“Our R&D team has a combined 300 years of experience in animal nutrition.”

— Yuka Mitsuhashi, PhD
Nutritionist
Principal Scientist, Blue Buffalo
“Together, we hold BLUE foods to the highest possible standards.”

– Yuka Mitsuhashi, PhD
Nutritionist
Principal Scientist, Blue Buffalo

Blue Buffalo products are formulated by PhD animal nutritionists, veterinarians, and food scientists. In addition to being compliant with WSAVA’s Global Nutrition Committee’s Guidelines for Selecting Pet Foods, all our products are also formulated to meet AAFCO nutrient guidelines. Because offering the most efficacious, wholesome products for pets is why we’re here.

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

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

• In clinical studies, dogs treated with VETMEDIN lived almost twice as long from the start of treatment,¹ and required less intensification of therapy to maintain quality of life, than those treated with an ACE inhibitor²

• In the US, VETMEDIN has supported over 1 million dogs³

• Recommended by the ACVIM as part of standard treatment for dogs with congestive heart failure⁴

References:
³ The number of dogs treated with VETMEDIN in the US is estimated by IDEXX Laboratories, Inc. based on transaction data from a representative sample of US veterinary practices. Data on file at IDEXX Laboratories, Inc. Westbrook, Maine USA.

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TOGETHER, WE ARE MORE THAN MEDICINE.
VETMEDIN® (pimobendan) Chewable Tablets

Cardiac drug for oral use in dogs only

Description: VETMEDIN® (pimobendan) is supplied as chewable tablets containing 125, 250, or 5 mg pimobendan per tablet. Pimobendan belongs to a class of compounds known as phosphodiesterase 3 (PDE-3) inhibitors, which has no clinical use in humans. PDE-3 is an enzyme which degrades cyclic adenosine monophosphate (cAMP) in the heart and other organs. PDE-3 inhibition results in increased concentrations of cAMP, a second messenger involved in the regulation of various cellular functions, including cardiac contractility.

Indications: VETMEDIN® (pimobendan) is indicated for the management of the signs of mild, moderate, or severe heart failure (congestive heart failure, CHF) in dogs in heart failure caused by etiologies other than hypertrophic cardiomyopathy, aortic stenosis, or left atrial myxoma. Pimobendan is approved for use in conjunction with a diuretic in heart failure caused by hypertension, mitral regurgitation, atrial fibrillation, mitral valve insufficiency, and pericardial effusion. Pimobendan is also used as an alternative to digoxin for the management of rhythm disturbances in dogs.

Dosage and Administration:
- The recommended dosage for canine heart failure is 0.5 mg/kg body weight (range: 0.25 to 1 mg/kg body weight), using a suitable combination of pimobendan and a diuretic or glucocorticoid.
- The total daily dose should be administered approximately 12 hours apart (i.e., morning and evening). The tablets are scored and the calculated dosage should be provided to the nearest half tablet increment.

Contraindications:
- Pre-existing heart block should not be used in conjunction with digoxin or other digitalis glycosides, with the exception of the 1:1 heart block.
- Contraindicated in cases of hypertrophic cardiomyopathy, cardiomyopathy, or left atrial myxoma. SEE WARNINGS.

Warnings:
- Only for use in dogs with clinical evidence of mild to severe heart failure.
- Coronary artery disease is a contraindication to pimobendan.
- Primary aldosteronism is a contraindication to pimobendan.

Adverse Reactions:
- Adverse reactions to pimobendan are rare in dogs but have been reported occasionally. These reactions are generally mild and self-limiting and are not associated with clinical signs of heart failure.

Precautions:
- The safety of VETMEDIN has not been established in dogs with asymptomatic heart disease or in heart failure caused by etiologies other than hypertrophic cardiomyopathy, aortic stenosis, and left atrial myxoma.

Human Warnings:
- No warnings are required for human use. Keep this and all medications out of reach of children.

Concurrent Use:
- Patients receiving digoxin or other digitalis glycosides should be monitored for signs of digoxin toxicity.

Drug Interactions:
- Pimobendan is metabolized by the liver and excreted in the urine.

Animal Safety:
- When used in dogs with myopathy or in those with concurrent respiratory disease, pimobendan should be used with caution.

Data Sources:
- Preclinical data and clinical experience are summarized in the following sections.

Comparative Study:
- The comparative study was performed in 49 dogs with DCM and 50 dogs with AVVI. Dogs were treated with pimobendan or furosemide for 56 days. The results showed that VETMEDIN was used safely in dogs concurrently receiving furosemide, digoxin, or other calcium channel blockers. The comparative study demonstrated that VETMEDIN is a safe and effective drug for the management of heart failure in dogs.

Treatment Success:
- The treatment success rate for the VETMEDIN group was 81.3% (38 of 47 dogs), while the treatment success rate for the furosemide group was 78.3% (37 of 47 dogs). The differences were not statistically significant (p = 0.516).

Storage:
- Store at 20° to 25°C (68° to 77°F) between 55% and 60% relative humidity.

How Supplied:
- Chewable Tablets: Available as 1.25, 2.5, and 5 mg tablets. Each 1 mg tablet contains 0.75 mg pimobendan.

Animal Safety:
- VETMEDIN was safe in dogs concurrently receiving furosemide, digoxin, and/or other calcium channel blockers. The comparative study demonstrated that VETMEDIN is a safe and effective drug for the management of heart failure in dogs.

Comparative Study:
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### CALENDAR

Note that many of this year’s industry events are now being held online or via a combination of live and virtual learning. Please visit individual event websites for details.

<table>
<thead>
<tr>
<th>September</th>
<th>October</th>
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<tr>
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<td><strong>12</strong></td>
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<tr>
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<td>2022 American College of Veterinary Surgeons (ACVS) Surgery Summit</td>
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<tr>
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<td>October 12-15</td>
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<td><a href="http://swvs.org/swvs-2022">swvs.org/swvs-2022</a></td>
<td><a href="http://eventscribe.net/2022/acvs">eventscribe.net/2022/acvs</a></td>
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<td><strong>27</strong></td>
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<tr>
<td>Veterinary Innovation Summit</td>
<td>Veterinary Financial Summit</td>
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<tr>
<td>September 27-28</td>
<td>October 22-23</td>
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<tr>
<td>Portland, Oregon</td>
<td>Virtual</td>
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<td><a href="http://veterinaryinnovationsummit.com">veterinaryinnovationsummit.com</a></td>
<td><a href="http://vetfinancialsummit.com/summit">vetfinancialsummit.com/summit</a></td>
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<td><strong>OCTOBER</strong></td>
<td><strong>OCTOBER</strong></td>
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<tr>
<td><strong>10</strong></td>
<td><strong>27</strong></td>
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<tr>
<td>Atlantic Coast Veterinary Conference*</td>
<td>2022 AAFP Conference</td>
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<tr>
<td>October 10-12</td>
<td>October 27-30</td>
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<tr>
<td>Atlantic City, New Jersey</td>
<td>Pittsburgh, Pennsylvania (Hybrid)</td>
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<tr>
<td><a href="http://ACVC2022">ACVC2022</a> for more info and to register</td>
<td><a href="http://catvets.com/education/conference/2022">catvets.com/education/conference/2022</a></td>
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<tr>
<td><strong>22</strong></td>
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<tr>
<td>Wild West Vet Show</td>
<td>WSAVA World Congress</td>
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<tr>
<td>October 12-15</td>
<td>October 29-31</td>
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<tr>
<td>Reno, Nevada</td>
<td>Lima, Peru</td>
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<tr>
<td><a href="http://us.vetshow.com/wild-west-vet">us.vetshow.com/wild-west-vet</a></td>
<td><a href="http://wsava2022.com">wsava2022.com</a></td>
</tr>
</tbody>
</table>

*Please visit individual event websites for details.*

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**Your Link to all things Veterinary Medicine**

dvm360® is proud to partner with leading veterinary organizations in animal health across the nation! We collaborate on educational content so veterinary professionals like you will have the resources and information needed to improve patient outcomes.

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¹ Khenifar E. et al, 2018
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Adam Christman, DVM, MBA

The Vet Blast Podcast, a weekly series hosted by veterinarian, author, and social media personality, Adam Christman, DVM, MBA.

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*Based on Revolt® prices of cats and dogs up to 40 lbs.

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Revolt® (selamectin)
Topical Parasiticide for Dogs and Cats

CAUTION: Use of this drug may cause eye or skin irritation to the handler or the consumer of the licensed veterinarian.

DESCRIPTION:
Revolt® (selamectin) Topical Parasiticide is available as a colorless to yellow, ready to use solution in single dose tubes for topical (dermal) treatment of dogs six weeks of age and older and cats eight weeks of age and older. The content of each tube is formulated to provide a minimum of 2 mg/mL (mg of body weight of selamectin). The chemical composition of selamectin is (S,22,23-dihydro-5-hydroxyiminoavermectin A1a, 2S,6S)-6-hexopyranosyl)-5-demethoxy-25-de(1-methylpropyl)-22,23-dihydro-5-hydroxyiminoavermectin A1a.

INDICATIONS:
Revolt is recommended for use in dogs six weeks of age or older and cats eight weeks of age and older for the following parasitic and indications:

**Dogs:**
- Revest kills adult fleas and prevents flea eggs from hatching for one month and is indicated for the prevention and control of flea infestations (Ctenocephalides felis), prevention of heartworm disease caused by *Dirofilaria immitis,* and the treatment and control of ear mite (Otodectes cynotis) infestations. Revolt also is indicated for the treatment and control of roundworm (Toxocara canis) and intestinal hookworms (Ankylostoma tubaeforme) infestations in cats.

**Cats:**
- Revest kills adult fleas and prevents flea eggs from hatching for one month and is indicated for the prevention and control of flea infestations (Ctenocephalides felis), prevention of heartworm disease caused by *Dirofilaria immitis,* and the treatment and control of ear mite (Otodectes cynotis) infestations. Revolt also is indicated for the treatment and control of roundworm (Toxocara canis) and intestinal hookworms (Ankylostoma tubaeforme) infestations in cats.

**WARNINGS:**
Not for human use. Keep out of the reach of children.

In humans, Revolt may be irritating to skin and eyes. Reactions such as burning, itching and skin redness have been reported in humans in rare instances. Individuals with known hypersensitivity to Revest should use the product with caution or consult a health care professional. Revolt contains isopropyl alcohol and the preservative butylated hydroxytoluene (BHT). Wash hands after use and wash off any product in contact with the skin immediately with soap and water. If contact with eyes occurs, then flush eyes copiously with water. In case of ingestion by a human, contact a physician immediately. The safety data sheet (SDS) provides more detailed occupational safety information. To report suspected adverse drug events, for technical assistance or to obtain a copy of the SDS, contact Aurora Pharmaceutical at 1-888-317-1256 or www.aurorapharmaceutical.com. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-800-FDA-VETS or online at www.fda.gov/ReportAdverse.

Flammable—Keep away from heat, sparks, open flames or other sources of ignition.

Do not use in sick, debilitated or underweight animals (see SAFETY).

PRECAUTIONS:
Prior to administration of Revolt, dogs should be tested for existing heartworm infections. At the discretion of the veterinarian, infected dogs should be treated to remove adult heartworms. Revolt is not effective against adult *D. immitis* and, while the number of circulating microfilariae may decrease following treatment, Revolt is not effective for microfilarial clearance.

Hypersensitivity reactions have not been observed in dogs with prior heartworm infections administered three times the recommended dose of selamectin. Higher doses were not tested.

ADVERSE REACTIONS:
Pre-approval clinical trials:
Following treatment with selamectin, transient localised alopecia with or without inflammation at or near the site of application was observed in approximately 1% of 691 treated cats. Other signs observed rarely (≤0.5% of 1743 treated dogs and cats) included vomiting, loose stool or diarrhea with or without blood, anorexia, lethargy, salivation, twitching, and muscle tremors.

Post-approval experience:
In addition to the aforementioned clinical signs that were reported in pre-approval clinical trials, there have been reports of pruritus, urticaria, erythema, ataxia, fever, and rare reports of death. There have also been rare reports of seizures in dogs (see WARNINGS).

DOSEAGE:
The recommended dosage is 2.7 mg selamectin per pound (6 mg/kg) of body weight. Administer the entire contents of a single dose tube (for two tubes sold in combination for dogs weighing over 130 pounds) of Revolt topically in accordance with the following tables. (See ADMINISTRATION for the recommended treatment interval.)

For cats over 22 lbs use the appropriate combination of tubes.

<table>
<thead>
<tr>
<th>Cats (lb)</th>
<th>Package Color</th>
<th>mg per tube</th>
<th>Potency (mg/mL)</th>
<th>Administered volume (mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 5</td>
<td>Rose</td>
<td>15 mg</td>
<td>60</td>
<td>0.25</td>
</tr>
<tr>
<td>5.1-15</td>
<td>Blue</td>
<td>45 mg</td>
<td>60</td>
<td>0.75</td>
</tr>
<tr>
<td>15.1-22</td>
<td>Taupe</td>
<td>60 mg</td>
<td>60</td>
<td>1.0</td>
</tr>
</tbody>
</table>

For dogs over 130 lbs use the appropriate combination of tubes.

Recommended for use in dogs 6 weeks of age and older and in cats 8 weeks of age and older.

ADMINISTRATION:
A veterinarian or veterinary technician should demonstrate or instruct the pet owner regarding the appropriate technique for applying Revolt topically to dogs and cats prior to first use.

While holding the tube at an upright position, twist the cap to break the seal. The cap will remain on the tube. To administer the product, part the hair or the base of the animal at the back of the neck and push the skin slightly. Place the tip of the tube on the skin and squeeze the tube 3-4 times to empty its entire contents directly onto the skin in one spot. Keeping the tube upright, drag away from the liquid and lift to remove. Check the tube to ensure that it is empty.

For dogs, the treatment site is the back from the base of the neck to the front of the shoulder blades. The treatment site is the back from the base of the neck to the front of the shoulder blades for cats and dogs weighing over 130 pounds.

For dogs weighing 20-40 pounds, use the appropriate combination of two tubes (for two tubes sold in combination for dogs weighing over 130 pounds) of Revolt topically in accordance with the following tables. (See ADMINISTRATION for the recommended treatment interval.)

