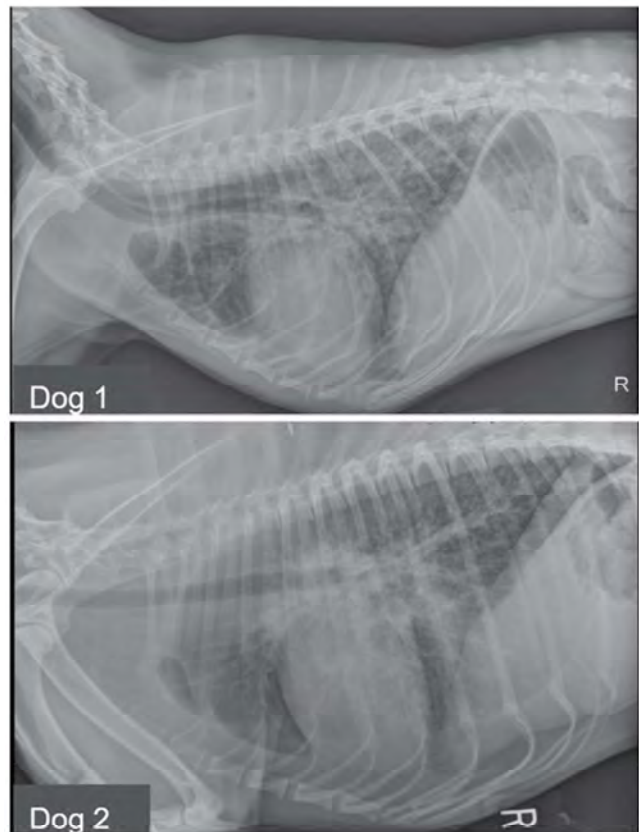
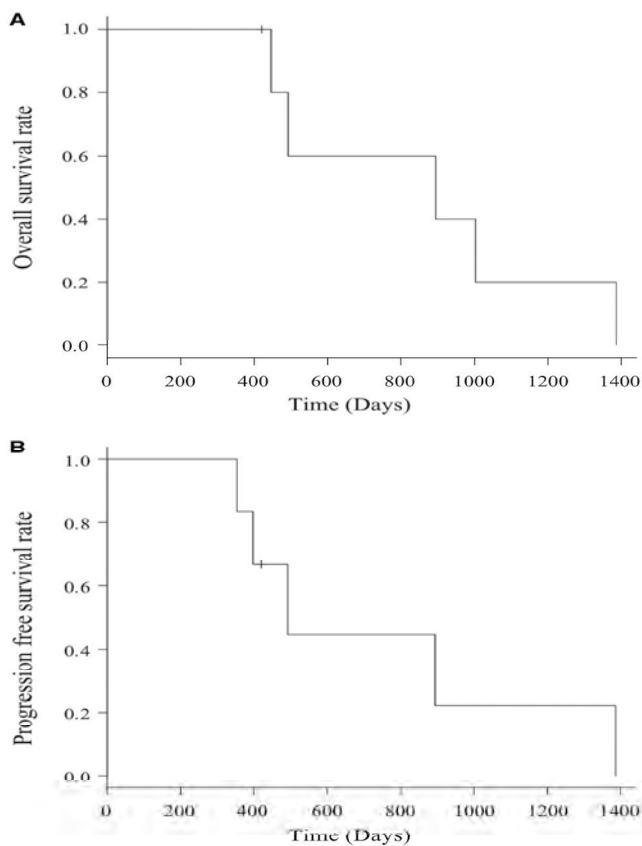
The prognosis for bile duct carcinoma in dogs is generally believed to be poor. However, only a few studies have evaluated the postoperative outcomes in such cases. The objective of this case series was to describe the postoperative outcomes of localized intrahepatic bile duct carcinoma in dogs. The electronic medical records of 16 dogs with bile duct carcinoma were reviewed, and 6 dogs were included in the study. All cases were diagnosed as bile duct carcinoma using postoperative pathology, and five of them had already been diagnosed using preoperative core biopsy. The tumors in all of the dogs were confirmed as completely resected on histopathological examination. Two dogs received toceranib following the surgery. The median follow-up time was 693 days (range, 420–1386 days), with a median survival time of 894 days (range, 420–1386 days). Local recurrence or distant metastases were detected in two of the six dogs (33%) on 354 and 398 days following surgery, respectively. The median progression-free survival was 492 days (range, 354–1386 days). In conclusion, dogs with localized intrahepatic bile duct carcinoma had a good prognosis following complete surgical resection.

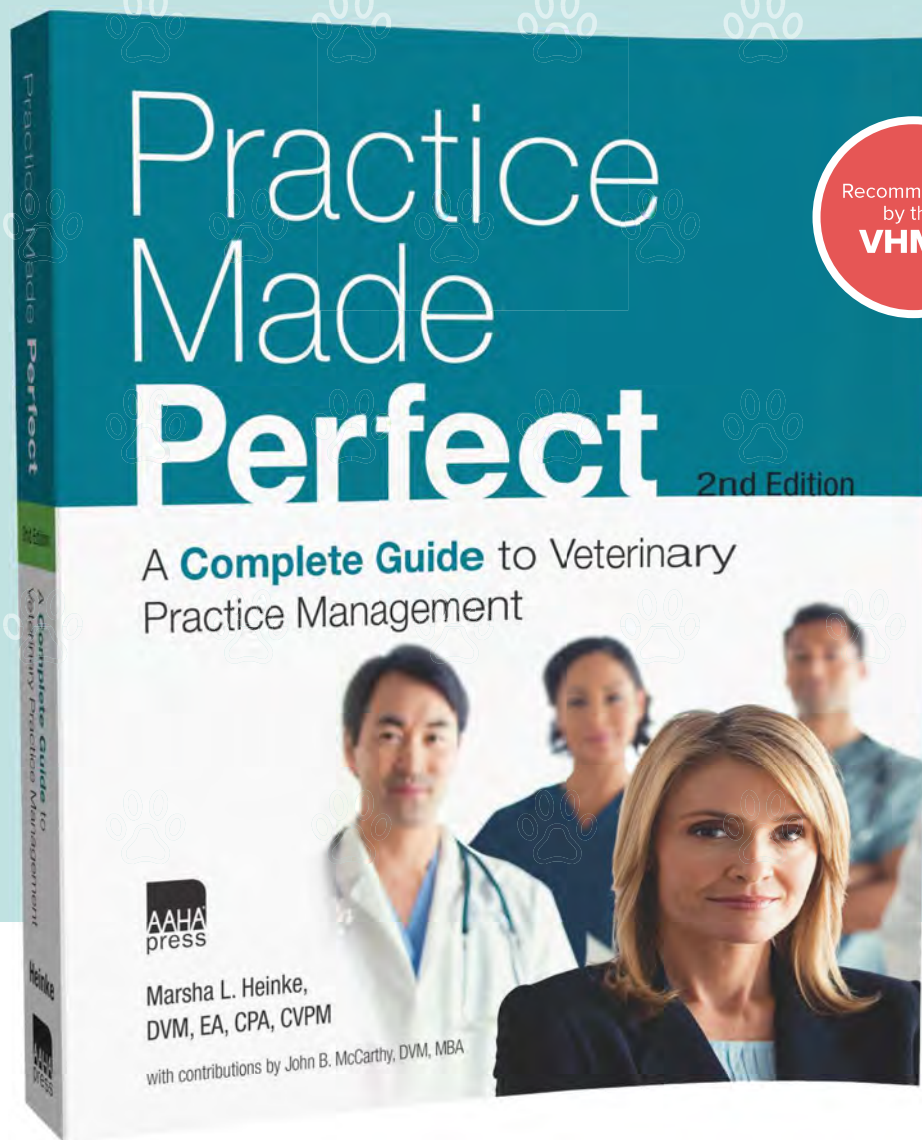
CASE REPORTS

Acquired Systolic Dysfunction and Subsequent Congestive Heart Failure Following Treatment of Hypoadrenocorticism in Two Dogs

Lindsey Jett, Shaina Mooshian, Erin Anderson

Acquired cardiomyopathies have been described in human patients with hypoadrenocorticism. Several mechanisms have been described to explain the cardiac effects of primary adrenal insufficiency, but, clinically, these manifestations may be underappreciated in dogs. In humans, there is an infrequently described, reversible dilated cardiomyopathy in patients with hypoadrenocorticism. Two dogs were presented to a single referral center for evaluation of weakness or collapse and were subsequently diagnosed with hypoadrenocorticism after a full diagnostic workup. Following the diagnosis of hypoadrenocorticism and administration of glucocorticoids and desoxycorticosterone pivalate, both dogs developed left-sided congestive heart failure and had systolic dysfunction diagnosed by echocardiogram. Both dogs were euthanized; one because of recurrent congestive heart failure and another because of a concern for poor long-term prognosis and decreased quality of life. The purpose of this case report is to document multiple cases of hypoadrenocorticism-associated systolic dysfunction and subsequent cardiogenic pulmonary edema in dogs.





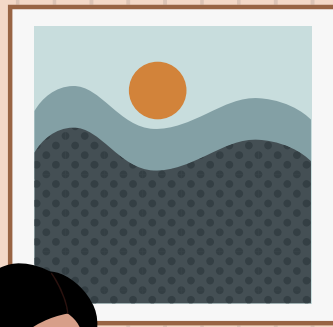
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Mixing Business *and* Life





Co-Owning a Practice with a Significant Other or Friend Without Ruining the Relationship

by Jen Reeder

ON AUGUST 25, 1987, WILL DRAPER FIRST laid eyes on Françoise Tyler during a first-year veterinary school orientation at Tuskegee University. He introduced himself and, though thoroughly disappointed to learn she was dating someone, they became close friends.

Fast forward to 2022, when the two DVMs have been happily married since 1993. During that time, they've raised four children and are co-owners of the AAHA-accredited practice The Village Vets, which has six locations in Georgia, one in Pennsylvania, and a seventh in the works.

"The biggest part is that we respect each other, and we acknowledge each other's strengths within this adventure," Tyler said. "And we like to have fun."

Partnering with a significant other or close friend to own and operate an animal hospital can be a daunting undertaking. What's the secret to running a successful business without destroying a personal relationship in the process? We spoke to owners of five AAHA-accredited practices to find out.

The Village Vets

While they both practice medicine, having different roles in their business ventures—and staying in their own lanes as much as possible—helps keep things running smoothly for Tyler and Draper.

"Will is the powerhouse of this relationship from the business side," Tyler said. "That's not my passion. I told him from the beginning of our relationship, especially once we started these practices, that I wanted to be the vet."

The couple respects each other's opinions, and even if they disagree on something, whether about parenting or their practices, they stick to the maxim, "Praise publicly, criticize privately."



Will Draper, DVM, and Françoise Tyler, DVM, co-owners of the AAHA-accredited practice The Village Vets.



The Draper family.

“We have a discussion with the two of us, but we always make sure we’re a united front at home or in the practice,” Draper said. “We trust that it’s going to work out and we give it our all.”

That goes for backing up their staff, too. If a client calls a team member a rude name, Draper tells the client they’re no longer welcome at The Village Vets. The couple sees their team as a family, and as “mom and dad,” have counseled employees about buying cars or their first homes and offered marriage advice. They’ll try to lighten the team’s mood on a stressful day by turning on music and dancing together.

“Not one of us is a good dancer, and we’re both the old people now, so they get such a kick out of it,” Draper said with a laugh. “We love each other. We love our practice and our people.”

Animal Hospital Highway 6

Scott Driever, DVM, and Susan Driever, CDPM and practice manager of AAHA-accredited Animal Hospital Highway 6 in Sugar Land, Texas, met at Texas A&M University in the late 1990s—and married two weeks after graduation in 2000.

After Driever became the sole owner of the hospital where he practiced in 2015 and their sons were in third and fifth grades, he recruited his wife out of “stay-at-home-mom land” because he needed a bookkeeper—and a human resources department.

“Honestly, the biggest challenge we had was buying the practice and not knowing what we didn’t know,” she said. “The conference for AAHA was amazing because there was so much leadership, and then it transitioned to Connexity, which then laser-focused even more on culture and everything needed.”

In addition to learning through continuing education, earning her CVPM also helped her feel like she’d “earned my spot” and the respect of their staff.

The couple’s roles are distinct, and they are also physically separated because of the building’s layout: she’s upstairs on the entrance floor, and he’s practicing medicine downstairs. They also take pains to keep their private life separate from work by refraining from using pet names like “Sweetie” at work. Instead, they refer to each other as “HR” and “Dr. D.”

“The way I act around Susan at the office is the same way I act around anybody else,” Driever said. “I never put my arm around her. I don’t touch her. I never kiss her. I think that keeps it clean.”

To help others in a similar position, Susan Driever is coadministrator for the private Facebook group Vets & Spouses Working Together, which has 260 members and is open to veterinarians, veterinary technicians, and managers who work with a spouse.

“It’s all about communication, compromise, patience, and giving each other the space to be who they are—and appreciating your partner’s strengths and their weaknesses.”

—PAGE MADER

The couple’s bond has helped them—and their practice—weather numerous natural disasters, including Hurricanes Harvey and Ike.

“I think ultimately it’s how you as a couple respond to a difficult situation,” she said. “For us, when the going gets tough, we just rise to the occasion. You can either freak out or you can take a deep breath, keep a level head and not escalate things between each other, and lead by example.”

Five Parks Animal Hospital

Page Mader, DVM, and Susan Wass, hospital administrator of AAHA-accredited Five Parks Animal Hospital in Arvada, Colorado, became friends working together at a veterinary hospital in Denver before deciding to open their own practice.

“Basically, we were both just working crazy, crazy hours and thinking, ‘Gosh—why don’t we do this for ourselves?’” Mader said. “Even though we’re two pretty

different people, our vision was pretty similar in terms of what we wanted to accomplish and what type of clinic we wanted to open.”

That vision involved prioritizing top-notch medicine and the wellbeing of their staff above profit. But opening an animal hospital in the middle of the pandemic (the doors opened in October of 2020) created unique stressors, from not being able to host an open house to having difficulty buying supplies and even office furniture. So they used the slow opening to develop systems and achieve AAHA accreditation within five months of opening.

The business continues to grow. Having roles that play to each other’s strengths has proved prudent. For instance, Wass is more extroverted and handles in-person networking, while Mader has an undergraduate degree in English and writes veterinary articles for a local magazine.

They’ve also been sure to discuss their long-term goals and potential endgame strategies to understand the scope of the business relationship.

“There are always going to be unanticipated things that come up when you open a business together,” she said. “But it’s all about communication, compromise, patience, and giving each other the space to be who you are—and appreciating your partner’s strengths and their weaknesses.”

Veterinary Surgical Specialists

Some people spend so much time at work that they develop a “work husband” or “work wife,” so why not spend that kind of time with an actual spouse? That philosophy has worked well for Rich Pankowski, DVM and hospital administrator, and Diane Craig, DVM, DACVS, the founders and co-owners of AAHA-accredited Veterinary Surgical Specialists in Tustin, California.



Page Mader, DVM, and Susan Wass, hospital administrator of AAHA-accredited Five Parks Animal Hospital.

Tips for Working with a Significant Other or Friend

“Remember that it’s not personal if a spouse or friend disagrees with you if you’re talking about a work issue. They’re not mad at you. They’re upset with whatever the issue is.” —KAREN ROONEY

“Communication is the key.”
—WILL DRAPER

“It’s okay to make mistakes. You’re human. Learn from it and also try to have some fun during the day. You deserve it.” —FRANÇOISE TYLER

“The more defined your roles are going into opening a business, the better.”
—PAGE MADER

“Respect each other and lead by example.”
—SCOTT DRIEVER

“One of the things that we really stress to our employees and our kids is to try to have a balanced life.” —DIANE CRAIG

“We don’t do pet names at work. We want it to be professional.” —SUSAN DRIEVER, CDPM

“Invest in a cleaning service for your home at least every couple of weeks, if not more often, because then when you’re at home, you can spend time with your spouse doing fun things or with your children.” —KAREN ROONEY



Diane Craig, DVM, DACVS, and Rich Pankowski, DVM and hospital administrator, are the founders and co-owners of AAHA-accredited Veterinary Surgical Specialists.

“I think a marriage involves a lot of technical details, a lot of planning. Rich and I have always worked together in delegating different parts of the responsibility to each other, including the childcare for three kids and a house and five pets,” she said. “So, we delegate a lot of responsibility to our employees and to each other. I think it helps a lot that we trust each other’s judgment.”

The two listen to their team, share decision-making, and “lead from the bottom up, by example,” she said. Because they don’t have an autocratic veterinary practice, their two daughters, who are both veterinary students, thrived by working at their practice during the pandemic.

In fact, the young women saw a need and got the idea for creating a software program that uses artificial intelligence to ease the transition of medical records coming into a referral practice. They won a contest and a venture capital group invested \$500,000 in seed money to help them create Transfur (in beta testing as of April 2022).

“That’s one of the things that came out of working cooperatively in the practice and seeing what was going on,” Pankowski said.

Pankowski’s background in surgery helps him, as an administrator, know how to support the needs of the surgeons at the specialty practice. The couple has regular meetings to discuss how things are going, who’s having concerns, and any good ideas for the practice. While they

“We delegate a lot of responsibility to our employees and to each other. I think it helps a lot that we trust each other’s judgment.”

—DIANE CRAIG, DVM, DACVS

sometimes talk about work in the mornings, there’s no shop talk at night. But they bring their family life into the practice in a special way.

“Diane managed to have all three kids while she was working as a surgeon. It was important to us in terms of our culture to make sure that the staff knew that family was important,” he said. “So I think we’ve taken a lot of issues very seriously with the staff to help support them family-wise.”

Burr Ridge Veterinary Clinic

Brian Rooney, DVM, and Karen Rooney, practice manager of AAHA-accredited Burr Ridge Veterinary Clinic in Darien, Illinois, have been married 38 years for myriad reasons—including that they never tell the other one how to do their job.

In fact, Karen Rooney was hired as practice manager 25 years ago by the former owner—not her husband, who became the primary owner about eight years ago.



Brian Rooney, DVM, and Karen Rooney, practice manager of AAHA-accredited Burr Ridge Veterinary Clinic.

“Now I work my normal 40-plus a week in the clinic because our kids are grown up and out of the house,” she said. “But when they were little, I still did a lot of my work at night after they were sleeping and on weekends from home.”

She also went into the office on Brian’s day off so that she wouldn’t feel guilty leaving their daughters with a sitter, and he’d have a chance to bond with them. At AAHA and American Veterinary Medical Association conferences and other continuing education events, they’d try to attend sessions at different times so one of them could be with their kids in the hotel. They also ate dinner later than other families so that Brian could eat with them after work.

Now she marvels at how she got it all done and hopes veterinary professionals will find better ways to support colleagues with small children. Adding a daycare to a practice isn’t typically feasible because of liability concerns, so understanding that it’s okay to give up some other priorities like keeping a spotless home can help, she said.

It also helps to have shared activities outside of work—the Rooneys attend church together each Sunday—as well as separate interests. For example, she enjoys being in a book club while her husband prefers gardening. She also recommends planning at least one monthly date where you don’t talk about work.

They also never raise their voices to anyone—not the staff or each other. Ultimately, her advice for finding the ideal partner is simple: “Marry your best friend.” ✨



Award-winning journalist Jen Reeder works from her home office in Colorado, which she shares with her husband and their senior dogs, Rio and Peach.