**Expert Review:**
Not for use in sick, debilitated or underweight animals (see SAFETY).

**SAFETY:**
Selamectin has been tested in over 100 different pure and mixed breeds of dogs and over 25 different pure and mixed breeds of cats. Selamectin is a safe, effective and well tolerated parasiticide in dogs, specifically in toy and small breed canine females, breeding and non-breeding, and in females, six weeks of age and older, and in male and female cats, six weeks of age and older, and in intermediate-sensitive cats. A litter, estimated to be 5-6 weeks old (3 kg), died 1½ hours after receiving a single treatment of selamectin at the recommended dose. The kittens displayed clinical signs which included muscle spasms, salivation and neurological signs. The litter was a stray with unknown history and was unvaccinated and underlying causes (see WARNINGS).

**DOGS:**
In safety studies, selamectin was administered at 1.5, 3.0, and 10 times the recommended dose to six-week-old puppies, and no adverse reactions were observed. The safety of selamectin administered orally was also tested in cases of accidental oral ingestion. Oral administration of selamectin at the recommended dose was 5-10 month-old beagles did not cause any adverse reactions. In a preclinical study a commercially obtained strain of intermediate-sensitive cats at 1.5, 3 and 5 times the recommended dose were exposed to 20 mg/mL of selamectin, salivation was observed in all treatment groups, including the vehicle control. Selamectin was also administered at 1.0 times the recommended dose to heartworm infected dogs, and no adverse effects were observed.

**Cats:**
In safety studies, selamectin was applied at 1.5, 3, and 10 times the recommended dose to six-week-old kittens. No adverse reactions were observed. The safety of selamectin administered orally was also tested in cases of accidental oral ingestion. Oral administration of the recommended topical dose of selamectin in cats caused salivation and intermediate signs of intoxication. Selamectin was also applied at 4 times the recommended dose to parabiotic heartworm infected cats, and no adverse reactions were observed.

**STORAGE CONDITIONS:** See below (0°C to 40°C).

**HOW SUPPLIED:** Available in eight separate dose strengths for dogs and cats of different weights (see DOSAGE): Revolt for puppies and kittens is available in cartons containing 3 single dose tubes. Revolt for dogs and cats is available in cartons containing 3 or 6 single dose tubes.

**Approved by FDA under ANA #200-673**

Revolt® (selamectin)
Manufactured By:
Aurora Pharmaceutical, Inc.
Northfield, MN 55057
www.aurorapharmaceutical.com
Manufactured in U.S.A.
A new board and a new season of education

The dvm360® team recently met with our esteemed Editorial Advisory Board. These 37 veterinary leaders—veterinarians, technicians, and practice managers—assist us with identifying key industry trends, editorial content ideas, and partnership opportunities. We welcomed new members, highlighted new dvm360® programs, and discussed content ideas for 2023, including the latest in veterinary oncology, pain management, and well-being; diversity, equity, and inclusion; mentorship, technician critical care, One Health, and staff burnout.

Our board members are an accomplished group, and each is well established in their career. Be sure to turn to page 6 to learn more about them. However, it wasn’t long too ago that they were veterinary students entering into the fall term.

This past month, a class of future industry professionals started their veterinary education journey in classrooms around the country, and others are newly serving the industry through internships and residencies. The future of veterinary medicine is certainly bright with these up-and-coming professionals.

Educational opportunities don’t end with graduation. There is an abundance of continuing education (CE) programs for veterinary professionals at every stage of their careers. On page 50, Sabrina Beck, CVT, CVBL, discusses how the continuous growth of knowledge benefits those considering a career in practice management.

For those seeking CE opportunities, our dvm360 Flex™ programming is accessible at ce.dvm360.com. The CE options include live and on-demand webinars, digital and print articles, and in-person conferences, all with opportunities to earn RACE-approved CE credit hours. In August, more than 160 CE credits were offered at our Fetch dvm360® Conference in Kansas City, Missouri. Later this year, our Atlantic Coast Veterinary Conference (October 10-12, 2022) in Atlantic City, New Jersey, and our Fetch dvm360® Conference in San Diego, California, each will provide more than 160 CE credit hours.

Whether you’re a student beginning your veterinary education, a new graduate seeking advancement, or a seasoned professional, it’s vital to absorb knowledge at every stage of your career to build a practice and improve the lives of patients and clients. We wish all current and future veterinary professionals the best for their educational pursuits this fall.

We also look forward to a great year with our new Editorial Advisory Board and learning from each other.

—Mike Hennessy Jr
President & CEO,
MJH Life Sciences®
Was it just me, or didn’t you just love cracking open a brand-new textbook? The thought of the education that awaited in that book always excited me (with the strong exception of organic chemistry). Buying a new Trapper Keeper and making sure I had the brown paper bag book covers energized me for a new school year—and if you know, you know. Advancing our medical knowledge is still exciting, and as veterinarians, we have taken an oath to continue learning day in and day out.

One of many aspects I love about veterinary medicine is the ability to continue to learn, find a new niche with your skill set, and identify new opportunities to grow personally and professionally. As a continuing education organization, dvm360® strives to raise the bar and constantly challenge our colleagues with new information. We also recognize that many of us digest content and education differently. Let’s face it—we are busy! Life is busy. Work is busy. You blink, and your children are already in college! But one thing is certain: We here at dvm360® will be providing different and emerging ways for you to learn and evolve throughout your professional career.

Here are some ways the dvm360® organization is providing you with various continuing education (CE) platforms and other informational resources.

**Live webinars.** We tend to average 1 to 2 live webinars a week. We have live evening webinars (1 hour of CE credit) and live lunch-and-learn webinars (0.5 hours of CE credit). These distance-learning sessions are a great way for you to interact with the thought leader and moderator.

**On-demand webinars.** Within approximately 7 days of being presented, recordings of our live webinars are available and stay accessible for 1 year on our dvm360® Flex™ website. This complementary opportunity allows you to view hours of noninteractive distance-learning sessions.

**In-book CE articles.** We are proud to offer CE articles within our dvm360® magazine publication for 1 hour of CE credit. Be sure to obtain your complimentary subscription to the magazine by visiting our website www.dvm360.com and clicking on “Subscriptions.”

**The Vet Blast Podcast!** We know many of you enjoy listening to podcasts while driving to work, exercising, or decompressing, and these 20- to 30-minute episodes are a great way for you to stay on top of the latest information in veterinary medicine. These podcasts also offer opportunities to obtain CE credit. If you’re interested in being a guest on the podcast, email me at achristman@mhlifesciences.com.

**Our upcoming Atlantic Coast Veterinary Conference® (ACVC):** We host multiple live events throughout the year and are looking forward to our next conference. ACVC will be held October 10 to October 12, 2022, in Atlantic City, New Jersey. Can’t make it to ACVC? Our next conference after ACVC is Fetch dvm360® in San Diego, California, from December 2 to December 4, 2022. Live events are a fantastic way for you to hang out with colleagues, make new friends, and chat with wonderful exhibitors from all over the world. It’s great seeing so many of you in person, and the feedback has been fantastic. Thank you for making our live events fun, successful, and memorable!

**dvm360® LIVE!** This is a fun, half-hour talk show video program filmed in studio at our headquarters in New Jersey. Guests have unique ways of delivering their lessons and messages. The show highlights the wonderful aspects of veterinarians in and out of the exam room. Although it does not offer CE credit, it’s a great way to catch up on newsworthy stories and feel proud to be in this profession.

**Social media.** We love sharing your posts. Your content and educational pieces are incredible! These are practical and fun ways to cross-promote each other’s brands and highlight the wonderful cases you have worked on. Be sure to tag us on Instagram (@dvm360), Facebook (@dvm360), TikTok (@dvm360), or Twitter (@dvm360). We’d be happy to share your content pieces.

As you can see, we provide you with many resources for learning and networking. If you have any ideas or thoughts on how we can help close educational gaps for you and your team, please let us know. We are here to help. On behalf of dvm360®, we wish your children a bright school year and our future veterinary colleagues a great year in school!
Learn about veterinary medicine magic, oncology therapies, and patient gait

At ACVC, keynote session topics will range from advancements in oncology to the “encanto” of veterinary medicine

By Caitlin McCafferty, Associate Editor; and Sydney Yankowicz, Assistant Editor

The Atlantic Coast Veterinary Conference® (ACVC) is headed to Atlantic City, New Jersey, October 10 to October 12, 2022. Keynote speakers include Craig A. Clifford, DVM, MS, DACVIM (Oncology); Nicole Bruno, DVM; and Fred Wininger, VMD, MS, DACVIM (Neurology). Here is a preview of what is to come at each of their keynote sessions, plus more about the speakers themselves.

Craig A. Clifford, DVM, MS, DACVIM (Oncology)

Clifford kicks off the conference Monday, October 10, 2022, with his keynote presentation, “Recent Advancements in Oncology in 2022.” Clifford is a graduate of Mississippi State University College of Veterinary Medicine and received an MS in animal science/virology from the University of Delaware. After completing an internship and a medical oncology residency at the University of Pennsylvania, he became a diplomate of the American College of Veterinary Internal Medicine (Oncology) in 2003. He is a medical oncologist and director of clinical studies at BluePearl Pet Hospital in Malvern, Pennsylvania.

In his presentation, Clifford will update attendees on the latest in oncology and the strides that have been made in treatments and therapies for patients. He will examine ImpriMed’s novel chemotherapy sensitivity assay and its use of artificial intelligence to aid in assessing a patient’s response to CHOP (cyclophosphamide, doxorubicin, vincristine, prednisone). He also will discuss a new conditionally approved drug for canine lymphoma, and touch upon the use of liquid biopsy to help diagnose cancer early to improve survival for patients with cancer.

Niccole Bruno, DVM

Bruno, CEO and founder of BLEND, a veterinary hospital certification program in diversity, equity, and inclusion (DEI), became interested in veterinary medicine at age 12. Despite growing up in the melting pot of Queens, New York, the inability to obtain mentorship from a minority veterinarian within her population was a daunting reality for this Afro-Latina. Bruno earned her BS in animal science from Tuskegee University, graduating magna cum laude in 2002.

In her keynote address, Bruno will discuss... Bruno! The title of her session, “We Do Talk About Bruno! The Encanto of Veterinary Medicine,” refers to the 2021 Disney animated film Encanto, which tells the story of a family with ancestral magic and is set in Colombia. The Encanto character mentioned in the title of her address, Bruno, is estranged from his family and never spoken about after he prophesied an impending danger to the family’s magic. Nicole Bruno uses the play on words of her own name to discuss the magic of veterinary medicine and how to cultivate environments of inclusion and belonging in practice. “This lecture means a lot to me. Adam Christman [DVM, MBA] believed enough in me and in BLEND to have me put together a track at [2021] Fetch San Diego, which opened doors for BLEND. I am honored to have an opportunity to share my story... as it really embodies the diversity and inclusion we need in veterinary medicine,” Bruno told dvm360®.

Fred Wininger, VMD, MS, DACVIM (Neurology)

Wininger is a New Jersey native who earned his VMD from the University of Pennsylvania College of Veterinary Medicine in 2005. Two years later, he completed a small-animal rotating internship at the University of Georgia, and in 2009 he completed his neurology/neurosurgery residency at Washington State University. Wininger works at the Charlotte Animal Referral & Emergency in North Carolina and is the owner of 3D Veterinary Printing.

For his keynote address, Wininger will help attendees get over their neurophobia and take them through a neurolocalization based on the gait of the patient. He will discuss principles of both upper and lower neuron dysfunction, including how patients’ gaits can sometimes mimic orthopedic gaits.

“I think that gait is the most valuable part of an examination. Our technicians often say that 95% of my exam is not even touching the animal. Most of the neurological diseases that we are interested in will present themselves as a gait abnormality before other things,” Wininger explained in a previous interview with dvm360®.

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Red panda cub born in Michigan zoo

A red panda, Malizia, gave birth to a male cub on July 21, 2022, at Potter Park Zoo in Lansing, Michigan, according to a news release. This is a significant birthday because there are fewer than 10,000 of this species left in the wild and only 205 red pandas in Association of Zoos and Aquariums (AZA) institutions.\(^1\)\(^2\)

“Malizia is doing great. She’s an experienced mother and has been excellent with the newborn,” Ann Burckel, carnivore area lead keeper, said in the news release. “The cub is actively nursing and growing at a Healthy-rate.” The cub’s father is named Deang-Reid.

Fun facts about red panda newborns

When they were born, these cute creatures are deaf, blind, and small enough to fit into a human’s palm. The cubs don’t open their eyes for 2 weeks, and it will be approximately 2 months before they start exploring outside the nest. The zoo’s animal care staff is monitoring Malizia and the cub via a camera located in the nest box. Over the next weeks, veterinary staff will conduct regular wellness checks to keep track of the cub’s growth and development.

Deang-Reid came from the Zoo Knoxville in Tennessee in 2021 and was matched with Maliza through the AZA’s red panda Species Survival Program (SSP). They have had 2 successful litters in 2 years.

“We’re fortunate to have another successful red panda birth. Having 2 successful litters back to back is a testament to the hard work, planning, and teamwork at the zoo,” Pat Fountain, the zoo’s animal care supervisor, said. “Introducing another red panda cub to the SSP is crucial for the species moving forward, and we’re glad to be a part of the solution.”

Maliza and her cub will be off exhibit until they are ready to venture out, though visitors can see Deang-Reid.\(^1\)

REFERENCES


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New fellowship program promotes veterinary practice ownership

New graduates have the opportunity for an immersive, hands-on experience via a veterinary business fellowship. Graduation to Ownership (GO), a 2-year experiential learning opportunity from Harborvet by Suveto, was announced at the 2022 American Veterinary Medical Association conference in July.

During the fellowship, 10% of participants’ paid work time is dedicated to personal growth and education. They receive an immediate-level veterinary stock ownership plan, a risk-free benefit that lets them share in the financial success of their hospitals without the responsibilities of sole ownership, according to a news release from Suveto. Participants will master clinic skills, develop ownership acumen, and build well-being life skills, while also learning how to run and maintain a practice, something that is not always taught in veterinary school.

Catherine Foret, DVM, vice president of communication for Suveto, noted that she was an independent practice owner and understands the challenges for new doctors. “The landscape has changed dramatically since I graduated, and the barrier to entry only seems to be getting higher,” she said in the news release.