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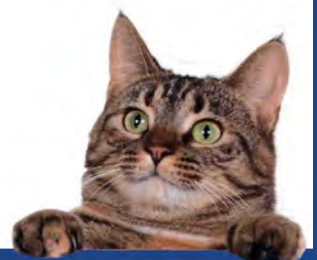
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Sustainable Steps

Lessen Your Impact on the Planet

by Maureen Blaney Flietner

WITH VETERINARY HOSPITALS STILL DEALING WITH THE EFFECTS OF COVID, from staffing to integrating new technology and other concerns, the idea of starting environmental sustainability efforts might seem ill-timed to some.

But under the One Health idea that humans, animals, and the world we live in are inextricably interconnected, others say not only is it the right time, but it is actually overdue.

Veterinary environmental sustainability is not a new idea. Kenneth Kirlin, DVM, made it his goal when he replaced an old clinic with a new Eagle Veterinary Hospital in San Antonio, Texas, in 2010. According to Garrett Eccleston, hospital manager, the building earned

the US Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) Platinum certification in 2012 for its environmental initiatives and long-lasting sustainability impact. It was the first veterinary clinic in the country to be LEED Platinum certified and may still be the only one, he noted.

But now, with signs of global climate change becoming more obvious, there is renewed interest in lessening the impact that healthcare—both human and animal—has on the earth.

The Time to Act Is Now

“It’s time we, the veterinary community, step up and take the initiative to become environmentally



Eagle Veterinary Hospital has 3,000-gallon water reclamation tanks that collect rainwater and air conditioning condensate that then goes through charcoal/UV filters before re-entering the hospital. Courtesy of Eagle Veterinary Hospital

“We need to realize how our daily actions affect the world even if we feel we are such a small subset of it.”

—AMANDA BLOOMBERG, DVM, CO-OWNER OF PAWS OF PLEASANTON ANIMAL HOSPITAL

sustainable,” said Amanda Bloomberg, DVM, co-owner of Paws of Pleasanton Animal Hospital, Pleasanton, California. “We need to realize how our daily actions affect the world even if we feel we are such a small subset of it. Every little bit helps,” she said.

“When opening our hospital in June 2020, it was a priority to implement protocols around being as sustainable as possible. We try our hardest every day to do what’s best for our patients as well as the environment. I can only hope other hospitals will see what we have done and how simple it can be to implement the same for their practices.”



Colleen Duncan, DVM, PhD, DACVM, DACVPM

At Colorado State University (CSU), Colleen Duncan, DVM, PhD, DACVM, DACVPM, associate professor of the Department of Microbiology, Immunology, and Pathology, acknowledged that there is a lot of interest in the topic of environmental sustainability, especially

from veterinary students, younger people who are starting their own practices, and new graduates looking for employment.

However, she explained, research shows that enhanced incorporation of sustainability into veterinary medical education at all stages is needed. And she noted that veterinary teaching hospitals offer an opportunity to lead by example.

“At CSU, we are integrating sustainability into our curriculum and developing continuing education opportunities for veterinarians and their teams, especially veterinary technicians, to learn more and to get education credits on the topic,” she said.

In the early stages of planning its new veterinary hospital, CSU is looking to the International WELL Building Institute’s WELL Building Standard and USGBC LEED certification to minimize its environmental footprint, deal with its regional concerns like drought and wildfires, and best use its main local asset—300 days of sunshine a year. It hopes to focus on the sweet spot where sustainability and wellbeing meet, said Duncan.

Real-Life Examples Show the Way

At the University of Wisconsin-Madison, Flad Architects, in association with Foil Wyatt Architects and Planners, is bringing sustainability ideas to reality in the 200,000-square-foot, three-story addition and renovation of the School of Veterinary Medicine and its small animal hospital that is under construction.

The addition will use 25% recycled steel and carbon-injected concrete, divert 70% of construction

waste from the landfill, and install bird-safe glazing, according to Marc Walker, Flad design principal. Many of the building's materials have environmental product declarations or health certifications.

Ross Pinski, Flad landscape architect, said the building massing and site arrangement offer several key sustainable features. One adjacent road will be relocated and narrowed to provide a larger wildlife corridor and green space next to a nearby creek. An 18,000-square-foot green roof on the second floor of the addition will aid in stormwater management, showcase native plantings, and provide usable open space. A large courtyard space will feature native plantings and pervious paving and allow natural light into the adjacent portion of the building.

At Eagle Veterinary Hospital, boarding runs are made from recycled plastic to create a responsible, easy-to-clean surface; exam tabletops use a rubber insert "pad" for traction made of durable, easy-to-clean recycled tires; and flooring is the sealed concrete slab. All drywall is recycled gypsum, and high-efficiency heating, ventilating, and air conditioning (HVAC) units improve indoor air quality. Solar panels, LED products, high-efficiency fluorescent

lights, and solar tubes/windows provide light with motion sensors in low-traffic areas.

Its 3,000-gallon water reclamation tanks collect rainwater and air conditioning condensate that then goes through charcoal/UV filters before re-entering the hospital "cleaner than the water from the city," according to Eccleston. It means the hospital pays only the minimum city water bill to keep the account active without really using water—\$30 a month for a 10,000-square-foot building in south Texas.

"We also recycle anything we can based on local recycling rules. We have started using biodegradable pill vials available through Midwest Vet Supply and use compostable trash bags for all our trash receptacles. Our goal is to provide great service with minimal impact to the environment," said Eccleston.

Paws at Pleasanton features motion-sensor faucets in the surgery/treatment area—more affordable and space-saving than a traditional surgery scrub sink, noted Bloomberg; fleece tie blankets instead of bath towels to reduce water and electricity usage and extend washer/dryer life; smart thermostats; and LED lighting and skylights to make use of California's sunlight.

Cloud-based software; a veterinary app for client reminders, medication refills, and appointments; and texts instead of expensive postcard reminders reduce paper costs and phone calls for staff. And, "yes, definitely," said Bloomberg—the efforts have meant lower costs.

Barriers and Challenges Ahead

Several sources pointed to some barriers to enabling and encouraging veterinary hospitals to do the most they can. Among those challenges:

- Most of the small plastic and glass waste—syringes and their packaging, vaccine vials, and such—are not accepted as recyclable.
- Packaging materials from suppliers are still not as minimal as they could be.
- There is a continuing lack of veterinary awareness of environmental impact.
- Technology needs to be created to allow the complete capture or safe breakdown of anesthetic gas emissions.
- Veterinary organizations need to be encouraged to add sustainable practices to their certification processes.

Another Elephant in the Room



Nathaniel Kapaldo,
DVM, MPH, DACVAA

Any environmental effort also should include greenhouse gases. The problem in veterinary anesthesia practices is exactly the same as it is in human anesthesia practices, explained Nathaniel Kapaldo, DVM, MPH, DACVAA, assistant professor of anesthesiology, Department of Clinical

Sciences, College of Veterinary Medicine, Kansas State University.

Recipe for Better Anesthesia Practices

Kapaldo has a particular interest in sustainability in anesthesia practice. He offered this recipe for how to calculate a minimum fresh gas flow for the maintenance phase for an anesthetized patient:

- Estimate 5 mL/kg/min oxygen consumption for an anesthetized dog or cat.
- Set total O₂ flow to be 20% greater than this estimated oxygen consumption.
- If a side stream capnograph or gas analyzer is used, increase total flow by 200 mL/min (50 mL/min if micro stream analyzer used).
- Increase total flow by 50–100 mL/min to compensate for any small circuit leaks.
- If possible, monitor inspired/expired fraction of oxygen or anesthetic. However, this is understood to be potentially costly to add to patient monitoring.

Example:

- With capnograph in use: 10 kg dog = 50 mL/min O₂ consumption + 20% (10 mL/min) + 200 mL/min + 100 mL/min = flow meter setting → 360 mL/min
- Without capnograph in use: 10 kg dog = 50 mL/min O₂ consumption + 20% (10 mL/min) + 100 mL/min = flow meter setting → 160 mL/min

The example flow settings are much lower than likely used routinely, respectively; however, once the anesthetic concentration has equilibrated in the circuit (initial 5 min with O₂ flow at 2i4 L/min), these flows are absolutely appropriate.

Consider intravenous techniques when possible. The caveat is that intravenously used drugs are not necessarily benign either and not much is known about the impact of this drug waste on water systems. Appropriate waste/disposal of unused injectable drugs should be followed.

Ensure waste gas absorbers (activated charcoal canisters) are present on all anesthetic machines and routinely checked. These should be in use whenever an anesthetic machine is not supplied by a scavenging system, directing waste gas out of the building.

“To facilitate a diagnostic or surgical procedure, we use volatile anesthetics such as isoflurane or sevoflurane. These gases are delivered using anesthetic circuits, which allow us to titrate the inhalant anesthetics to an appropriate effect. The volatile anesthetics are then either scavenged passively or actively away from the immediate operating theatre, then, most often, simply vented to the atmosphere.”

Historically, the role anesthetic gases play as greenhouse gases (GHGs) was not well understood. However, now many studies document that they are very potent GHGs, and Kapaldo noted that it is responsible and prudent to make real-life steps in their judicious use.

Isoflurane, the most commonly used inhaled anesthetic in veterinary medicine, persists in the atmosphere for more than three years before it may break down, he said. During just one year in the atmosphere, the global warming potential of isoflurane is six thousand times more than an equivalent amount of carbon dioxide. Additionally, because anesthetic gases reside in the atmosphere for extended durations (isoflurane: 3.2 years, sevoflurane: 1.8 years, desflurane 8.9 years), they accumulate over time, said Kapaldo.

While these inhaled anesthetics now remain largely unregulated, Kapaldo suggested that that is likely to change in the coming decades. “Healthcare facilities may need to begin accounting for the amount of anesthetic gases they emit, just as other companies have to document their harmful emissions into the atmosphere.”