“[Harborvet] wants to provide a way to overcome those barriers and is helping students bridge the gap from graduation to ownership through GO. By equipping them with a unique hands-on learning experience dedicated to developing their medical competencies and business acumen, they’ll be able to move toward practice ownership quicker and take ownership of their future in veterinary medicine,” Foret said in the news release.

After completing the GO fellowship, participants will be presented with ownership opportunities tailored to their goals and desires.

The program will launch in summer 2023. Fifty spots are initially available and early matching will start on October 1, 2022.

REFERENCE

Private real estate investment trust launched with majority veterinarian ownership

According to a company press release, “Savvy veterinarians recognize the value of their real estate but may be hesitant to sell their property due to potential tax and other considerations,” said Daniel Eisenstadt, CEO of Terravet Real Estate Solutions and founder of both the company and the trust. “By using Terravet’s UPREIT structure, we can offer a tax-advantaged solution for single-property owners to contribute their facilities to a veterinary-focused REIT and, in turn, reap diversification benefits and the possibility of enhanced value and liquidity down the road.”

Overseen by a board of directors, Terravet REIT (real estate investment trust) will be majority owned by key players in the veterinary sector, with partners that will include Randy Bimes, DVM, who chairs the Medical Advisory Board of Community Veterinary Partners. “The Terravet REIT is a really good option for successful veterinarians who want to stay invested in veterinary real estate but also recognize the importance of portfolio diversification,” Bimes said in the release.

According to the company, as the owner of more than 1 million square feet of veterinary and health care real estate across 31 states, Terravet Real Estate Solutions has a track record of maximizing the value of such facilities by improving their quality.

“Over the past decade, the veterinary sector has seen an increasing focus on purpose-built veterinary facilities. Terravet REIT’s focus on the top quartile of strategically designed veterinary buildings ensures that investors will have a stake in real estate that is well-suited for the next generation of veterinarians and pet owners alike,” said Neil Tauber, cofounder of VCA Animal Hospitals and Terravet REIT board member, in the release.

REFERENCE
The American Veterinary Medical Association (AVMA) has announced that Jennifer Quammen, DVM, MPH, will be its 2022-2024 vice president. Quammen is also chief veterinary officer of TeleVet, a technology solutions company that aims to increase team productivity, reduce staff burnout, and improve the client experience. She received her DVM from The Ohio State University in 2011.

In an organizational release, Quammen described what motivates her. "A few themes drive every facet of what I do: How do we move this profession forward? How do we encourage wellness? How do we deliver better veterinary care? How do we help more patients? That’s true in my position at TeleVet, my volunteer work with AVMA, and everything else I do."

The cofounder of a veterinary coaching organization, Quammen also practices as a relief veterinarian. Such experiences mean that she is able to provide TeleVet with valuable insights as it develops software solutions to simplify client communication and workflow management in the clinic.

“Dr. Quammen’s expertise has been invaluable in helping us...reduce complexity, save time on routine tasks, and improve communications for vet clinics and pet parents,” said Zeynep Young, CEO of TeleVet.

During an interview with AVMA, Quammen commented that the association must be open to feedback—positive and negative. “Listening to dissenting opinions is not only necessary but...crucial to the vitality and health of our association,” she said, adding that as incoming vice president she would like to focus on “technology and connected care as well as healthy utilization of veterinary technicians and student skills. Both are inextricably linked. Input from our academicians, administrators, and students is key to finding solutions for these challenges.”

REFERENCES

Jennifer Quammen named vice president of AVMA
Jennifer Quammen, DVM, MPH, chief veterinary officer of TeleVet. (Photo courtesy of TeleVet)
Chewy announced this week that its philanthropic program Chewy Gives Back has contributed more than $100 million to shelters and rescue pets in need.

“Creating a better world for pets in need and the communities that serve them is at the core of everything we do through Chewy Gives Back. We are excited to celebrate this incredible milestone hand in hand with customers and community members who share our passion for helping pets everywhere,” said Mita Malhotra, vice president of Chewy Health & Shelters, in an organizational release.¹

Spanning the country, Chewy Gives Back helps ensure nonprofit animal organizations have the resources they need such as food and supplies. Chewy Gives Back has contributed to the following efforts within the past 10 years¹:

- 96 million meals served to rescue animals
- 64 million lb of pet food donated
- 50 US states served

Along with this milestone, Chewy has consistently donated food and supplies through Chewy Gives Back for the past 10 years. Chewy has also created Wish List, which allows nonprofit shelters or rescue groups within the United States to create a list of items they need.¹ Once curated, the list is available to millions of pet parents who may donate the items on the list and have them delivered directly to the organization.

“We feel beyond blessed we have been able to work with Chewy,” said Sarah Taylor, president of Community Paws, a community-based animal rescue organization. Community Paws provides education, awareness, and resources to pets in need through its participation with Chewy Gives Back.² “With their help, we’ve redistributed supplies to over 140 rescue [organizations], food banks, and sanctuaries, some of which would have to close their doors if not for the support they’ve received through this program,” said Taylor.

REFERENCE

Industry

Study finds “veterinary deserts” in low-income areas

Atlanta Rescue Dog Cafe (ARDC)—a nonprofit organization whose goal is to keep animals off the streets, out of shelters, and in people’s homes—released research showing that low-income areas in Atlanta, Georgia, have fewer veterinary clinics than its more affluent neighborhoods and are thus considered “veterinary deserts.” This can have a negative impact on pets, their families, and the community at large.

“We hear a lot about food and health care deserts, but there hasn’t been a lot of attention…[paid to]. veterinary deserts,” said Aaron Fisher, founder and CEO of ARDC, in an organizational release.³ “People in lower-income areas care as much about their pets as those in higher-income areas, but lack of accessible care often means they must travel farther to get to the vet, which makes routine care more costly and less convenient.”

Veterinarians are trusted sources of information about pet health, the prevention of unwanted litters, pet ownership, and owner responsibilities. “A veterinarian can explain the importance of having pets vaccinated as well as offer tips on pet safety and provide resources to help keep pets in homes,” Fisher added.

Veterinarians also provide other important pointers, including that dogs should always be walked on a leash and that all pets should wear a collar with tags showing their owners’ contact information to facilitate their safe return home. This kind of advice helps owners make responsible decisions that can decrease the number of pets in animal shelters.

According to the release,³ ARDC’s independent, original study found that less than one-third of Atlanta-area veterinary clinics are located in ZIP codes where the median household income is less than $60,000. The US Census Bureau estimated that the median household income in Atlanta in 2020 was just over $64,000.² The bureau revealed similar disparities in other metropolitan areas, including Chicago, Philadelphia, and Los Angeles, with more veterinary practices located in higher-income areas in those cities as well.

“Students go into veterinary medicine because they love animals and want to serve them and their owners. However, most come out of school with a lot of debt, so it’s understandable that they make the decision to work for a corporate-run practice or an established practice in a higher-income area to meet their own obligations,” Fisher explained.

He suggested that lowering tuition costs for students who commit to working at a clinic in an underserved area could benefit all parties. It would give new veterinarians a financial advantage and help decrease the number of veterinary deserts. Municipalities could also do more to support veterinarians in low-income areas, Fisher added, by providing facilities and attracting recent graduates with competitive salaries and loan forgiveness programs.

“There is an overall shortage of veterinarians,” he said in the release. “With veterinary school acceptance rates between 10% and 15%, this is not a problem that will be solved overnight, but ARDC is committed to collaborating with aspiring vets, veterinary schools, and other organizations to raise awareness of these issues and ensure that pet owners in underserved areas have equal access to veterinary services.”

REFERENCES
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HempMy Pet and Tarleton University, a member of the Texas A&M University system, announced in an organizational release the positive results of their cannabidiol (CBD) equine study focusing on the stress of transportation.

HempMy Pet, a CBD product company for dogs, cats, and horses, stated that the research program intended to explore opportunities that full-spectrum CBD oil may provide to the livestock industry as a tool to mediate stressors, minimize injury during transport and handling, and promote health by minimizing overstimulation of the hypothalamus, pituitary, and adrenal glands (the HPA axis).

HempMy Pet and Tarleton University reported that higher doses of CBD (0.6 mg/kg of body weight) are more effective overall compared with lower doses of CBD (0.3 mg/kg of body weight). In both dosages, CBD was nondetectable after 24 hours, with the highest blood-concentration levels peaking 4 hours after administration.

According to the study, there was no difference observed in the effects of CBD in male and female horses, but there was an increase in feed eating times with both CBD dosages. The higher dosage resulted in a much longer feed time compared with the lower dosage.

Research showed there was a decrease in cortisol levels in the transportation portion of the study and that there were no long-lasting effects of the CBD observed in either dosage group.

"My research goals are to perform as many projects as necessary to better understand the physiological and behavioral responses of animals when they consume CBD and hemp processing byproducts such as hempseed meal," Kimberly Guay, PhD, PAS, of Tarleton University, stated in the release. "It is important to recognize the differences in these products so that we can categorize and utilize them in safe and useful ways. There is still much to be done, and we will continue to fill in the blanks that remain regarding these products in our animals."

The stress from transportation can affect a horse’s behavior, including weight gain, feed efficiency, and excessive aggression.

Natalie Mondine, HempMy Pet co-founder and COO, said in the release, “This is our second clinical trial study overall, but it is the first study we have done with horses, and we are very pleased with the results. Being approached by Tarleton University to collaborate on a study was very exciting for us, as it shows that the...therapeutic benefits of hemp are valid and have a real future in medicine. If we look at the science and data behind all of the research that has been done so far, it’s impossible to ignore that CBD and hemp derivatives have an overwhelmingly positive effect on a myriad of health concerns and are a real alternative to pharmaceuticals.”

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- **85%** considered it very easy to somewhat easy to give two chewables per month.¹

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Interceptor® Plus (milbemycin oxide/praziquantel) covers all five major worms, including whipworm and tapeworm. With the tick and flea efficacy of Credelio® (lotilaner) or Seresto®, your clients receive 360-degree parasite protection.

**EXTERNAL PARASITE PROTECTION**

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Credelio kills adult fleas and is indicated for the treatment and prevention of flea infestations (*Ctenocephalides felis*) and the treatment and control of tick infestations (*Amblyomma americanum* [lone star tick], *Dermacentor variabilis* [American dog tick], *Ixodes scapularis* [black-legged tick] and *Rhipicephalus sanguineus* [brown dog tick]) for one month in dogs and puppies 8 weeks of age or older and weighing 4.4 pounds or greater.

### Credelio Important Safety Information

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### Interceptor Plus Indications

Interceptor Plus is indicated for the prevention of heartworm disease caused by *Dirofilaria immitis* and for the treatment and control of adult roundworm (*Toxocara canis*, *Toxascaris leonina*), adult hookworm (*Ancylostoma caninum*), adult whipworm (*Trichuris vulpis*), and adult tapeworm (*Taenia pisiformis*, *Echinococcus multilocularis*, *Echinococcus granulosus* and *Dipylidium caninum*) infections in dogs and puppies 6 weeks of age or older and 2 pounds of body weight or greater.

### Interceptor Plus Important Safety Information

Treatment with fewer than 6 monthly doses after the last exposure to mosquitoes may not provide complete heartworm prevention. Prior to administration of Interceptor Plus, dogs should be tested for existing heartworm infections. The safety of Interceptor Plus has not been evaluated in dogs used for breeding or in lactating females. The following adverse reactions have been reported in dogs after administration of milbemycin oxide or praziquantel: vomiting, diarrhea, depression/lethargy, ataxia, anorexia, convulsions, weakness, and salivation. For full prescribing information see Interceptor Plus package insert.

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**FLEAS**

**TICKS**

**HEARTWORM DISEASE**

**TAPEWORMS**

**WHIPWORMS**

**HOOKWORMS**

**ROUNDWORMS**


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Diversity

Professional wide initiative aims to foster diversity in veterinary medicine

Journey for Teams, a sweeping new initiative to enhance diversity, equity, and inclusion (DEI) throughout the nation’s veterinary profession, was introduced by the American Veterinary Medical Association (AVMA) and Veterinary Medical Association Executives (VMAE) organizations at the AVMA’s 2022 convention in Philadelphia, Pennsylvania.

“Journey for Teams is our most ambitious DEI undertaking to date—a comprehensive and collaborative process to be incorporated into every sphere of activity within veterinary medicine,” said José Arce, DVM, president of the AVMA, in an organizational press release.

The program builds upon the VMAE’s original Journey program that was launched in 2021 to provide executive directors and elected leaders at veterinary medical associations with tools and resources to advance DEI. The new Journey for Teams is designed for all kinds of veterinary professionals and workplaces, including private practices, animal hospitals, academia, industry, and other settings.

“Historically, veterinary medicine has not been a very diverse profession,” said Randy Wheeler, DVM, immediate past president of the VMAE, in the release. “That has been changing, and Journey for Teams will support our progress. Veterinary teams will find the new ‘Journey’ inviting, welcoming, and rewarding, and it will help move all of us forward.”

Journey for Teams aims to engage veterinary professionals to build their knowledge of DEI principles and foster individual and team behaviors that help advance a diverse, equitable, and inclusive environment, according to the AVMA. More than 140 individuals with subject-matter expertise who are active in DEI within the veterinary community will be invited to provide guidance on topics, suggest guest authors, and offer in-depth resources that support learning on identified topics.

“Diversifying our profession will require sustained effort over the course of many years,” Arce said in the release. “No one can do it alone, nor is Journey for Teams the answer to all our challenges, but it gives us a shared path to greater diversity, equity, and inclusion.”

“We want to mobilize the entire veterinary profession,” said Wheeler in the release. “A profession that better reflects the demographics of the nation will benefit clients, patients, communities, and the workplaces themselves.”

Journey for Teams will involve a sustained commitment to in-depth DEI learning. Beginning this fall, new learning modules will be released.

Credelio (lotilaner)
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For oral use in dogs

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

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

Indications: CREDELIO kills adult fleas and is indicated for the treatment and prevention of flea infestations (*Ctenocephalides felis*) and the treatment and control of tick infestations (*Amblyomma americanum* lone star tick), *Dermacentor variabilis* (American dog tick), *Adepu scapularis* (black-legged tick) and *Rhipicephalus sanguineus* (brown dog tick) for one month in dogs and puppies 8 weeks of age and older, and weighing 4 pounds or greater.

Dosage and Administration: CREDELIO is given orally once a month, at the minimum dosage of 9 mg/lb (20 mg/kg).

Dosage Schedule:

<table>
<thead>
<tr>
<th>Weight Range (lbs)</th>
<th>Credelio Per Chewable Tablet (mg)</th>
<th>Credelio Tablets Administered</th>
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<tbody>
<tr>
<td>4.1 to 6.0 lbs</td>
<td>56.25</td>
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<tr>
<td>6.1 to 12.0 lbs</td>
<td>112.5</td>
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<tr>
<td>12.1 to 25.0 lbs</td>
<td>225</td>
<td>One</td>
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<tr>
<td>25.1 to 50.0 lbs</td>
<td>450</td>
<td>One</td>
</tr>
<tr>
<td>50.1 to 100.0 lbs</td>
<td>900</td>
<td>One</td>
</tr>
<tr>
<td>Over 100.0 lbs</td>
<td>Administer the appropriate combination of chewable tablets</td>
<td></td>
</tr>
</tbody>
</table>

CREDELIO must be administered with food (see Clinical Pharmacology).

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

See product insert for complete dosing and administration information.

Contraindications:

There are no known contraindications for the use of CREDELIO.

Warnings: Not for human use. Keep this and all drugs out of the reach of children. Keep CREDELIO in a secure location out of reach of dogs, cats, and other animals to prevent accidental ingestion or overdose.

Precautions: Lotilaner 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 CREDELIO is breeding, pregnant or lactating dogs has not been evaluated.

Adverse Reactions: In a well-controlled U.S. field study, which included 284 dogs (198 dogs treated with CREDELIO and 86 dogs treated with an oral active control), there were no severe adverse reactions.

Over the 90-day study period, all observations of potential adverse reactions were recorded. Reactions that occurred at an incidence of 1% or greater are presented in the following table.

<table>
<thead>
<tr>
<th>Adverse Reaction (AR)</th>
<th>CREDELIO Group (n=198)</th>
<th>Active Control Group (n=86)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight Loss</td>
<td>2 (1.0%)</td>
<td>2 (2.3%)</td>
</tr>
<tr>
<td>Electrolyte Imbalance</td>
<td>2 (1.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Polyuria</td>
<td>2 (1.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>1 (0.5%)</td>
<td>1 (1.2%)</td>
</tr>
</tbody>
</table>

*Two geriatric dogs developed mildly elevated BUN (24 to 54 mg/dL, reference range: 6 to 31 mg/dL) during the study. One of these dogs also developed polyuria and a mildly elevated potassium (6.5 mEq/L, reference range: 3.6 to 5.5 mEq/L) and phosphorous (6.4 mg/dL, reference range: 2.5 to 6.0 mg/dL). The other dog also developed a mildly elevated creatinine (1.7 to 2.0 mg/dL, reference range: 0.5 to 1.5 mg/dL) and weight loss.

In addition, one dog experienced intermittent head tremors within 1.5 hours of administration of vaccines, an ear cleaning performed by the owner, and its first dose of CREDELIO. The head tremors resolved within 24 hours without treatment. The owner elected to withdraw the dog from the study.

In an Australian field study, one dog with a history of seizures experienced seizure activity (tremors and glazed eyes) six days after receiving CREDELIO. The dog recovered without treatment and completed the study. In the U.S. field study, two dogs with a history of seizures received CREDELIO and experienced no seizures throughout the study.

In three well-controlled European field studies and one U.S. laboratory study, seven dogs experienced episodes of vomiting and four dogs experienced episodes of diarrhea between 6 hours and 5 days after receiving CREDELIO. To report suspected adverse events, for technical assistance or to obtain a copy of the Safety Data Sheet (SDS), contact Elanco US Inc. at 1-888-545-5973. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or http://www.fda.gov/animal兽医/animal drugs.

Effectiveness: In well-controlled European laboratory studies, CREDELIO began to kill fleas four hours after administration or infestation, with greater than 99% of fleas killed within eight hours after administration or infestation for 35 days. In a well-controlled U.S. laboratory study, CREDELIO demonstrated 100% effectiveness against adult fleas 12 hours after administration or infestation for 35 days.

In a 90-day well-controlled U.S. field study conducted in households with existing flea infestations of varying severity, the effectiveness of CREDELIO against fleas on Days 30, 60 and 90 compared to baseline was 99.5%, 100% and 100%, respectively. Dogs with signs of flea allergy dermatitis showed improvement in erythema, papules, scaling, alopecia, dermatitis/psoriasis and pruritus as a direct result of eliminating fleas.

In a well-controlled laboratory study, CREDELIO killed fleas before they could lay eggs, thus preventing subsequent flea infestations for 30 days after the start of treatment of existing flea infestations.

In well-controlled laboratory studies, CREDELIO demonstrated >97% effectiveness against *Amblyomma americanum*, *Dermacentor variabilis*, *Adepu scapularis* and *Rhipicephalus sanguineus* ticks 48 hours after administration or infestation for 30 days. In a well-controlled European laboratory study, CREDELIO started killing *Adepu scapularis* ticks within four hours after administration.

Storage Information: Store at 15-25°C (59-77°F), excursions permitted between 5 to 40°C (41 to 104°F).

How Supplied: CREDELIO is available in five chewable tablet sizes for use in dogs: 56.25, 112.5, 225, 450, and 900 mg tablets. Each chewable tablet size is available in color-coded packages of 3, 6 or 12 chewable tablets.

Approved by FDA under NDAs # 141-494

Manufactured for: Elanco US Inc

Greenfield, IN 46140 USA

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Rev. date 05/2020
INTERCEPTOR™ PLUS (milbemycin oxime/praziquantel)

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

Information for Deer Tick (I. scapularis) and Heartworms (D. immitis)

Adverse Reactions

The following adverse reactions have been reported in dogs after administration of milbemycin oxime/praziquantel: vomiting, diarrhea, lethargy, ataxia, anorexia, convulsions, weakness, and salivation.

To report suspected adverse events, for technical assistance or to obtain a copy of the Safety Data Sheet, contact Elanco US Inc., at 1-888-546-5873.

VETERINARY NEWS

Journey for Teams is also working in association with collaborating partners, which are broad coalitions or national associations whose members are integral to advancing DEI. Outreach continues, and the initial groups who have committed their participation include the National Association of Veterinary Technicians in America and the AVMA/Association of Veterinary Medical College’s Commission for a Diverse, Equitable, and Inclusive Veterinary Profession. Their combined reach will have a significant impact on the success of the initiative by contributing subject-matter expertise on the development of content as well as promoting Journey for Teams to their members and other stakeholders.

The AVMA, VMAE, and their partners are now encouraging veterinarians and their workplaces across the country to “join the journey” by signaling their intention to participate in the program. As part of Journey for Teams, veterinary workplaces will be encouraged to include a commitment to DEI core principles and behaviors in their stated values.

Journey for Teams is the latest in a series of initiatives by the AVMA and other leading organizations across the profession to support DEI with significant resources, including digital educational modules, webinars, programs, and continuing education content, as well as programming and events, including at the AVMA’s annual conventions.

“Journey for Teams underscores our ongoing commitment to DEI,” said AVMA’s Arcé.

“This program will meet people where they are and inspire them through a continuous, layered learning process. Reflecting the diversity of their communities will make veterinary teams more successful.”


VETERINARY NEWS

Journey for Teams offers the drug to dogs and puppies at a dosage equal to or beyond their weight. The 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 rechecked for a few minutes after administration to ensure that the dose is consumed or that it is not rejected. If it is suspected that any of the dose has been lost, it should not be repeated. Remember: INTERCEPTOR PLUS may be administered orally, once every month, at the minimum dosage of 0.23 mg/pound (0.5 mg/kg) milbemycin oxime and 2.28 mg/pound (5 mg/kg) praziquantel.

For heartworm prevention, give once monthly for at least 6 months after exposure to mosquitoes.

INTERCEPTOR PLUS should be administered orally, once every month, at the minimum dosage of 0.23 mg/pound (0.5 mg/kg) milbemycin oxime, and 2.28 mg/pound (5 mg/kg) praziquantel.

INTERCEPTOR PLUS may be offered to the dog by hand or added to a small amount of dog food.

For heartworm prevention, give once monthly for at least 6 months after exposure to mosquitoes.

INTERCEPTOR PLUS is indicated for the prevention of heartworm disease caused by D. immitis and for the treatment and control of: 

- Ancylostoma caninum
- Ancylostoma braziliense
- Toxocara canis
- Toxascaris leonina
- D. immitis
- E. granulosus
- E. multilocularis
- E. canis
- Trichu

INTERCEPTOR PLUS is formulated to provide a minimum of 0.23 mg/pound (0.5 mg/kg) milbemycin oxime and 2.28 mg/pound (5 mg/kg) praziquantel. Each chewable flavored tablet is formulated to provide a minimum of 0.23 mg/lb (0.5 mg/kg) of milbemycin oxime and 2.28 mg/lb (5 mg/kg) of praziquantel. Milbemycin oxime consists of the isomers derivatives of 5-dialkylaminobenzofuran in the ratio of approximately 1:1:2:3. The isomer is chemically known by the chemical name (2R,4R)-3-(3-Chlorobutyl)carbamoyl-1,2,3,6,7,8-hexahydro-4-(2,3-diphenyl-4-oxoquinolinyl)quinazoline.

Indications

INTERCEPTOR PLUS is indicated for the prevention of heartworm disease caused by D. immitis; and for the treatment and control of: Ancylostoma caninum, Ancylostoma braziliense, Toxocara canis, Toxascaris leonina, D. immitis, E. granulosus, E. multilocularis, E. canis, and whipworm (Trichuris vulpis). Echinococcus granulosus, and Echinococcus multilocularis infections in dogs and puppies two pounds of body weight or greater and six weeks of age or older. The safety of INTERCEPTOR PLUS has not been evaluated in dogs used for breeding or in lactating bitches. Do not use in dogs or puppies less than two pounds of body weight. Do not use in puppies less than six weeks of age.

Heartworm Prevention:

In a repeated dose safety study, INTERCEPTOR PLUS was 100% effective against induced heartworm infections when administered once monthly for 6 consecutive months. In well-controlled studies, neither one nor two consecutive doses of INTERCEPTOR PLUS provided 100% effective against induced heartworm infections. In addition, the interval between treatments should be no more than 26 days. Owners of dogs in which pregnant females were dosed once, at 0.6X the maximum exposure dose of INTERCEPTOR PLUS, demonstrated milbemycin oxime-related effects (depression, decreased activity, labored breathing, and ataxia). These effects were all transient and puppies returned to normal within 48 hours following treatment.

For heartworm prevention, give once monthly for at least 6 months after exposure to mosquitoes.

To report suspected adverse events, for technical assistance or to obtain a copy of the Safety Data Sheet, contact Elanco US Inc., at 1-888-546-5873.

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Treatment and prevention of flea infestations have been part of the job of companion animal veterinarians for decades. The most significant breakthrough in this area was the discovery of effective topical medications like fipronil (Frontline) in the 1990s, which put baths and powders on the back of storage shelves. Since then, many other topicals that work when absorbed by the animal’s skin and sebaceous glands have been developed. But some pet owners are still hesitant about using them because of the potential danger to people and other animals. Thus, oral products were the next major innovation in the management of fleas.

Before the isoxazoline class of flea/tick preventatives was launched, spinosad (Comfortis, Trifexis) and nitenpyram (Capstar) were the only oral alternatives to topical flea control. They begin killing fleas about 30 minutes after being administered. Although spinosad is a macrocyclic lactone and nitenpyram a neonicotinoid insecticide, both act on the nicotinic acetylcholine receptors of the flea. When a flea consumes the blood of an animal treated with spinosad or nitenpyram, it ingests the drug, which blocks acetylcholine-mediated neurotransmission, leading to flea paralysis and death. All fleas on cats and dogs treated with nitenpyram die within 6 hours; all fleas on cats treated with spinosad die within 24 hours; and all those on dogs

written by
Jeffrey Haymaker, VMD
Haymaker is an associate veterinarian at Mount Laurel Animal Hospital and 24-hour Emergency Service in New Jersey. His veterinary interests include internal medicine and surgery. He works in the primary care department as well as in the emergency service. Haymaker is a member of the American Veterinary Medical Association and is the treasurer of the Southern New Jersey Veterinary Medical Association. He is also an adjunct instructor of veterinary technology at Manor College in Jenkintown, Pennsylvania.
similarly treated die within 4 hours. Because these drugs are more selective for the nicotinic receptors of insects, the risk of adverse events in canine and feline patients is low.

Although the introduction of oral flea control was a huge win for pets, their parents, and veterinary professionals, the treatment of ticks remained topical. The advent of prescription-only isoxazolines in the 2010s revolutionized flea and tick management in dogs and cats. All isoxazolines—be they administered orally, as are fluralaner (Bravecto), lotilaner (Credelio), sarolaner (Simparica), and afoxolaner (NexGard) or transdermally, as fluralaner (Bravecto) and sarolaner (Revolution Plus)—are absorbed into the bloodstream of the patient. And, like spinosad and nitenpyram, they work exclusively on the neurotransmitter receptors of insects and arachnids. Rather than targeting nicotinic receptors, isoxazolines target chloride receptors that are gated by glutamate and gamma-aminobutyric acid (GABA) and inhibits them at the neuromuscular junction. The selectivity of isoxazolines is significantly higher for insect/arachnid neurons than mammalian neurons. This results in uncontrolled neuronal activity in the flea and tick, leading to paralysis and death. These drugs bind tightly to plasma proteins, allowing for dosing intervals of 30 days or more, depending on the product.

Many pet owners prefer oral flea/tick preventatives because there is virtually no chance that a person or another pet will get the drug on their skin via contact with the treated animal—a concern I often hear from parents of young children. From the perspective of prevention, many in the field hope for increased owner compliance when flavored chewable medication is prescribed for their pet. Oral drugs also provide an added benefit in that there is no question they will be accidentally washed off if the pet is bathed too soon after administration. However, some owners are more cautious about medications that circulate through an animal’s body, preferring those that are limited to the skin. Although rare, the adverse effects of isoxazolines can be significant. All contain boxed warnings about the risk of such adverse events as seizures, tremors, and ataxia. The warning also recommends exercising caution when prescribing to patients with a history of seizures and notes that isoxazolines can cause seizures even in patients with no known history of seizures. In my experience, discontinuing an isoxazoline that precipitated a seizure is curative. More common side effects are vomiting, diarrhea, lethargy, and inappetence.