“It has been estimated that the healthcare sector accounts for up to 8% of the total US greenhouse gas emission,” he added. “We do not really know how big of a problem it is, but the veterinary industry likely is a very small fraction compared to human practice. But it’s becoming recognized as a big enough problem that in 2020 the American Society of Anesthesiologists initiated the ‘Inhaled Anesthetic 2020 Challenge,’ where the problem was presented and hospitals were challenged to reduce inhaled anesthetic gas waste by 50%.”

For veterinary hospitals using volatile anesthetics to anesthetize patients, Kapaldo offered this option: “Use low fresh gas flows. It’s a well-documented method to reduce unnecessary use and waste that really just



Project rendering of aerial view of UW-Madison addition.

“... while trying to provide the best medical treatment for clients’ pets, veterinary hospitals actually contribute to climate change, which is causing harm in their patients.”

—JACQUIE HILTERMAN, MS, MA, OWNER OF DOGWOOD CONSULTING

involves prudent anesthetic monitoring and diligence in simply turning the oxygen flow knob down.”

He encouraged veterinarians and veterinary nurses performing anesthesia to evaluate their practices by using this online calculator: <https://jscalc.io/calc/H7gGXIL4tmDJHOxh>.

Changing to a low fresh gas flow is an easy aspect to overlook, but there are no good reasons not to implement it. At a minimum, said Kapaldo, consider the economic benefits. A practice could easily reduce the cost to their practice for isoflurane by 50% to 75%, depending on current practices.

Take the First Steps

“Veterinary hospitals use large amounts of energy, water, and chemicals and produce significant amounts of waste, so while trying to provide the best medical treatment for clients’ pets, veterinary hospitals actually contribute to climate change, which is causing harm to their patients,” said Jacquie Hilterman, MS, MA.

She started Dogwood Consulting in Denver, Colorado, in 2020 to empower veterinary hospitals to improve their environmental impact and culture. Her five-step framework tailors offerings so that feasible sustainability solutions can be implemented at any veterinary hospital.

However, staff members first need to know why their veterinary hospital is prioritizing sustainability, Hilterman said. She recommends emphasizing the underlying values in staff meetings, in emails, and on notices in the staff lounge. When sustainability is embedded throughout the culture, employees discover their own personal reasons for commitment that lead them to create innovative solutions and improve engagement.

For early easy wins, she suggested switching to LED bulbs, installing water-saving devices, and switching to reusable sharps containers. In addition:

- Only purchase what is needed in proper quantities so products don’t expire.
- Refuse single-use items like disposable ink and toner cartridges, pens, and highlighters when refillable options are available.
- Prioritize Energy Star–rated appliances and eco-friendly products, such as Forest Stewardship Council (FSC)-certified paper products with at least 30% postconsumer waste content for all paper needs (not just copy paper).

Bloomberg noted that a hospital does not have to pay huge amounts to gain certain certifications. They should check for local “green business” certification programs that are available at little to no cost.

Many efforts come down to choices, she said. Recycling versus trash bin; turning off lights when a room is not in use; turning off water while handwashing; replacing appliances with more efficient ones when they fail; and using sustainable hospital cleaners like Rescue.



The front lobby at Eagle Veterinary Hospital features lots of natural sunlight.

“Our goal is to provide great service with minimal impact to the environment.”

—GARRETT ECCLESTON, HOSPITAL MANAGER, EAGLE VETERINARY HOSPITAL

Don't forget the sharps/infectious containers, said Kapaldo, noting that the CDC estimates that only 2% to 3% of what is deposited into them needs to be there. For example, packaging materials, gauze, and empty drug vials do not belong there. Unused drugs also do not belong down the sink, he said, suggesting hospitals check for services that pick up waste pharmaceuticals.

CSU offers its free online SAVE Veterinary Procurement Guide, noted Duncan. It presents:

- An overview of existing third-party product certifications to help identify trustworthy labels and evaluate products or services
- Sustainability policies, practices, and claims of companies servicing veterinarians
- Opportunities to share knowledge and experience with readers of future versions of the guidebook

There is a gap in available literature about sustainability in veterinary practice, explained Duncan. However, a research team of which she was a member did a systematic literature review and extrapolated information

from related fields to use as best practice guides. The team identified five physical themes (energy efficiency, water, waste, procurement, and transportation) and three behavior changes at the individual, group, and organization levels that could support veterinary hospitals in their efforts to minimize their environmental footprint. Specifics, she said, can be found in the open-access *Science Direct* August 2021 article: “A Systematic Review of Environmental Sustainability in Veterinary Practice.”

More Reasons to Make the Efforts

Our sources noted similar—yet unexpected—rewards from their efforts.

- It's often easy to begin the sustainability process by starting with something the team is passionate about. Many team members care for the environment and set the same goals for their personal lives.
- “Natural light does have a significant impact on morale for staff and patients,” explained Eccleston. “Many clinics were and still are very dark. I have been in clinics for 14 years, and this has been the

happiest clinic for me—the majority of that is due to the windows. All that light does, in fact, reduce our electrical consumption and the solar panels contribute to that as well.”

- Sustainability efforts often get good client feedback and support, even drawing in new clients when sustainability efforts are publicized on the hospital website and social media.
- Hospitals with a focus on sustainability, and thus wellbeing, can be more attractive to veterinary staff seeking new employment.

We All Have a Role to Play

Danielle Scott, a May 2022 CVM graduate, will be CSU's inaugural veterinary preventive medicine resident who will focus on sustainability. She will pursue a PhD in epidemiology and a residency to prepare her to qualify for the American College of Veterinary Preventive Medicine board certification exam.

Scott said she anticipates examining how the environment, along with its human-induced disturbances, impacts animal health and disease

transmission as well as how the delivery of veterinary care can impact the environment and contribute to the changing climate.






“I think yesterday was the right time for the veterinary industry to address sustainability but now it's more important than ever,” she said.

“I do see the start of this momentum building and feel fortunate to be supported by Nestle Purina in my efforts to steer evidence-based solutions to combat this global crisis. I think it's important to recognize that we all have a role to play. There is a personal and collective responsibility that we must all assume if we are going to change our current trajectory toward a healthier and more sustainable future.” ✨



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

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The Latest on CBD in Veterinary Medicine

Research, Legislative, and Dosing Updates

by Stephen Cital, RVT, SRA, RLAT, CVPP, VTS-LAM (Res. Anesthesia)

In 2018, veterinary medicine saw the first clinically relevant cannabidiol/cannabidiolic acid (CBD/CBDA) peer-reviewed study showing safety and efficacy in reducing pain in client-owned dogs with osteoarthritis. Prior to this we had several studies looking at the physiological impacts, absorption, metabolism, and postulations as to the therapeutic use of cannabinoids in several lab animal models. Even before this sort of research began in the 1960s, ancient and modern cultures have been using the *Cannabis sativa* plant for thousands of years in humans and animals for medicine, rituals, and fun.

Before we get too far into the weeds—pun intended—let’s recap the important terminology and the endogenous system compounds from the cannabis plant. For clarity’s sake, this article will focus only on plant-derived products.

Cannabinoids or “phytocannabinoids” are compounds like CBD or THC, along with hundreds of others, that work on a system of receptors in the body called the endocannabinoid system. There are, for now, two primary receptors known as endocannabinoid system receptor one (CB1) and endocannabinoid system receptor two (CB2). What is the endocannabinoid system (ECS), you might ask? This is one of the oldest homeostatic regulating systems we see across vertebrate species in evolution.

Despite no FDA-approved veterinary product being currently available, there are at least ten published pharmacokinetic studies in dogs in addition to three safety studies evaluating clinical presentation of CBD-dominant products at various doses.

The ECS consists of the CB1 and CB2 receptors as well as at least five endogenous ligands known as endocannabinoids. The two most commonly studied are anandamide and 2-arachidonoylglycerol (2-AG). More recently it has been found that cannabinoids, both endogenous and plant based, can be quite promiscuous and have an affinity for other receptors we are more familiar with, such as opioid and serotonin, among others.

Researchers have also found ancient precursors of ECS receptors in nonvertebrate species known as orthologs. In some modern nonvertebrate species, there are only parts of what we consider the evolved ECS, such as endocannabinoids found in insects despite their lack of CB1 and CB2 receptors. Terpenes are another set of chemical compounds found in cannabis plants that add to the aroma of the plant and also have their own set of therapeutic impacts

and synergy with cannabinoids.

Research Updates

Clinical research is still ongoing, but compared with other medications such as gabapentin, trazodone, and tramadol, we have a similar amount of data regarding the safety of the most common cannabinoids (CBD and THC), while most of the terpenes found in over-the-counter products are already FDA approved. It should be noted that a majority of the clinical data utilized individual cannabinoids or hemp-based products. Hemp-based products are those containing 0.3% THC or less.

Safety and efficacy are always of concern. Despite no FDA-approved veterinary product being currently available, there are at least ten published pharmacokinetic (PK) studies in dogs in addition to three safety studies evaluating clinical presentation of CBD-dominant products at various doses. For

felines, there are two PK studies and two safety studies at various doses. There are two (soon to be three) PK studies in horses in addition to clinical use reports, one PK study for dairy calves, multiple PK studies for lab animal species, and a host of other species with studies that are still in process. Notably, given the vastly different formulations and ratios of various cannabinoids (more than 120 described so far) and terpenes, we cannot and should not assume all products will have the same bioavailability or efficacy when compared with those used in the published studies. Alkaline phosphatase (ALP) elevations in a small percentage of dogs and a transient alanine transaminase (ALT) elevation in one cat in one of the studies appear to be the most concerning side effects, but the clinical relevance is still uncertain. Most human and veterinary experts do not consider this a very serious concern unless the patient is already in some form of hepatic compromise. In general, a good quality product is considered incredibly safe when properly manufactured, tested, and appropriately dosed.

Acute pain management studies with cannabinoids like CBD are lacking, though anecdotal evidence suggests promise. However, there are five peer-reviewed veterinary studies showing moderate to good efficacy in decreasing pain scores in dogs for chronic pain from osteoarthritis. Seizure management is another area of interest for owners and practitioners alike. One published study showed around a 33% decrease in seizure frequency and severity for dogs with intractable idiopathic epilepsy with the addition of what



Acute pain management studies with cannabinoids like CBD are lacking, though anecdotal evidence suggests promise.

is considered, compared with CBD dosing for epilepsy in people, a low dose of a CBD-dominant product. A longer-term study utilizing a higher dose is currently underway. Some questions were rightfully raised about drug interactions or possible cytochrome P450 change with CBD and traditional antiepileptic drugs like phenobarbital. We can now have some comfort in administering drugs like phenobarbital with a CBD product without major concern for drug-to-drug interaction.

Anxiety and behavior modification are areas where better-designed clinical studies are warranted. There are two published studies that show no change and some change in the temperament of shelter dogs when exposed to loud auditory triggers and animal caretakers. Several press releases or abstracts have also been released, giving a glimpse of what's next for other conditions like atopic dermatitis in dogs, stomatitis in cats, quality of life in canine cancer patients, acute pain in dogs, and anxiety in cats, and it's all very promising.

Legislative Updates

Products derived from hemp (defined as any cannabis plant with less than 0.3% THC on a dry-weight basis) remain legal at the federal level and in all but four states, while the legality of products derived from marijuana varies from state to state. In states where all forms and uses of cannabis (hemp or marijuana) have been decriminalized or legalized, guidance from State Boards of Veterinary Medicine ranges from no guidance to legislation and regulations around veterinarians' ability to recommend to or even discuss with clients the use of cannabinoids in veterinary patients.



Several press releases or abstracts have also been released, giving a glimpse of what's next for other conditions like atopic dermatitis in dogs, stomatitis in cats, quality of life in canine cancer patients, acute pain in dogs, and anxiety in cats, and it's all very promising.

More and more products derived from hemp are being accepted as no different than other nutraceuticals or supplements that veterinarians recommend every day, often with less scientific backing and data than exists for cannabinoid-containing products. CBD even has its own monograph in Plumb's Veterinary Drugs, plumbs.com/features/drug-monographs, although the author has some concerns with the write-up. The author also has concerns about recommending marijuana-derived products even in states where it is legal, particularly for those that hold a DEA license given the legal status of marijuana at the federal level. However, Congress does seem poised to pass sweeping federal legislation changes on marijuana. For information on the legal status of all forms of cannabis in your state, visit norml.org/laws.

But keep in mind that regardless of marijuana's legal status, there is a

significant chance of adverse effects, such as intoxication, with higher-THC-containing products. The most current research in humans and animals also suggests beneficial therapeutic use can be achieved without the higher levels found in marijuana, begging the question of true clinical relevance.

Dosing

Dosing can be quite nuanced as every product seems to have a different cannabinoid or terpene profile. Thus far, several studies show safety and efficacy with wide ranges in dosing and with short- and long-term use. Cannabinoid-containing products are not a one-size-fits-all option. Depending on the specific condition and makeup of a product, recommendations can vary greatly. Understanding what is in the product will be an asset for successful and safe use. More information can be found on this via

the textbook *Cannabis Therapy in Veterinary Medicine*.

As with any supplement, harm reduction and education are two key conversations that must be had with clients when recommending cannabinoid-containing products, including recommending monitoring of liver enzymes and tracking the patient's response to administration. Please visit vetcannacademy.com for more information on cannabis harm reduction education.

Emerging Product Trends

Delta-8 THC

Delta-8 THC is a molecule that can be synthesized from CBD. This opened up a legal loophole for cannabinoid producers, who often market this

version of THC as "legal THC."

This compound is unregulated and requires the heavy use of industrial solvents and other questionable chemicals to force the conversion of CBD to Delta-8 THC, some of which may remain in any final product. This compound is intoxicating and can produce similar negative effects seen with typical marijuana ingestion. At this time, it is not recommended to use this compound in animals. For further information, visit fda.gov/consumers/consumer-updates/5-things-know-about-delta-8-tetrahydrocannabinol-delta-8-thc.

Nepetalactone

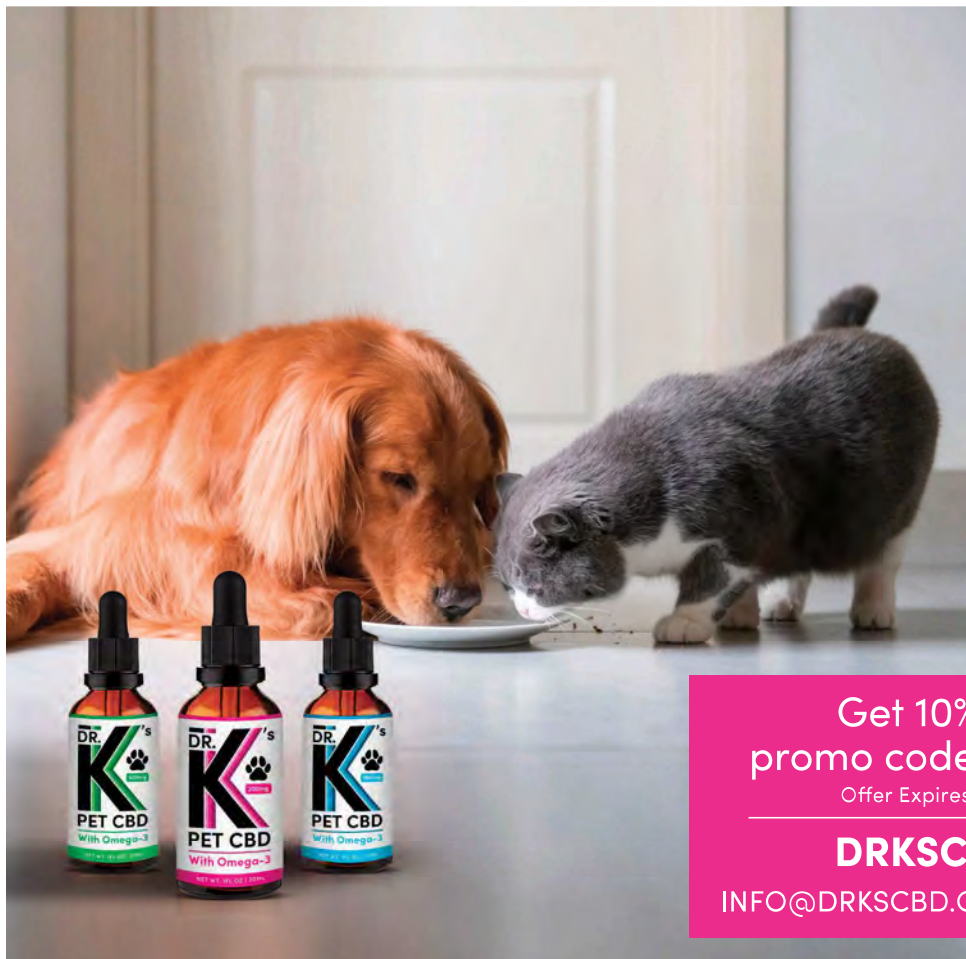
This terpene is an active ingredient in catnip and silvaine that leads to the fun euphoric or intoxicating effect seen

in cats. Many veterinary cannabinoid companies are looking to capitalize on the use of this terpene from cannabis in feline products. The intent is to help aid in administration as well as harness its therapeutic effects of mild sedation and euphoria. Similar to Delta-8 THC, the mass production of this terpene brings concerns, but utilization of plant-derived nepetalactone appears benign. ✨

Stephen Cital, RVT, SRA, RLAT, CVPP, VTS-LAM (Res. Anesthesia) is an educator, author, researcher, and veterinary anesthesia/analgesia and cannabis expert. Cital works at the Howard Hughes Medical



Institute at Stanford University School of Medicine in the Department of Neurobiology. In addition to conducting research, Stephen is an award-winning international lecturer on anesthesia, pain management, cannabis, and best practices.



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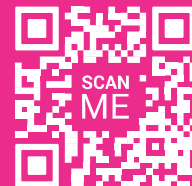
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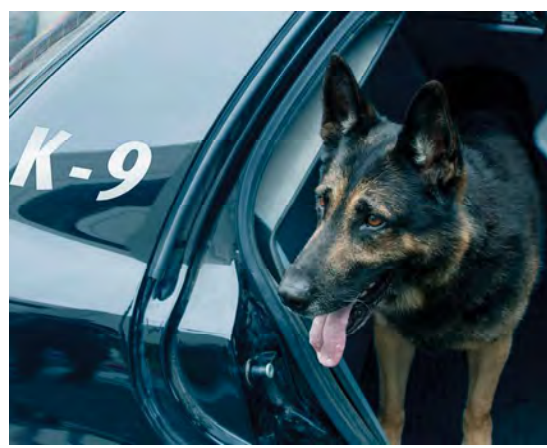
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How App-Based Software Helps Patients and Practices