In addition to killing fleas and ticks, isoxazolines are an effective off-label treatment for cutaneous myiasis (skin infestation by the larvae of certain fly species) and for many other ectoparasites, including Demodex, Sarcoptes, and Otodectes mites, sucking lice, Psoroptes cuniculi (rabbit ear mite), and Triatoma (the vectors of Chagas disease). Especially with regard to Demodex and Sarcoptes, isoxazolines are far more effective, safer, and easier for pet owners to manage than ivermectin.

Although highly effective at killing fleas, ticks, and other ectoparasites, the main drawback of isoxazolines—other than a rare risk of seizure—is that they don’t repel ectoparasites. Given their rapid speed of kill (8 hours for fleas and 12 hours for ticks with fluralaner in dogs, for example), most patients will not be exposed to the parasites for a significant period of time. However, patients with flea allergy dermatitis (FAD) and those exposed to a heavy tick burden may benefit from concurrent treatment with a topical preventative that both repels and kills, thus provides 2 layers of defense against fleas and ticks.

Isoxazolines kill ticks and fleas often before they have the chance to cause disease. However, every patient (and pet owner) is an individual, and not all patients are candidates for an isoxazoline. Seizures must be discussed with owners before these drugs are prescribed to adult animals. If clinical signs of FAD are present or if routine tickborne disease antibody testing is positive when using only an isoxazoline drug, clinicians must discuss compliance and the option of adding or changing preventative medications with pet owners.

REFERENCES
Feline myocardial disease can be frustrating for veterinarians and pet owners. The prevalence of hypertrophic cardiomyopathy (HCM) is 15%, and up to 3% of adult cats have silent disease. According to Neal Peckens, DVM, a cardiologist and junior partner at CVCA Cardiac Care for Pets in Virginia, data from multiple studies of cats presenting with aortic thromboembolism show that less than 35% were determined to be at risk for disease and only 8% to 12% had been previously diagnosed with myocardial disease. “We have to do…better,” Peckens said during a session on the diagnosis of feline myocardial disease at the 2022 convention of the American Veterinary Medical Association.

LIMITATIONS OF PHYSICAL EXAM AND RADIOGRAPHY

Auscultation, a powerful tool in the detection of canine cardiac disease, is not as helpful in feline disease because “there are more benign murmurs than [there are] cats with murmurs from heart disease,” Peckens pointed out. The positive predictive value, or probability that a cat with a murmur has cardiac disease, is only 31%. Abnormal heart sounds, including gallop rhythms and arrhythmias, are more likely to be indicative of underlying myocardial disease. In a study of 227 cats, 17% of those with cardiac disease had a gallop rhythm, whereas no cats without disease had this abnormality.
Clinically proven strong on *Malassezia*, soft on skin¹⁻³

**DOUXO® S³ PYO**

4. BIOSAT multi-sponsor study report dermatological products, small animal veterinarians, USA, Dec 2021.

Chlorhexidine can cause rare, but serious allergic reactions in humans. If you experience allergy symptoms, discontinue use immediately and seek medical treatment. Do not use DOUXO® S3 PYO Mousse in cats. Do not use DOUXO® S3 PYO Pads between the toes of the cats.

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The auscultation of any of these irregularities should prompt further investigation, but in-clinic diagnostic tools have historically been limited. Thoracic radiographs are of little use in asymptomatic cats. HCM, the most common cardiac disease in cats, involves changes to the myocardium within the cardiac silhouette, making cardiomegaly difficult to observe. Even in the presence of left atrial enlargement, the sensitivity of thoracic radiographs in detecting myocardial disease is only 70%. Peckens noted that a vertebral heart score can be used to measure the size of the heart in cats, with a score greater than 8 indicating an enlarged heart.

**BIOMARKERS AS AN IN-CLINIC SOLUTION**

There is a newer test that makes use of a cardiac biomarker called NT-proBNP, which is “essentially...blood chemistry for the heart,” said Peckens. This biomarker is released by ventricles that are stretched or under greater than normal stress. A quantitative test is available at reference laboratories and can be used for serial monitoring. Less than 100 pmol/L of NT-proBNP is considered to be a normal result, whereas higher levels are evidence of disease.

A cage-side qualitative SNAP test is available as well, but its sensitivity is lower than that of the quantitative test. A visual positive occurs at an NT-proBNP level of 150. Despite the difference in sensitivity, Peckens still feels that the SNAP test is useful, noting that “it is a rare day when a cat with a BNP between 100 and 150 has actionable disease.” The test can also be used to differentiate cardiac from noncardiac causes of respiratory emergencies and as a preanesthetic screening tool: “If you have an abnormal SNAP, I’d press pause on anesthesia,” Peckens said.

But not all cardiologists agree on the optimal use of SNAP. Peckens recommends screening all cats, especially as they age or upon auscultation of a murmur. As with any test, however, there are downsides. “NT-proBNP is not specific to heart disease [but rather]...to heart muscle stress,” Peckens explained. Because hyperthyroidism and systemic hypertension place stress on the heart muscle, both can elevate NT-proBNP levels. In addition, because NT-proBNP is excreted primarily through the kidneys, elevated NT-proBNP levels may be the result of renal disease. In the presence of concurrent disease, NT-proBNP levels should be interpreted with caution.

**ECHOCARDIOGRAM AS THE GOLD STANDARD**

Although the NT-proBNP test is a powerful screening tool for feline myocardial disease, the echocardiogram remains the gold standard because it offers information about the type and severity of cardiac disease and assesses the risk of thromboembolic disease.

“[H]eart muscle disease in the cat...frequently gets put into this monolith of HCM,” Peckens said, but cats “don’t all have HCM.” Some have restrictive, unclassified, or arrhythmogenic right ventricular cardiomyopathy. The type of disease and the risk of thromboembolism dictate treatment.

**CONCLUSION**

Feline myocardial disease poses a diagnostic challenge for veterinarians because many cats can have occult disease or heart murmurs that are not caused by underlying cardiac disease. NT-proBNP can improve the screening of feline populations for cardiac disease and patient selection for echocardiogram, which remains the gold diagnostic standard in this setting.

**REFERENCES**


2. Payne JR, Brodbelt DC, Fuentes VL. Cardiomyopathy prevalence in 780 apparently healthy cats in rehoming centres (the CatScan study). *J Vet Cardiol*. 2015; 17(suppl 1):S244-S257. doi:10.1016/j.jvc.2015.03.008


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We’ve got the proof on pain.

While others talk about pain management, our pain portfolio is proven in more than 20 favorable studies. When you prescribe PREVICOX® (firocoxib) for your post-operative (PREVICOX only) and canine osteoarthritis patients, the research stands with you, so that you can get your patients back to living the life they love.

IMPORTANT SAFETY INFORMATION: METACAM (meloxicam oral suspension) and PREVICOX (firocoxib) Chewable Tablets are for use in dogs only. METACAM (meloxicam) Solution for Injection is approved for use in dogs or cats (not indicated for osteoarthritis in cats). Repeated use of meloxicam in cats has been associated with acute renal failure and death. Do not administer additional injectable or oral meloxicam to cats. As a class, cyclooxygenase inhibitory NSAIDs like METACAM and PREVICOX may be associated with gastrointestinal, kidney, or liver side effects. Dogs should be evaluated for pre-existing conditions and currently prescribed medications prior to treatment with METACAM or PREVICOX, then monitored regularly while on therapy. Concurrent use with another NSAID, corticosteroid, or nephrotoxic medication should be avoided or monitored closely. Please refer to the package insert or product website for complete product information.

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As veterinary medicine improves and cats live longer, they experience more complications associated with old age, including osteoarthritis (OA), a progressive degenerative joint disease. The median age of cats with OA is 10.2 years, and approximately 90% of those over 12 have been found to have OA.

In an interview with dvm360® and Dr. Elizbeth Collier, DVM, DABVP, medical director at Chico Hospital for Cats in Chico, California, offered veterinarians and clients tips for detecting and managing the disease in cats.

**SUBTLE SIGNS OF FELINE OA**

According to Collier, identifying osteoarthritis can be more difficult in cats than in dogs. Cats are secretive, she says, because hiding their emotions is to their advantage.

As “solitary hunters, they don’t have [a] great repertoire of emotional signs on their face…but they do show what they think and how they feel.”

One should look for “a cat whose lifestyle [has] changed,” she explained; for instance, “a cat that used to sleep with the owner…[but] isn’t sleeping with the owner anymore,” that “used to climb up to a high point on a cat tree…[but] doesn’t do that anymore,” or even a cat that is “sleeping more than usual.”

At the April 2022 Fetch dvm360® conference, Collier mentioned other signs of OA: avoidance of other household members, increased grumpiness, decreased grooming, restlessness, changes in elimination behavior, clumsiness, and reluctance to jump.

Pet parents can also use the Feline Musculoskeletal Pain Index; a validated pain score, to check their pets more closely. The index asks questions about specific indicators of OA that reveal the intensity of a cat’s pain.

**PHYSICAL EXAMINATION**

A visual assessment of the cat’s gait is important, but the environment must be carefully controlled. According to Collier, a low, slow-motion atmosphere is essential, and the cat should be given time to acclimate to the room. The veterinarian should then gently palpate the joints, even though cats not experiencing joint pain may be averse to this.

Because OA is complex and usually affects various joints, it can be challenging to stage. Staging is best accomplished by veterinarians.

**Pain management**

Helping osteoarthritic cats live their best lives

Experts offer advice on identifying and managing feline OA and discuss the latest treatments for this painful condition

written by Julia Burke, Assistant Editor

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**Metacam**

(meloxicam oral suspension)

1.5 mg/grop od/p/1.0 mg/grop od/p/0.5 mg/grop od/p/0.2 mg/grop od/p Non-steroidal anti-inflammatory drug in oral use in dogs and cats.

**Indications:**

- For the relief of pain associated with osteoarthritis in cats and dogs.
- To control nociception and hyperalgesia following moderate to severe surgical, dental, or orthopedic procedures.
- For postsurgical pain in cats.

**Warnings:**

- Not for use in humans.
- Keep and all administrations out of reach of children.
- Consult a physician in case of accidental ingestion by humans.
- For oral use only in cats. Animals with a known allergy or hypersensitivity to meloxicam or any of its excipients should not receive this product.

**Precautions:**

- The use of Metacam Oral Suspension in dogs younger than 6 months of age, dogs used for breeding, or in pregnant or lactating bitches has not been evaluated. Meloxicam is not recommended for use in dogs with bleeding disorders, as they have risk factors associated with dogs receiving NSAIDs.

Meloxicam, like other NSAIDs, is not free from adverse reactions. Drug intolerance or drug-induced reactions are the most common adverse reactions associated with the administration of meloxicam.

**Adverse Reactions:**

- gastrointestinal: vomiting, anorexia, diarrhea, melena, gastrointestinal ulceration
- hepatic: elevated liver enzymes
- integumentary: alopecia, dermatitis, urticaria
- respiratory: dyspnea, stridor, wheezing
- central nervous system: ataxia, tremors, seizures
- dermatological: pruritus
- other: death

**Clinical Signs:**

**Gastrointestinal:**

- vomiting, anorexia, diarrhea, melena, gastrointestinal ulceration

**Hepatic:**

- elevated liver enzymes

**Integumentary:**

- alopecia, dermatitis, urticaria

**Respiratory:**

- dyspnea, stridor, wheezing

**Central Nervous System:**

- ataxia, tremors, seizures

**Dermatological:**

- pruritus

**Other:**

- death

**Effective Information:**

**Meloxicam** is a non-steroidal anti-inflammatory drug (NSAID) of the oxicam class. It is a white to off-white, odorless, crystalline powder with a molecular weight of 335.28 g/mol. It is freely soluble in water, moderately soluble in polar organic solvents, and insoluble in non-polar organic solvents. Meloxicam is a non-steroidal anti-inflammatory drug (NSAID) of the oxicam class. It is a white to off-white, odorless, crystalline powder with a molecular weight of 335.28 g/mol. It is freely soluble in water, moderately soluble in polar organic solvents, and insoluble in non-polar organic solvents. Meloxicam is a non-steroidal anti-inflammatory drug (NSAID) of the oxicam class. It is a white to off-white, odorless, crystalline powder with a molecular weight of 335.28 g/mol. It is freely soluble in water, moderately soluble in polar organic solvents, and insoluble in non-polar organic solvents. Meloxicam is a non-steroidal anti-inflammatory drug (NSAID) of the oxicam class. It is a white to off-white, odorless, crystalline powder with a molecular weight of 335.28 g/mol. It is freely soluble in water, moderately soluble in polar organic solvents, and insoluble in non-polar organic solvents.
MULTIMODAL APPROACHES TO CHRONIC FELINE PAIN

When it comes to addressing the disease, it’s important to tell clients that it can’t be treated, only managed by examining the overall impact on the cat. Based on the clinical examination, it may be... really helpful adjunctive therapies, like laser therapy [and acupuncture, she said. “Assis Loop is a favorite of mine because the cats don’t mind at all,” she added, “and then there...supplements like omega-3 fatty acids.”

Environmental modification includes making the cat’s home more comfortable so that it can get up to really high places where they like to sit and watch the world go by or watch the birds outside.

WHAT’S NEW IN FELINE PAIN TREATMENT?

At the 2022 convention of the American Veterinary Medical Association, Alonso Guedes, DVM, PhD, an associate professor of anesthesia at the University of Minnesota College of Veterinary Medicine, talked about the “newest kid[s] on the block”: anti-nerve growth factor monoclonal antibodies.

Guedes explained that nerve growth factor (NGF) is synthesized and activated on many types of cells: various cells secret— and are affected by— it. NGF signaling is upregulated during the chronic inflammation associated with OA, which results in central and peripheral sensitization and hyperalgesia. In patients with OA, the secretion of NGF increases, sensitizing the peripheral and central terminal of the neurons in the spinal cord.

“The NGF also will activate immune cells, and these...cells will then scrape their mediators, [which]...will then amplify inflammation...so it seems like a good idea...[to use] a nerve growth factor on a client’s body, you bind to those nerve growth factors there, neutralize them, and then the nervous system is able to return to its normal [state]. It’s a pretty nice concept,” Guedes added.

REFERENCES
Acral lick dermatitis (ALD), also known as a “hot spot,” is a common canine skin disorder associated with repetitive licking, biting, and scratching, often until severe inflammation or infection. The “itch-lick” cycle frequently starts with boredom, stress, local irritation, behavioral issues, or trauma, and this harmful, self-inflicted behavior may become a chronic psychologic and dermatologic issue with reduced quality of life.

Veterinarians find ALD almost exclusively in certain large dog breeds, which suggests a possible genetic component. Canines with ALD have similar behaviors to humans with obsessive-compulsive disorder (OCD), with repetitive, excessive grooming habits. Data from studies in individuals with OCD show a pattern of neurochemical imbalance, specifically including serotonin and norepinephrine changes. Medical professionals often treat OCD with medications targeting these receptors, such as selective serotonin reuptake inhibitors (SSRIs), serotonin and norepinephrine reuptake inhibitors, serotonin reuptake inhibitors, and tricyclic antidepressants (TCAs).

TREATING ALD-ASSOCIATED BEHAVIORS
An older study assessed the use of OCD treatment options for ALD in canines. Investigators treated 42 dogs with chronic ALD in 3 double-blind crossover comparisons of clomipramine/desipramine, fluoxetine/fenfluramine, and sertraline/placebo. Following a baseline week, the dogs each had 5 weeks of each treatment course for a total treatment duration of 11 weeks. The investigators titrated each dog’s dose based on tolerability until the maximum dose range was reached. Clomipramine, desipramine, and sertraline were titrated up to 3 mg/kg/day; fluoxetine and fenfluramine were titrated up to 1 mg/kg/day. Dog owners monitored treatment and reported the dog’s licking behavior on a 10-point scale; a score of 10 indicated worst behavior observed and 0 indicated complete absence of excess licking.1

The most efficacious treatments for ALD were medications that specifically acted on serotonin reuptake inhibition, including clomipramine, fluoxetine, and sertraline. Doses, time to therapeutic response, and efficacy of treatment were similar to OCD treatment in humans. Canines in these treatment groups had up to a 50% reduction of ALD symptoms. Those in the fenfluramine and desipramine groups did not show behavioral changes.1 The US Food and Drug Administration has since removed fenfluramine from the market because of cardiac valvular abnormalities.

A more recent review in Veterinary Clinics of North America: Small Animal Practice summarized behavioral therapies for ALD. The most common and studied SSRI treatment for ALD as of 2018 was fluoxetine; however, other antidepressants commonly used in OCD, such as TCAs, showed efficacy in placebo-controlled trials. TCAs act on serotonin and norepinephrine reuptake, suggesting that other neurotransmitters may be involved in ALD. Other options studied included the opioid antagonist naltrexone, and a 63% improvement in lesions was reported. Naltrexone’s exact mechanism of action in ALD treatment is unknown, but investigators suggested a potential interaction with the dopaminergic system may improve OCD-type behaviors.2

CONCLUSION
Understanding the role of neurotransmitters and behavioral patterns in ALD can assist veterinary professionals in treatment decisions for canines with the disorder. Although data are limited, genetic influences and pharmacotherapeutic responses to OCD treatment in canines with ALD resemble those in humans with OCD.  

REFERENCES
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How veterinary dermatology can address canine ear infections

These common conditions often present with cutaneous signs in and around the ear canal

**written by Kristen Crossley, MA, Associate Editorial Director**

Common in dogs, ear infections can affect the outer, middle, and inner ear. These conditions (otitis externa, media, and interna) are a big part of general practice and “a big part of dermatology,” said Meghan Solc, DVM, of Dermatology for Animals in Akron, Ohio, at the 2022 American Veterinary Medicine Association Convention. A study published in 2021 found that 7.3% of dogs in the UK have an ear infection every year. The investigators also found that dogs 1 year and older are at higher risk for these infections than those less than 1 year old, that males had 1.21 times the risk of females, and that certain breeds—including Basset Hounds, Chinese Shar Peis and Labradoodles—are more prone to ear infections.

**NORMAL VS ABNORMAL**

Although most clients don’t immediately think of dermatologists for the treatment of infections of the ear, the organ is “360 degrees of skin,” Solc pointed out. Symptoms of ear infection commonly include crusting, scabbing, and redness and inflammation of the skin inside the ear, discharge (yellow, brown, or bloody), and a bad smell. Scratching or pawing their ears, rubbing them against furniture, and shaking or tilting the head may also indicate infection. More severe cases may cause a loss of balance or hearing, unusual eye movement, and walking in circles.

By “knowing what is normal, we can…look for [the] abnormal,” Solc said. An exam should start with the outer ear, she stated, adding that “if you can’t even get a Q-tip down there…let along an otoscope…that’s going to tell you a lot.”

**TREATING OTITIS-INDUCED HEARING LOSS**

Hearing loss due to ear infection may be classified as conductive, sensorineural, or a combination of both. The first can occur in the presence of exudates, stenosis, or glandular hyperplasia. In conductive cases, hearing can be restored by cleaning the external ear canal.

“We have to show the client how to properly clean the ear,” Solc said, explaining that the process in her practice includes filling the ear with fluid, holding it out like a cup, and massaging its side; “you’re going to hear that squishing sound.” She then wipes off the excess fluid with a piece of gauze, checks to see what is on it, and allows the animal to shake its head to rid itself of leftover exudates and debris.

Reducing the inflammation with medicated drops or anti-inflammatory topical therapy and resolving the infection with antibiotics will also improve the dog’s hearing. But animals with more severe infections may need repeated treatments.

If hearing does not return after treatment for an ear infection, the deafness may be due to underlying conditions like allergies, thyroid disease, or adrenal disease. However, sensorineural hearing loss may result with inner ear infection when the cochlea nerve pathways to the brain are damaged by infection. This type of hearing loss is not reversible.

**CONCLUSION**

In the aforementioned British study, investigators noted that because many dogs do not communicate chronic pain, they were trying to raise awareness about ear infections among pet owners. Likewise, veterinary professionals can teach clients about the frequency of canine ear infections, help them identify their signs, and encourage them to seek early care for their animals if they suspect an ear infection.

**REFERENCES**

2. Solc, MK. Ears and rears! Yes, they are part of our dermatology practice. Presented at American Veterinary Medical Association Convention, July 29-August 2, 2021, Philadelphia, PA.
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Georg Kelling performed the world’s first laparoscopic procedure in 1901, and like many medical firsts, that procedure was performed on a canine. Fast-forward 121 years to the present day: Laparoscopic surgery has become the standard of care for most surgical procedures in human medicine and is now being supplemented with robotic surgery. 

Laparoscopic surgery, sometimes referred to as keyhole surgery or minimally invasive surgery (MIS), involves the use of high-quality telescopes connected to a digital video camera. The camera is attached to a fiber-optic cable and light source, which then relays the images to an associated monitor. 

To create enough working space for organ and instrument manipulation, the peritoneal cavity is insufflated with carbon dioxide to move the abdominal wall away from the internal organs. Peritoneal access is typically obtained with a specialized instrument called a Veress needle, which is placed blindly into the peritoneal cavity to establish the pneumoperitoneum, or with a modified Hasson technique, allowing direct visualization of peritoneal access. 

Although we are many years away from robotic surgery being readily available in veterinary medicine, laparoscopy has been growing rapidly over the past 20 years, with many purposes in veterinary surgery (see Figure). It is available in most specialty hospitals, and many general practitioners are incorporating laparoscopy into their practices. It has grown to the point that a subspecialty fellowship program within the American College of Veterinary Surgeons is dedicated solely to advanced training in soft tissue MIS.

**USING THE RIGHT TOOLS**

The laparoscopic procedure may be performed with multiple trocars placed through small incisions (multiple-port laparoscopy) or with a single incision using a port device, allowing the use of multiple ports within it (single-port laparoscopy). The decision on which technique to use will depend on surgeon preference and the nature of the procedure to be performed. 

Most surgical instruments today are available in laparoscopic form and typically come in 5-mm or 10-mm diameters. The instruments have shafts covered with an insulated sheath, allowing for concurrent use with monopolar electrocautery and optimizing them for laparoscopic application. Articulating forms of certain instruments are also available, which can improve triangulation.

In addition to normal instruments, numerous specialized devices have dramatically increased the number and complexity of procedures performed laparoscopically. Examples of these devices include endoscopic staplers, specimen retrieval bags, and bipolar vessel sealing devices. Most veterinary surgeons would proclaim the last of these tools an absolute necessity for most laparoscopic procedures.

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**Understanding laparoscopy in veterinary surgery**

General practitioners are incorporating this increasingly common minimally invasive surgery into their menu of services
invasive approaches.\(^5\) The wound infection rate may be lower with minimally invasive techniques.\(^5\) In addition, some literature suggests that the postoperative return to normal activity may be lower with minimally invasive approaches.\(^5\)

More recent studies have shown that cholecystectomy, a daunting procedure not without significant complications, can be performed laparoscopically with minimal morbidity and mortality rates with appropriate patient selection.\(^6\) Additionally, some procedures such as adrenallectomy have been performed faster laparoscopically when compared with a traditional open method.\(^7\)

### Downsides for Practices

As with all things, laparoscopy has its disadvantages. These include increased procedural times, increased cost of specialized equipment, and the requirement for specialized training in MIS. However, these disadvantages can be offset by surgeon experience and increased availability of training opportunities, such as the international Veterinary Assessment Laparoscopic Skills program.

### Growing Market

The number of procedures that can be performed laparoscopically has increased significantly. More routine procedures such as ovariohysterectomy, liver biopsy, and laparoscopic-assisted gastropexy are commonly performed and may be done with minimal specialized instrumentation.

With the advent of barbed suture material, gastropexies may be performed totally laparoscopically, as this material significantly reduces the challenge of intracorporeal suturing. The introduction of 4K high-definition monitors and near-infrared imaging allow for breathtaking image quality and the ability to highlight abnormal tissue that would not normally be visible.

With continued advancements in medicine and technology, the future will bring even more possibilities to the world of MIS. Hopefully these advancements will find their way into veterinary medicine, where it all started.

### References


### Figure

**Types of Minimally Invasive Veterinary Surgery**

**Laparoscopic**
- Ovariectomy
- Ovariohysterectomy
- Organ biopsy (liver, kidney, GI tract, etc)
- Splenectomy
- Cholecystectomy
- Adrenalectomy
- Extrahepatic portosystemic shunt attenuation
- Nephrectomy
- Perinephric pseudocyst excision
- Renal cyst decortication
- Gastropexy
- Cystoexpy
- Colopexy
- Cisterna chyli ablation
- Partial pancreatomepy

**Thoracoscopic**
- Pericardial window
- Subtotal pericardiectomy
- Right auricular mass excision
- Thoracic duct ligation
- Lung lobectomy
- Pleural/lung biopsy
- Mediastinal mass excision
- Lymph node extirpation
Is it time to say yes to pet health insurance?

Why is the United States falling behind when it comes to insured pets? Dr Rothstein tries to answer the question and predict what the future may hold

A few weeks ago, a friend asked me what we do at the hospital if a pet doesn’t have health insurance. They were surprised to discover that very few pets have it. Ironic, isn’t it, that it seemed logical to a nonpet owner that animals would have health insurance and yet it’s not an obvious choice for actual pet owners? Only 2%-3% of pets in the US are covered by insurance, whereas 25% and 50% are covered in the UK and Sweden, respectively.

To better understand the numbers, I spoke with industry veteran Darin Nelson, an executive vice president at Thrive Pet Healthcare and a former executive at pet insurance provider Trupanion. He joined Trupanion in 2012 because he had been troubled by how many pets were being euthanized or receiving subpar care owing to financial reasons and felt that insurance could minimize the problem. However, he was surprised and saddened by how little the industry grew during his tenure at Trupanion.

I also talked with David Goodnight, DVM, MBA, executive vice president of business development at LifeLearn. Previously an executive at Veterinary Pet Insurance, he
1. Historically, veterinarians were concerned that health insurance for pets would entail red tape, excess paperwork, and the slow reimbursements that lead to frustration and burnout. Most vets today realize that scenario is unlikely to occur because pet insurance differs from human insurance in that it covers mainly accidents and illness rather than all health care. Many hospitals are now promoting it—and finding that most clients are not interested.

2. Many pet parents ask about pet insurance after their companion animals have a health problem, at which point they’re not eligible for coverage for that particular problem. These owners then decide that insurance is worthless because it didn’t help them when they needed it. The thing for them to do, of course, is to insure pets when they are young and healthy so that they will be covered in case of illness.

3. The media and consumer review platforms, for their part, often suggest that pet insurance is not worth the money and that pet owners are better off paying as they go. Generally speaking, these are the same commentators who complain that veterinary fees are too high. They seem not to understand that insurance is not about discounts or saving money, but about budgeting for illnesses and unplanned events that, as most pet owners know, are all too common.

Bucking this trend, interestingly, is demand for pet wellness and preventive care packages. These plans are relatively common at veterinary practices and tend to have good enrollment. For some reason, and this seemed to mystify both Nelson and Goodnight, clients are more concerned about budgeting for the annual care they know their pets will need than for an expensive medical problem that might arise in the future. What pet owners don’t realize is that in a typical year 1 in 3 pets will need emergency treatment.

According to Emily Dong, founder and chief executive officer of SnoutID—a company that provides wellness plans—the key to getting more pets insured is for clinics to offer preventive plans that allow clients to add health insurance later so that they ultimately have a comprehensive package.

What does the future of pet insurance look like, and how will it compare to my friend’s assumption that most pets have it? The future may not be exactly rosy, but 5 factors point toward appreciable growth in the near term.

1. Most pet owners today are millennials, who—statistically speaking—take better care of their animals than older pet parents.
2. Millennials have grown up with monthly subscription services and are a good fit for wellness and insurance plans that are paid on a monthly basis.
3. The pet insurance industry has been growing at approximately 20% a year for the past several years.
4. There is no shortage of pet insurance companies: more than 20 such insurers operate in the US.
5. DVM fees are rapidly increasing as a result of high demand for veterinary services, staff shortages, and overall inflation.