Higher Engagement and Ease of Communication is a Win-Win for All Involved

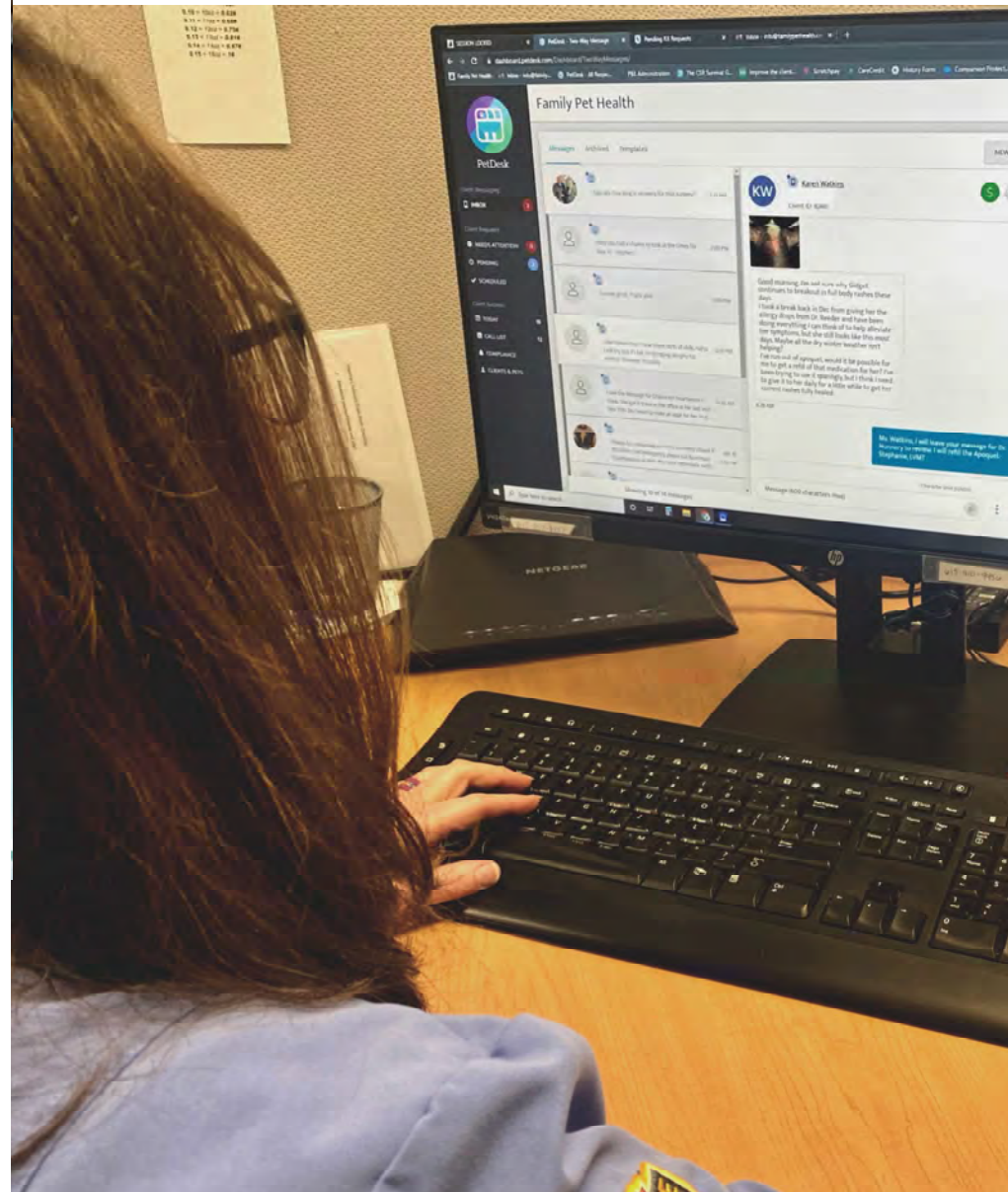
by Kristen Seymour

Whether or not your clinic has fully embraced everything that app-based technology has to offer, it's hard to argue with the fact that it's revolutionizing the way many veterinarians practice. Of course, pandemic-related restrictions ushered in a swell of new users because of the need for telehealth appointments, but these apps offer far more than the ability to video chat.

From practice management and customer service to allowing doctors to monitor vitals remotely, there is an abundance of apps out there designed to improve the vet med experience—for both the provider and the patient. And they're being used in more ways than you might realize.

Increasing Engagement So Everybody Wins

Apps like Petriage, PetsApp, TeleVet, Virtuwoof, and more can make communication more efficient for veterinarians, staff, and pet owners alike. Family Pet Health in Murfreesboro, Tennessee, for example, utilizes PetDesk in a wide variety of ways. Clients use it to request appointments; fill out patient histories; submit photos, videos, and descriptions of their pet's issues; and even earn loyalty points. Doctors and staff use it to provide results from blood work, refill prescriptions, conduct telehealth appointments,



Jennifer Nunnery, DVM, used PetDesk to communicate with Gidget's owner, Karen Watkins, to discuss Gidget's allergies and care. Credit: Stephen Shirley, Family Pet Health

“In today's hyper-connected, digital world, especially with the vast majority of pet owners being millennials, everyone lives on their phones.”

—KEVIN O'LEARY, PETDESK

send automated notifications and reminders, and more. The text-based communications can be viewed through the app and via the pet owner's text messages and even works with certain practice management software by uploading automatically to patient files.

PetDesk's vice president of Demand Gen, Kevin O'Leary, said that the app has evolved quite a bit over the last eight years or so. What began as a simple text reminder system has morphed into a comprehensive, highly customizable platform that makes it easy for vets and staff to engage with their clients in various ways.

And that engagement—done the right way—has become even more critical in recent years. Phone calls and postcards are still used by many practices, and while they have their place, “in today's hyper-connected, digital world, especially with the vast majority of pet owners being

millennials, everyone lives on their phones,” O'Leary said.

However, the downside of having so many tech-savvy pet owners means that many of them are turning to “Dr. Google” to try to diagnose their pets, he noted. Or they're using Yelp reviews to figure out which vet they should see next. Between that and the fact that so many independent clinics were purchased by corporate consolidations during the pandemic, O'Leary said that a lot of autonomy is being taken away from smaller practices. His hope is that with software like PetDesk, those practices can take some of it back.

“Ultimately, what we want to do is to drive more engagement between the trusted resource, which is the vet, and the pet parent,” he said. By making it easier for practices and pet owners to communicate regularly rather than for just a few minutes once or twice a year, vets can build stronger relationships and see a pet all throughout their life. In that scenario, “Everyone wins,” O'Leary said. “The pet goes in [or is seen virtually] for more services throughout its life, so the vet makes more money, the pet is healthy and has a longer life, and the pet parent is happy because they get more years with their pet.”

Communicating with Care Without Missing a Beat

Worried that encouraging frequent communication will burden doctors and staff? At Family Pet Health, they've found just the opposite to be the case. “Most of our telehealth is asynchronous,” said Michael Shirley, chief empowerment officer, who believes that setting expectations with clients from the start about what

services they can provide via the app and what's included in that fee is a key to their success. A client who's booked a telehealth appointment, for instance, pays their fee upfront and can then submit a photo, video, and/or description of the issue. Then, the doctors and technicians work in tandem to figure out what's going on and communicate on the app with the client between their in-person appointments.

“It really facilitates communication throughout the day,” Jennifer Nunnery, DVM, at Family Pet Health said. “Things that aren't super urgent or pressing, I can do between appointments and be in communication without having to pause for 20 minutes for a phone call,” she noted. “It's hugely useful in a busy day.”

Making Telehealth Matter

For some of their patients, the ability to conduct appointments via app has been a game-changer. Hospice patients and pets with behavioral issues who are best witnessed in a home setting, for example, benefit enormously from not having to go in so frequently. As a Fear Free Certified clinic, Family Pet Health also keeps track of pets who experience high anxiety or fear in a clinic setting; when a telehealth appointment is an appropriate option for those patients, they're quick to recommend it.

And then there are patients like Gidget, a French bulldog who, by 12 weeks of age, was already a clinic regular. “She had food and environmental allergies,” Nunnery said. “She came in for all her puppy visits, then for her skin, and then she was having to do some kind of



Karen Watkins, said that her dog, Gidget, really benefited from app-based communication. Watkins was able to get help with Gidget's rash, by sending pictures and refilling prescriptions without having to wait for a full visit.



“The reality is that many pet owners in North America simply do not have the means to take their pet to a vet clinic.”

—YUI SHAPARD, DVM

follow-up every couple of weeks.” All of that created a lot of stress for the young pup, not to mention for her owner, Karen Watkins.

Watkins says that using the app for some of the follow-ups made a world of difference. “It allowed me to quickly send questions regarding her care, including photos of her skin issues, to help Dr. Nunnery better diagnose her problems in a very quick time frame,” she said. “It provides a means for me to relay information quickly and to receive instruction [like medication changes or refills] from Dr. Nunnery quickly in response without having to wait for scheduled appointment times that could delay the timeliness of Gidget’s treatment.”

Impacting Underserved Communities

Yui Shapard, DVM, works as a relief veterinarian in New York City and is the educational director for the Association of Asian Veterinary Medical Professionals. As someone who’s worked with clients from underserved communities, she has good reason to hope more practices embrace app-based communication along with telehealth and telemedicine appointments when possible.

“The reality is that many pet owners in North America simply do not have the means to take their pet to a vet clinic,” she said. “Telemedicine can potentially be very impactful for those

who struggle to visit a veterinary clinic—whether due to financial reasons, geographical location, language barriers, distrust of medical authorities that are especially seen within the BIPOC community where they are rarely represented, or physical health barriers.”

Because access to care is such an important topic in the veterinary community, she encourages decisionmakers to consider the difference the incorporation of apps could make. “Easier access to care also means a possible decrease in the relinquishment of care,” she said. “I have worked in animal shelters and have come across many animals whose owners are faced with the heartbreaking decision of surrendering their pet to a shelter because they do not have the means to care for them appropriately. What if all it takes for those owners and pets to stay together is easier access to digital care? It’s certainly a question worth pondering for all of us who care about animals and the people who share a special bond with them.”

Serving Specialty Cases

The types of apps mentioned here are popular in veterinary medicine, but they’re far from the only app-based tech being utilized.

Katherine Hogan, DVM, DACVIM, is staff cardiologist at MSPCA-Angell and has two cardiology apps that she uses regularly with her clients—Cardalis and Kardia. “They both allow me to provide different forms of care for patients through owners being able to monitor vital parameters, like breathing rates, heart rates, and ECGs from home,” she said.



“From a veterinarian’s perspective, fewer patients via the ER is a good thing! Any time we can make recommendations for at-home treatments, it can greatly help all parties.”

—KATHERINE HOGAN, DVM, DACVIM

After all, she said, most owners want to be proactive when their pet is diagnosed with a chronic illness. “They want to have tangible ways to monitor and help their pet at home before any sort of emergency arises,” she said.

With Cardalis, for example, owners can track their pet’s breathing rate; if the breathing rates become elevated during rest or sleep, indicating that fluid may be building up in the lungs as is consistent with heart failure, they can easily provide that information to Hogan. Then, based on how the pet is doing, she may be able to recommend medication adjustments.

“This can allow them to avoid a visit to the ER—which can be stressful to the pet and may lead to multiple days in hospital, along with the financial

impact of needing to be seen via ER or be hospitalized,” she said. And while that’s great for the pet and the owner, Hogan said that, with so many clinics being overwhelmed with patient numbers, it’s good for the veterinarians, too. “From a veterinarian’s perspective, fewer patients via the ER is a good thing! Any time we can make recommendations for at-home treatments, it can greatly help all parties.”

She also credits Kardia with making it easier to provide her patients the high level of care they deserve—without unnecessary visits to a clinic. “Owners can obtain an ECG at home via their cell phone rather than having to bring their pet in for a doctor or technician appointment,” she said. Not only does that reduce visits for busy clinics,

but it has another serious benefit: “It also can provide more accurate heart rate/rhythm assessments, as pets are typically not as stressed at home compared to when they’re in the clinic or hospital,” Hogan added. “Any amount of stress can elevate the heart rate or exacerbate arrhythmias, which can impact our interpretation of the ECG results at the hospital. At-home ECGs can sometimes provide more accuracy to help guide treatment recommendations.”

However, she’s also quick to stress that, as helpful as any app may be, there are times when a trip to the clinic or the ER will still be necessary. “Obviously if the pet is in any sort of distress, we would recommend urgent or emergent care rather than relying solely on at-home treatment adjustments,” she said.

There’s no question that apps are here to stay in veterinary medicine. And, as clients become more accustomed to using them, which apps a clinic chooses to use—and the services they offer through them—may become more and more important. Several of Family Pet Health’s reviews mention their app by name, and that’s no surprise to Watkins, who now considers it an essential tool for communicating urgent concerns. “If I needed to look for a new vet, I would absolutely consider one that uses an app like PetDesk,” she said. ✖



Kristen Seymour is a freelance writer based in Sarasota, Florida. She’s a frequent contributor to many pet-focused publications including *HealthyPet Magazine*, *USA Today’s Pet Guide*, *Vetstreet.com*, *DailyPaws.com*, *Happy Paws*, and more.



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The Secret of Branding

How to Attract Employees on Instagram and Beyond

by Danielle K. Lambert

I spend a lot of time scrolling through a sea of social media posts declaring, “Help! We’re short-staffed and can’t find anyone to work!” I’m not surprised that these posts exist, but I am shocked by the irony of where they’re shared. Social media is the easiest place to attract talent, yet I see few posts created with that in mind.

Why are veterinary clinics missing the mark when it comes to attracting job applicants online? It comes back to my favorite—often misunderstood—secret weapon for businesses: Good branding.

Beyond the Logo

The terms marketing and branding often get lumped together, but they’re different. Marketing is how you get your message out while branding is the strategy behind how you determine what that message is. That’s why you need great branding and a great brand strategy to create effective social media posts to attract talent. Without it, you’re posting without any sort of plan!

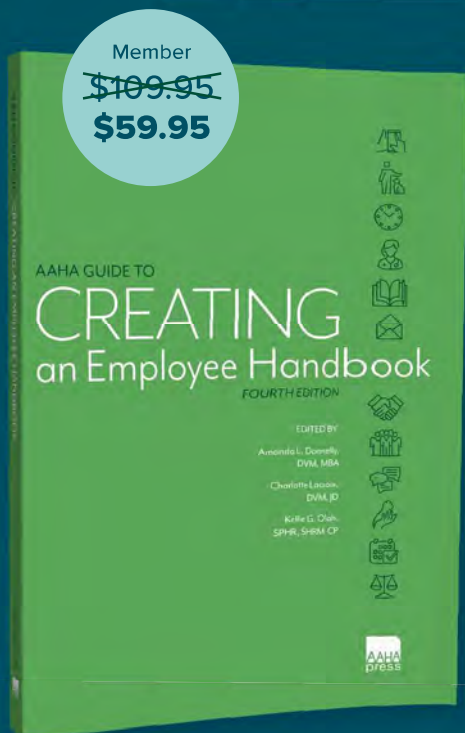
Branding is also often sadly mistaken as simply “having a logo.” A logo is part of your visual branding package, but a true brand strategy is so much more than that one design. For example, effective visual branding should include a great logo, consistent colors, intentional fonts, and some unique iconography. But even if you’ve marked everything off

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the visual branding checklist, you still don't have a complete brand strategy. Without one, your social media posts aren't going to resonate with your ideal team member.

If you want to attract—and retain—talent, you've got to dive deeper.

Your veterinary brand is what you want people to think of when they hear your clinic's name. It's how you want the public to perceive you, and it is the feeling people get when they walk through your doors.

Even as a branding expert, I admit it is a very nebulous thing to define. At its core, branding is that difference you just feel when you walk into a Target as compared with a Walmart. One draws you into a magical experience where you overspend and the other is about convenience and low cost.

Companies like Dunkin' or Starbucks spend millions of dollars differentiating their brands. But vet clinics? Very few effectively and consistently communicate what makes them different from the option down the street. When you have great branding, it becomes simple.

So, how do you develop a brand strategy? One so great that you'll have talent sliding into your DMs, begging for the chance to work with you? Building a complete brand is a big task and getting complete brand clarity, or an overarching brand strategy, is a huge process.

3 Steps to Attract Talent

Here are three easy steps to get you started on developing a brand strategy to attract the right talent online.

1) Define your ideal team member

Veterinary clinics often make the mistake of trying to be “for everyone.” This applies to trying to accommodate every kind of client, but that's not where it stops. Trying to make every kind of team member happy is going to be equally, if not more, difficult than trying to please every client!

Get clear on the characteristics and goals your ideal team member embodies. What do they want out of their career? What do they value? What qualities do they have that would add to your team culture?

Ensure that you're choosing traits that won't exclude candidates based on a protected class. The goal here isn't



Having a clear brand strategy sets you up for success with your marketing online and on social media.

to discriminate against qualified candidates or create a homogeneous workforce! (Check out the Netflix documentary *White Hot: The Rise & Fall of Abercrombie & Fitch* for an example of hiring criteria gone wrong.)

2) Define clear promises for team members

Now that you have a clear vision for who you're trying to hire, it's time to create an enticing offer to attract them to your practice. Part of developing an overall brand identity is defining brand promises. Focusing some of these promises on specific commitments your brand makes

to your team is a useful way to set yourself apart.

What will someone get when they work for your veterinary clinic? Literal benefits are important to define, of course. But I encourage you to dive a little deeper into clarifying why someone should choose you as an employer.

Do you have a super supportive team culture? Do you prioritize your team's mental health over appeasing rude clients? Brainstorm all of the tangible things someone will get from working with you. From there, get into the intangibles about how it will

feel to work at your practice. If you don't have a lot of unique things to promise, you can reverse engineer. Ask yourself what your ideal team member would want from you, and then consider how you can provide it.

Social media can be a great tool to help you see what the Instagram generation wants. A quick scroll through #vettech or #veterinarian hashtags on Instagram reveals trending topics that matter to team members. What are some of the common requests Vetstagram's vast talent pool is making of employers? Some of the things you might see them asking for are for employers to provide structured mentorship, pay a living wage to all team members, and support mental health in a meaningful way.

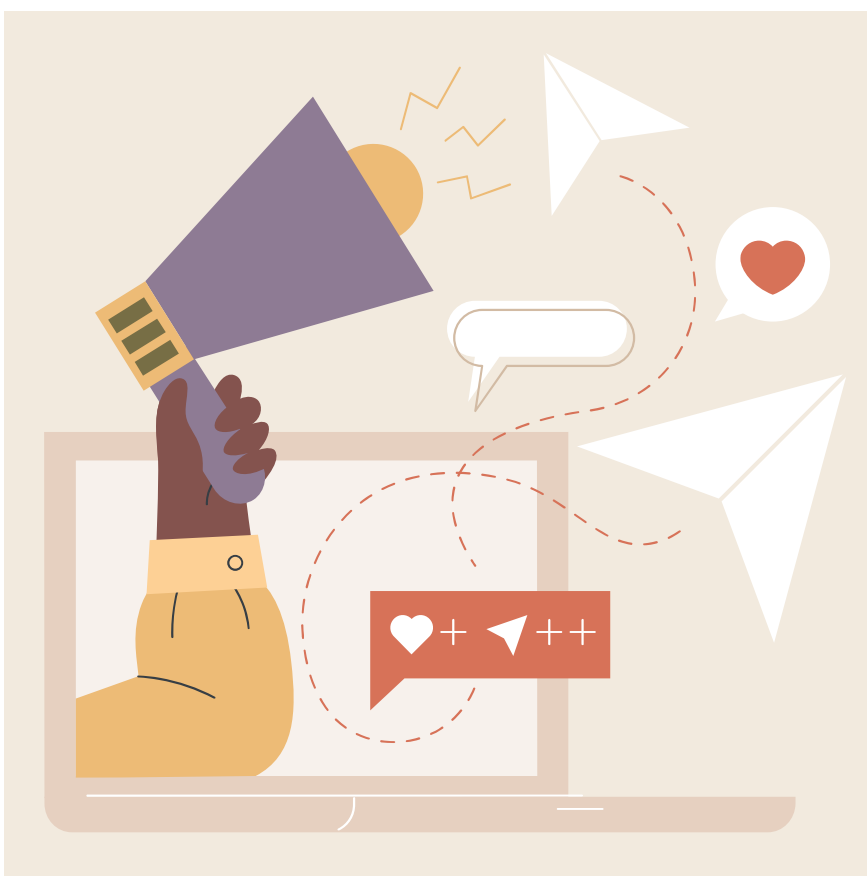
3) Back up your promises

Once you've got clarity on what you can promise potential team members, it's time to make sure you can back it up. After all, a promise isn't a promise if you break it.