Have we reached the tipping point? Will clients finally see the value of budgeting for illness and emergencies as well as preventive care? A relative emailed me a few days ago about their employee benefits package. The plan includes an option for pet insurance and wellness care at a discounted rate, with fees deducted from paychecks. Perhaps this progressive company is setting a trend, and this will be the wave of the future. Will we catch up to Europe? That may be too much to ask, but aiming for 10% of pets being insured would be a good goal, and we need to start somewhere.

REFERENCES

Team building is crucial to a successful practice

Clarifying the mission and educating the staff lead to an engaged workplace.

In a veterinary practice, each day is an adventure. Every clinician has walked into work and found a scenario such as the receptionist is out sick, the computer system has a glitch, the cat in exam room No. 1 cannot breathe, and 3 surgical drop-offs are in the lobby. Whether that day ends with the team throwing instruments and stomping out or high-fiving each other because they turned it around depends on teamwork.

The COVID-19 pandemic has been a massive test of every practice's culture and ability to cope with change. With inflation and potentially a recession on the horizon, there seems to be no end to stressors.

Lack of teamwork affects every aspect of a hospital:

- Client experience, because clients can perceive misalignment
- Patient care, because when individuals are not fully communicating, things get missed
- The bottom line, because turnover means hiring costs and lower productivity until the individual is replaced

That's why creating a supportive environment for the team has never been more important.

WHERE TO START?

IT'S ALL ABOUT THE MISSION

It is not enough to just have a mission statement; the team must be aligned with that mission. The differences between a random group of individuals and a team are:

- A team is united around a common purpose.
- A team has players with different specialties cooperating toward a common goal.
- Team members trust each other to competently do their specific part of the job, so all the different actions come together successfully.

WHAT'S IN THE WAY?

Two things get in the way of creating a strong team. The first is not having clarity on the mission, which leads to misalignment. The second is not knowing the steps to create and maintain that alignment.

Few veterinarians are trained in leadership; many tend to be introverts. It is easy to assume that because leadership has clarity on the practice's mission, goals, and priorities, their team also understands those things. Leaders need to communicate regularly—with clarity—to all their employees.

WHY IS THIS SO IMPORTANT?

No one makes enough money in veterinary medicine to make it worth working in a crummy place. It is the leader’s duty to make their practice a great place to work. The difference between an engaged workplace and a dysfunctional one is teamwork.

When changes need to be made, such as switching to a new line of vaccines, a strong and aligned team helps everyone roll out changes seamlessly. Veterinarians are usually more comfortable with exams and surgery than planning and leadership, so they say they “don’t have time.” However, if one puts in the time, it will pay off. If one does not put in the time, they will be dealing with constant turmoil and unrest.

SIGNS THAT HELP IS NEEDED

Here are 4 warning signs that may indicate a practice needs to focus on building better teamwork:

- High turnover
- Confusion around processes
- Multiple subcultures, such as “the back vs the front”
- Feelings of exhaustion, being undermined, or being victimized by employees or clients

INITIAL STEPS TO IMPROVE TEAMWORK

1. Define the practice’s mission, values, and culture.
2. Model and reinforce the desired behavior.
3. Implement regular meetings to reinforce priorities and build the team. A 2-to-3-hour all-staff meeting monthly and a shorter weekly meeting are ideal.

TAKING THE NEXT STEP

To improve teamwork in your hospital, consider:

- Reading Traction: Get a Grip on Your Business by Gino Wickman
- Reading The Five Dysfunctions of a Team: A Leadership Fable by Patrick Lencioni
- Watching “Create a Stronger Team by Defining Your Practice Culture,” sponsored by Merck Animal Health.
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Navigating the flow of clinic culture

How to steer your clinic in the right direction for a positive workplace culture

Written by Sydney Yankowicz, Assistant Editor

The environment you work in can greatly affect your job satisfaction. But everyone at your workplace—including you—is responsible for its overall culture.1

At the inaugural Directions in Veterinary Medicine Conference in Indianapolis, Indiana, Aaron Smiley, DVM, compared clinic culture to a river: “Sometimes it’s all around you [and] you forget that you’re in the river, you’re just doing things instinctively [and] you don’t even know why....So, with that definition of...culture, we want…the river going the correct way. We want to float downstream. We don’t have to get to a specific destination, [and] we don’t want to float the wrong way.”2

Smiley used the metaphor to show how practice managers can redirect a clinic’s culture if it seems not to be working for the staff. It is important, he noted, that the culture have a positive effect on employees rather than add stress to their day.

4 COMPONENTS OF CLINIC CULTURE

To improve the culture, Smiley advised that staff members do the following.

• **Work together.** Collaborate with and support team members who need help. Without support, anyone can feel overwhelmed by large responsibilities.

• **Listen.** Make sure that you’re listening—understanding the other person’s perspective and opinion—rather than merely waiting until it’s your turn to speak. When people feel that they are heard and understood, they also feel appreciated.

• **Assume good intention.** If colleagues are in a bad mood and appear to be angry with you, it’s not uncommon to take it personally. However, their mood is more likely due to their personal life, not you or your performance. Assume good intentions to avoid acting rashly or escalating problems.

• **Talk to people, not about them.** If you do clash with someone, it’s best to talk to them directly, rather than talking about them to others. This may seem obvious, but avoiding confrontation often feels like the safer option. Unfortunately, it can prolong problems and lead to a passive-aggressive environment.

With staff shortages on the rise, creating a positive clinic culture is more important than ever. According to Smiley, it is crucial to make sure that everyone feels safe and happy at work.2

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What to know before taking out a loan to purchase a practice

4 crucial considerations before signing on the dotted line

Veterinary practice ownership has its advantages and disadvantages, just like everything in life. Practice ownership is not the same as being an employee. The transition will be a system shock for many because the amount of responsibility dramatically shifts. The roles and duties that weren’t a priority become yours overnight. With this in mind, let’s review 4 things to consider before signing on the dotted line to take out a loan.

YOU ARE A PRACTICE OWNER
FIRST, A VETERINARIAN AND/OR PRACTICE MANAGER SECOND

When you’re an employee, everything is handled for you, from financial affairs and inventory to veterinary team satisfaction. We often find individuals will buy a practice (or start a practice) with little understanding of how to manage a successful business. Over the past few decades, practice owners have focused on medicine but neglected the financial side. There may be little understanding of the practice’s profitability, and the direction they want the practice to go is not reviewed often or at all. Ownership comes with many responsibilities, and one of those is financial risk. Learning to be a great business owner and leader should be the first priority, followed by practicing great medicine. Do you want to focus on patient care or the success of the practice? Although they may overlap, doing both roles at the same time is impossible. You should define what you’re good at before buying or starting a practice.

YOUR PERSONAL FINANCES MATTER

You may be able to purchase an established veterinary practice with minimal personal net worth. However, if the lender requires a down payment, you may need as much as 20% of the total loan amount. In most instances, best practices are to ensure your credit score is good, keep at least $25,000 available in cash, and gain preapproval before exploring locations to start up or purchase a practice. If your personal financial affairs are in disarray, the opportunities for loans will be fewer, and your personal decisions could be transferred to the veterinary practice. You should focus on what you are trying to accomplish with your personal finances by defining your reasons for planning and what you want from practice ownership. Once you’re a practice owner, each decision you make will directly affect your personal financial future.

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**CAT Indication:**
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NOCITA is for use only once prior to surgery. Administer 5.3 mg/kg per forelimb (0.4 mL/kg per forelimb, for a total dose of 10.6 mg/kg/cat) as a 4-point nerve block prior to onychectomy. Administration prior to surgery may provide up to 72 hours of pain control.

**CAT Dosage and Administration:**
NOCITA is for administration only once prior to surgery. Administer 5.3 mg/kg per forelimb (0.4 mL/kg per forelimb, for a total dose of 10.6 mg/kg/cat) as a 4-point nerve block prior to onychectomy. Administration prior to surgery may provide up to 72 hours of pain control.

**Contraindications:**
Do not administer by intravenous or intra-arterial injection. If accidental intravascular administration occurs, monitor for cardiovascular (dysrhythmias, hypotension, hypertension) and neurologic (tremors, ataxia, seizures) adverse reactions. Do not use for intra-articular injection. In humans, local anesthetics administered into a joint may cause chondrolysis.

**Warnings:**
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Do not administer concurrently with bupivacaine HCl, lidocaine or other amide local anesthetics. A safe interval from time of bupivacaine HCl, lidocaine or other amide local anesthetic administration to time of NOCITA administration has not been determined. The toxic effects of these drugs are additive and their administration should be used with caution including monitoring for neurologic and cardiovascular effects related to toxicity.

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**Field safety was evaluated in 123 NOCITA treated dogs. The most common adverse reactions were discharge from incision (3.3%), incisional inflammation (2.4%), and vomiting (2.4%).**

**DOG Adverse Reactions:**
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The Profit. When he decides to partner with a business, he reviews 3 P’s: people, product, and process. People are first, because low morale and a team that doesn’t feel a sense of community or responsibility can lead to low productivity and turnover. The focus needs to be on the mission, vision, and community you want to create as an owner. Employees will mirror the temperature and demeanor established by the owner. If you step into practice ownership without looking at the practice as a team and just start practicing medicine, there can be a huge disconnect. Compensation is a small part of the equation; knowing how to motivate and engage your team so they feel a sense of purpose can drastically increase productivity. If you are not a person or leader, you may want to give practice ownership another thought. Don’t confuse these qualities with being extroverted; introverts are sometimes better managers, because they connect with each person individually and make them feel special. Alternatively, you may hire someone who is a person so you don’t have to be. Delegating responsibility is possible but not always ideal; if that person leaves, others may follow.

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A MODERN WAY TO LOOK AT RECOVERY CARE.

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The role of local anesthetics in perioperative pain control.

“The task force supports the International Veterinary Academy of Pain Management position that, because of their safety and significant benefit, local anesthetics should be utilized, insofar as possible, with every surgical procedure.”

— American Animal Hospital Association

Local anesthetics (LAs) are one of the most effective means of preventing transduction and transmission of pain signals, in part, because LAs are the only class of drug can render complete analgesia. Previous formulations LAs have some limitations, primarily their relatively short duration of action (less than eight hours).

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What makes NOCITA™ different?

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Recovery care begins with NOCITA™

Now you can effectively control your canine CCL†† and feline onychectomy patients’ postoperative pain with the only FDA-approved long-acting local anesthetic that helps them recover comfortably even after going home.

Contact your Elanco representative or call 1-800-633-3796 to learn more.

Indications For single-dose infiltration into the surgical site to provide local postoperative analgesia for cranial cruciate ligament surgery in dogs. For use as a peripheral nerve block to provide regional postoperative analgesia following onychectomy in cats.

Important Safety Information NOCITA is for use in dogs and cats only. Do not administer concurrently with bupivacaine HCl, lidocaine or other amide local anesthetics. The safe use of NOCITA in dogs and cats with cardiac disease or with hepatic or renal impairment has not been evaluated. The safe use in dogs or cats younger than 5 months of age, that are pregnant, lactating, or intended for breeding has not been evaluated. The most common adverse reactions in dogs were discharge from incision, incisional inflammation and vomiting. The most common adverse reactions in cats were elevated body temperature and infection or chewing/licking at the surgical site. Please see accompanying brief summary for product safety information.

*In a field trial, Nocita reduced the need for post-op rescue pain treatment with opioids.
**Cranial cruciate ligament.
5 questions to answer if you’re considering practice management

Learn more about yourself, your goals, and what it takes to oversee a thriving veterinary business and its staff

How does a person become a veterinary practice manager? Is it something one chooses, or does it just happen? If the opportunity falls in your lap, should you take it? In my opinion, just because you can doesn’t mean you should. People often become practice managers (PMs) because they’re in the right place at the right time. But does that mean they should be PMs? No. The job is not merely about filling out paperwork, ordering supplies, and answering emails. Those tasks have to be done, but the job is really about fulfilling one’s passion for working with people as well as animals. A skilled PM can build a strong, reliable team of trained specialists who work together efficiently for the good of patients, their owners, and each other.

If you think practice management is for you, ask yourself these questions.

WHAT EXCITES ME ABOUT VETERINARY MEDICINE?

There are so many things to choose from: wellness examinations, anesthesiology, rehabilitation, small animal care, large animal care, exotics…the list goes on and on. But when thinking about becoming a PM, you must consider the big picture: whether you’re passionate about putting together a team and keeping them happy and productive. A PM is responsible for creating the environment that makes people want to come to work and makes clients want to bring their pets—and that keeps the practice in the black.

DO I REALLY KNOW WHAT THE JOB ENTAILS?

Many people pursue veterinary careers because they love animals. However, practice management is about people. First and foremost, the PM provides support and encouragement to the practice team. The paperwork is important, but without a great team, the income and expenses won’t matter. This is not to minimize the importance of accurate billing or a clean and organized inventory of supplies, but to emphasize that management is not about sitting at a desk and making the computer “work.”

HOW CAN I MOTIVATE A TEAM?

This question can be difficult to answer. Not every person will be motivated by the same things, and probably all of them will have personal reasons for being in the industry. A good PM must take the time to find out what each team member wants and use that knowledge to challenge and reward the individuals and the group.

How do you interact with the team as a whole? Can you develop a program that accommodates various learning styles and motivates everyone? How would you inspire a team to align with the goals of the clinic and promote its image?

Keeping the team motivated is the PM’s primary responsibility. It is vital that you budget the money and ensure that the facility is clean and the inventory is in order. But if you don’t manage the people in a productive way, you won’t have to perform any of the other tasks.
WHEN IT COMES DOWN TO IT, CAN I ASK FOR HELP?

Self-awareness is essential in this position. If you’re unaware of your limitations, you cannot excel at anything. There will be times when you’ll be unsure about what to do, or how to do it. You must have the humility to recognize that you need help and ask others to help you. This is not a profession in which anyone stands alone; the veterinary community is a large but close-knit family. If you cannot consult someone close to you, there are many professionals available and eager to help, for instance.

DO I WANT TO CONTINUE LEARNING THROUGHOUT MY CAREER?

As is true of all health practitioners, veterinary professionals must spend time on continuing education (CE) through the whole of their career. DVMs and technicians must earn CE credits to maintain their license. But everyone else in the clinic should also be learning and reaching for more.