Team members expect transparency and authenticity from employers. You can't post pretty pics on social media but then fail to follow through with meaningful action. It might attract team members in the short term, but you'll never retain them.

What does "meaningful action" look like? Your brand must have a plan to carry through on the promises you make. For example, if you are claiming to provide mentorship, what is the structured program a mentee will go through?

Backing up your promises is especially important when it comes to



Happy employees will talk about their happiness on social media, and leveraging this formally could be part of your marketing strategy.

the core values your brand chooses to embody. Veterinary hospitals that say they're dedicated to increasing diversity in the workplace, for example, must be making meaningful internal steps toward improving diversity, equity, and inclusion. (Hiring a DEI expert is a great place to start!)

Whatever promises you choose to make, be ready to provide a clear plan so a potential candidate knows you mean what you say. When you impress them with your follow-through, they'll be the first to tell everyone about it on social media.

Utilize Social Media

Once you have an enticing offer, clear promises, and a plan to carry it all out, you have a mini brand strategy! Having a clear brand strategy

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sets you up for success with your marketing online and on social media. As a refresher, your brand strategy gives you something unique to say, and your marketing strategy is your plan for communicating it.

To develop a basic marketing strategy to attract talent, follow these 3 steps:

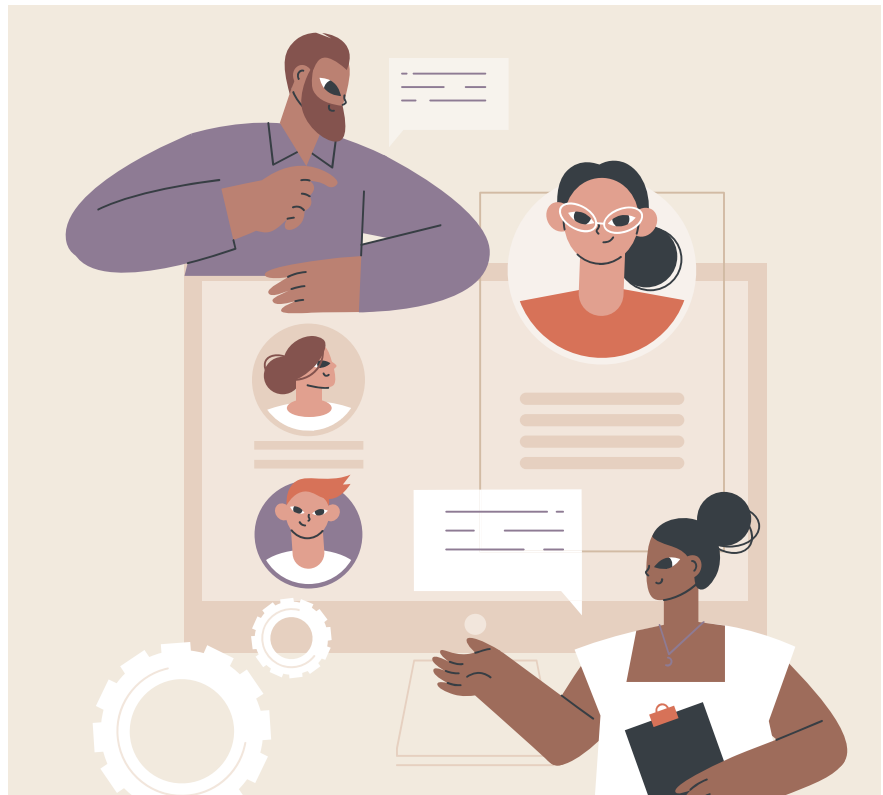
1) Choose your platforms

Facebook, Instagram, and TikTok can all be effective social media platforms for spreading your message. A key part of an effective marketing strategy is to choose platforms where your ideal person spends time. If that ideal person is millennial veterinary talent, platforms like Instagram make it easy to network and communicate your brand. Facebook users tend to be older on average and TikTokers are on the younger side of social media users.

2) Decide who is going to post

A hospital account is an obvious choice for who gets to share your brand strategy, and it should be part of your marketing strategy. But in today's market? Get creative! Personal brand accounts hold a ton of power, and they can be especially good for networking. A practice owner or practice manager could easily represent your brand through their accounts.

Happy employees will talk about their happiness on social media, and leveraging this formally could be part of your marketing strategy. Increasing numbers of veterinary brands are utilizing the power of influencers—people with large and engaged followings—on social media. Your team can act as ambassadors, spreading the story of what it looks like to work for your practice!



Your team can act as ambassadors, spreading the story of what it looks like to work for your practice!

Whoever is posting, ensure they're clear on the brand strategy. This training will ensure they're posting in a way that will communicate your brand promises to potential talent.

3) Share posts that highlight your brand strategy

Now that you know where you're posting and who is in charge of it, what are they going to post? This depends on your unique brand strategy.

Overall, focus on posts that showcase your brand promises and highlight the benefits of working at your practice. On Instagram, these posts could range from silly reels featuring your team having fun to carousel posts outlining your core beliefs as an employer. Just remember that

your goal is to highlight your specific brand strategy!

4) Don't forget to be social!

Networking is your friend in the search for the perfect employees. Don't forget to actually interact with other veterinary professionals on social media! Paired with content that showcases your brand strategy, it's a winning combo.

Hiring in today's climate can be tough, but it isn't impossible with the assistance of effective branding on social media. ✨



Danielle K. Lambert is a former veterinary practice manager who founded SnoutSchool.com to help create progressive branding strategies for veterinary practices.

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Advertiser Index

2021 AAHA Working, Assistance, and Therapy Dog Guidelines	48
aaha.org/workingdog	
AAHA Central Line Podcast	14
aaha.org/podcast	
AAHA Community	63
aaha.org/community	
AAHA Membership	42, 54, 58, 61
aaha.org	
AAHA Press	19, 27, 47, 56, 60
aaha.org/press	
AAHA Savings Program	53
aaha.org/savings	
Boehringer Ingelheim Animal Health	False Cover, 20-21, 22
NexGardClinic.com HEARTGARDClinic.com	
CareCredit	1
carecredit.com/mycustomlink	
Connexity	5
aaha.org/connexity	
Dr. K's Pet CBD	46
DRKSCBD.COM	

Hill's Pet Nutrition Inc.	Back Cover
PrescriptionDiet.com/BetterThanEver	
HUB International Midwest	Inside Back Cover
aahainsurance.com	
Merck Animal Health	7, 9
us.bravecto.com	
MWI Animal Health	Inside Front Cover
allydvm.as.me/MWIDemo	
Pawlicy Advisors	Insert
pawlicy.com/aaha-trends	
Rx Vitamins	34
rxvitamins.com	
Veterinary Hospital Managers Association	13
www.vhma.org	
Vetster	41
vetster.com/en-us/for-vets	
Zomedica	3
zomedica.com	

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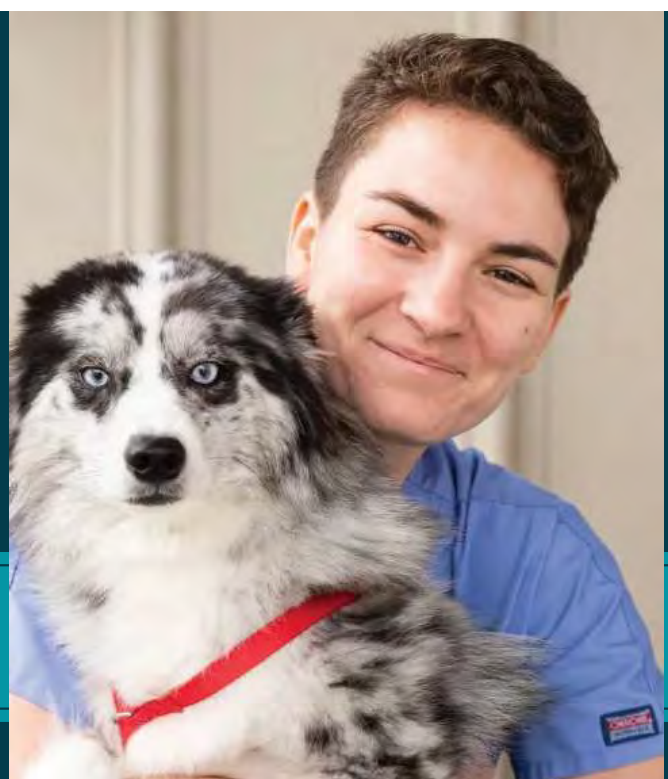
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In Their Own Words

Why do you love your job: I love that I work in a field where compassion is the driving force of everything we do. I feel privileged to be able to provide love, comfort, and care to all of our pets and get them to their playful happy selves. My favorite moments are when a pet finally gets to see their owner after being hospitalized for multiple days, and you can see them light up in excitement to finally be feeling better and getting to go back home.

Favorite celebrity: Hmmm. If I had to choose a favorite, I definitely don't think I could go wrong with Adam Sandler. Final answer!

Pets at home: I have two cats. My eldest is KitKat. Her favorite hobbies include eating, sitting on the ledge of the tub while I shower, and waking me up before my alarm. My youngest is Mr. Miyagi. He's a shy fella but occasionally comes out and brings toys for me to play with him.

What brought you to the profession: I previously worked in human medicine and had a friend recommend I switch over to veterinary work. It's been such a wonderful change with so many differences but still many similarities. I definitely couldn't cuddle with my patients before. (haha)

Hobbies outside of work: I play roller derby with Acadiana Roller Derby! Come watch a "game".

Favorite book/TV show: It's always changing but right now my favorite show is *New Girl!*

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