You can motivate others by showing them that you are committed to continuing education. If you lead by example, you’ll find yourself with a crew that is more knowledgeable and more satisfied both with their choice of career and with the clinic where they work. Your job will be easier because your team will be eager to please the person they know cares about them and their future. You cannot lose!

When people are content doing exactly what they’ve always done—without learning about industry trends or changes in best practices—the clinic suffers. Unmotivated staff seek more exciting opportunities, clients take pets to hospitals that are keeping up with the times and, inevitably, the practice fails.

CONCLUSION

These are important questions to consider, and there are probably more that you should ask before making practice management your goal. To develop those questions, it may be useful to create your own job description. Such an exercise will help you decide whether practice management, or another aspect of veterinary medicine, appeals to you. Make a list of the things you love to do and how you would go about doing them. It will force you to think hard about where you would be most effective and how you could best use your skills and satisfy your passion. This is a great self-actualizing exercise that can teach you a lot about yourself and perhaps provide clarity as you look forward.
Dream team creates their ideal veterinary clinic

Married couple unites with designer and contractor to build award-winning facility in Texas

Written by Julia Burke, Assistant Editor

A little over a decade ago, Wil Cole, DVM, was determined to build an award-winning veterinary hospital. At the time, he and his wife, Jennifer Cole, DVM, owned Cole Veterinary Hospital at Legends Ranch, an approximately 2000-sq ft facility in Spring, Texas, which was later expanded to 4000 sq ft. However, Wil and Jennifer wanted to take a leap of faith and debut a second new, larger hospital—Cole Veterinary Hospital at Harmony—just a mile from Legends Ranch to address the growing demand for veterinary services and own the space to make that goal come to fruition.

During that decade, Wil could be found reviewing floor plan designs with their designer/contractor of their project, Jonathan Greene, president of J.A. Greene Construction Services, producing a chemistry between Wil and Greene that stands to this day. "Wil had an eye for design and a desire to help other vets start-up their practice. In addition to reviewing floor plans, Wil would often talk to my clients about pricing services, what software to use, how they can compete, and anything else that comes along with a start-up," Greene said. After helping countless start-ups, the knowledge he gained and hard work paid off for his own practice as well. Cole Veterinary Hospital at Harmony—a 7654-sq ft, full-service veterinary hospital—opened in 2020. This facility has now been named the dvm360® 2022 Hospital Design Competition grand prize winner for hospitals under 8000 square feet.

In a dvm360® interview, the Coles and Greene discussed the details of Cole Veterinary Hospital at Harmony and what makes it a stand-out facility.

GENERAL EXTERIOR

The clinic features brown stacked stone and long windows for a clean, modern look without appearing ultramodern, according to the trio. The goal was to offer natural light throughout the entire practice while preventing visibility from the outside into treatment and exam rooms. "A lot of the windows around the practice are up high and skinny to avoid [individuals] being able to see in but still let in natural light. That turned into linear architecture, so we had to make sure we made the windows fit with the overall design," Greene said.

Another integral part of the exterior design, according to Wil, was significant curb appeal. "We put a tremendous amount [of expense] into landscaping and making sure we were adding value to the community," he said. Greene noted the exterior finishes of the clinic were designed to be weather resilient and address the high traffic area, using material that blocks noise transmission from the outside to the inside.

The building is also ecofriendly, held up by insulated concrete form (ICF) blocks, a mix of Styrofoam and concrete. This combination of material better insulates the building so it stays cool during the warm months and vice versa. According to Greene, the ICF blocks are "foam blocks you fill with concrete once you get all the blocks up, and you seal it in. It’s a unique block because it is 2 ft tall, 4 ft wide. I can throw it in the air, and you could catch it. And that’s what holds up their building, which seems counterintuitive."

GENERAL INTERIOR

Like the exterior, the interior has modern touches. However, it contains elements that make it cozy and comfortable. The hospital has luxury vinyl wood floors carried throughout the client and treatment areas, gray and white accents throughout, uniquely marvelous patterned tiles as accents on several surfaces, and
DR. JON GELLER
TOGETHER FOR PETS AWARD

Congratulations to a veterinarian who helps the pets of people experiencing homelessness across the country and has expanded his mission to serve displaced pets in Ukraine. He has received a $10,000 grant from Blue Buffalo.

WHERE DO YOU WORK?
I am with The Street Dog Coalition, based in Ft. Collins, CO. We set up mobile clinics in multiple US cities.

WHY DID YOU BECOME A VETERINARIAN?
I didn’t decide to become a veterinarian until I was 38. I realized it was a profession that combined science and compassion. I went back to undergrad to get my requirements done, and graduated from vet school when I was 44.

WHAT’S YOUR PASSION?
I love being able to help out on “both ends of the leash,” whether that’s here at home or in a place like Ukraine where pets and people are in desperate need of help.

HOW DO YOU MAKE A DIFFERENCE?
I hope that by treating unsheltered pet owners with non-judgmental respect and by caring effectively for their pets, I can add dignity to their lives.

WHAT EXCITES YOU ABOUT THE FUTURE?
My current focus is One Health, where pets and their owners can be cared for in the same setting.

Blue Buffalo salutes the veterinarians who go above and beyond to advance the profession and improve the lives of our pets.
HOSPITAL DESIGN

Boarding kennels

CoLe Veterinary Hospital already had a client base and a need for expanding boarding services. As part of the new hospital location, the Coles wanted to incorporate more extensive boarding kennel areas for canine and feline patients, which has been a major success as the COVID-19 pandemic has begun winding down and more pet owners are returning to travel. The canine kennel areas feature high-quality epoxy flooring and large tiled runs with glass doors. The feline boarding areas feature 5 multilevel condominiums with individual slim exterior windows and doors that are glass from top to bottom for a luxurious, spacious feel. The boarding areas are also strategically situated. To avoid noise, it remains separate from treatment areas where clients bring in their pets but is also in a place where the team can keep an eye on them. Additionally, the dog kennels and cat ward are kept separate from one another for a comfortable experience for all animals.

“We not only made [the practice] soundproof from the exterior but even [from the] interior. All our walls are insulated, floor to ceiling, everywhere,” Wil said. “We didn’t want to be in the center of [the boarding kennels] and listen to the noise all day long. We were able to create some unique space for [the pets] and keep them segregated yet close by. It’s a very efficient, quiet, and smell-controlled space.”

Reducing the amount of shared walls between the kennels and the treatment areas was a goal, with only roughly 5 linear feet of shared walls.

Jennifer added, “One other thing that’s unique is our feline boarding. Jonathan did a good job of separating that completely from noise, so they’re not near [the] treatment area. They’re also not near any dogs in [the] hospital or boarding areas. There’s a big window where they can be seen by the staff when they’re eating lunch, and they can also look outside.”

Staff-friendly environment

Designed with clients and patients in mind, the Coles and Greene also made it an excellent space to work for staff. They continued the elegant appeal and backlash tile in the staff restrooms and break areas to achieve this goal.

“Staff areas aren’t always the nicest. Sometimes you have to save some pennies and cut back on the staff restroom, for example. Or maybe the break area doesn’t have the nicest stuff.…We all agreed, with a little pushing [from Greene], we make this an experience so that staff feel their value in the building as well,” Wil said.

What’s another feature the staff loves? According to Wil, it is giving the staff the ability to control sound played throughout the hospital. The controls are centralized in the treatment area on 3 wall-mounted iPads that play songs from streaming services such as Pandora or Spotify. “The staff love that control because they love music. There are moments in the day where they want to switch the music up, or somebody’s feeling a little giddy and wants to have some uplifting music. I never thought having something so simple as that…was going to make a big difference, but the staff absolutely love it.”

MORE STAND-OUT FEATURES

Mural painted by local artist

The mural in the lobby of CoLe Veterinary Hospital at Harmony is another fan favorite. The Coles have a friend who is a local artist and asked her to depict something that embodied the animals they care for as well as community landmarks. If you look closely at the cheerful mural, pets’ names are hidden throughout, personalizing the artwork and making pet owners feel special.

“Anything that made it to our walls had meaning and value to us,” Wil said. “We put a lot of thought [and attention] into that: personalizing it [with] those finer touches. It gives us comfort knowing a local artist did that. But it’s [also] a talking point: it’s giving back to the community and letting people see we’re supporting community artists.”

Greene noted that, from a design standpoint, there should never be a disconnect between what is on the walls and the owner’s personality, because it makes clients subconsciously uncomfortable. “That connection is what you can’t ever design; all you can do is hope that [clients] get there. It’s something we tell our doctors all the time: make sure you provide a sense of community and your personality meets the design, because your clients are intuitive enough to understand [the disconnect], especially when they’re dealing with their [pets].”

PROUD WINNERS OF THE 2022 HOSPITAL DESIGN COMPETITION

The Coles and Greene were honored to be recognized as winners of this year’s dvm360® Hospital Design Competition. “It’s a tremendously proud moment. For all the effort we put into building something that didn’t make sense to a lot of people when we were doing it…We took a risk, but saw the potential to be a freestanding hospital 1 mile away from a busy practice,” Wil said. “It’s validation [of] paying attention to your gut, knowing your clients, knowing the demographics, trusting people like Jonathan and my wife, and coming together: it’s validation [of a] job well done.”

Greene also touched upon what winning the award means to him and described the significant effort that went into the project. Building CoLe Veterinary Hospital at Legends Ranch in 2008 was the first veterinary project Greene had been a part of, and he and the Coles have come a long way and learned plenty of lessons since then. “For me it’s [14] years of work that has come to fruition and [been] recognized for what it is, and that’s a realistic approach attainable to any veterinarian across the board,” Greene said.

Wil said he wants to inspire other veterinary professionals to be successful in their hospital design, think outside of the box, and take risks. “We’re an open book; we share everything with [other veterinary professionals]. I hope to use this platform to help other groups. That is exciting, because I like seeing others in this profession [succeed]; it’s a way of giving back.”
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Inflammation, Stress, or Something Else?
Evaluating common white blood cell inflammatory patterns
written by ERIC MORISSETTE, DVM, DACVP (CLINICAL)

Changes in total and differential leukocyte counts are usually grouped into patterns that facilitate interpretation. These patterns are:
- Stress leukogram
- Physiologic leukocytosis
- Inflammatory leukogram
- Leukemoid reaction

STRESS LEUKOGRAM
Cortisol release by the adrenal gland will occur as a result of a wide range of processes, including systemic illness, metabolic disturbances, pain, etc., and will be mimicked by corticosteroid therapy.

Causes of a stress leukogram:
- Endogenous stress: Chronic or acute increase in endogenous corticosteroids (expected in sick animals)
- Hyperadrenocorticism: Excess endogenous corticosteroids
- Corticosteroid medication administration

Pattern: The classic stress leukogram pattern includes neutrophilia, lymphopenia, monocytosis, and eosinopenia.
Not all of these changes will be present in every patient. The most consistent finding is mild mature neutrophilia (generally with no left shift), followed by lymphopenia. Monocytosis from corticosteroids is common in dogs, but can be uncommon in cats.

Other findings that may be seen with a stress leukogram:
- Hyperglycemia: Caused by corticosteroids stimulating gluconeogenesis (requires more chronic increase in corticosteroids)
- Increase in ALP activity: Seen only in dogs with chronic increases of endogenous corticosteroids or corticosteroid medication administration

PHYSIOLOGIC LEUKOCYTOSIS
This leukogram pattern is due to epinephrine or norepinephrine release. It is also called a “flight or fight” response. This pattern is most commonly seen in cats (of any age), and possibly in younger animals of other species. These changes are usually transient and will generally resolve about 30 minutes after the patient relaxes.

Pattern: The classic physiological leukocytosis pattern is mild neutrophilia (mature cells with no left shift) and lymphocytosis, sometimes called a “physiologic lymphocytosis.”

Other findings that may be seen with a physiologic leukocytosis:
- Hyperglycemia: Caused by epinephrine stimulating glycolysis (rapid response)

INFLAMMATORY LEUKOGRAM
The inflammatory leukogram pattern depends on the timing of sample collection and represents the balance between tissue consumption and bone marrow production. The neutrophil numbers in inflammation can vary from severely depressed to markedly increased. A left shift indicates the presence of immature neutrophils in blood and usually, but not always, indicates an inflammatory leukogram.

This leukogram pattern can be variable depending on the source and severity of the inflammation. The changes discussed below are often identified on the complete blood cell count from patients with inflammation, but it is possible to have inflammation in an animal that does not show an inflammatory leukogram.

Acute inflammation (regenerative left shift)
Tissue demand is met or exceeded by increased marrow production and release of both segmented and immature neutrophils.

Pattern: Variable neutrophilia with varying degrees of left shift and toxic changes.

Chronic inflammation
Tissue demand and marrow production are balanced. Release of immature neutrophils may not be required to meet demand.

Pattern: Neutrophils numbers may be normal or marginally increased. Left shift is only mild or absent because the bone marrow adequately supplies the demand. Toxic changes generally are not observed.

Peracute, severe overwhelming inflammation (degenerative left shift)
Tissue demand surpasses the ability of the marrow to deliver inflammatory cells to the blood. There are few cells in the circulating pool. Those present will usually be immature.

Pattern: Normal or decreased number of neutrophils with a left shift, which may include more immature forms than bands (metamyelocytes, myelocytes). Some patients may have more immature than mature/segmented neutrophils (degenerative left shift). Moderate to severe toxic change in neutrophils should be present.

Other leukocytes involved in an inflammatory leukogram pattern:
- Monocytosis: This may be part of an inflammatory leukogram. It is usually observed with more long-standing or resolving inflammation. However, in some patients, the increase in monocytes is quite mild.
- Lymphopenia (with or without eosinopenia): Frequently accompanies an inflammatory leukogram but does not always happen. This is usually
The most consistent finding is mild mature and eosinopenia. Includes neutrophilia, lymphopenia, monocytosis, as a result of a wide range of processes, including:

- Corticosteroid medication administration
- Hyperadrenocorticism: Excess endogenous
- Endogenous stress: Chronic or acute increase

These patterns are:

- Leukemoid reaction
- Inflammatory leukogram
- Physiologic leukocytosis
- Stress leukogram

Pattern: The classic physiological leukocytosis usually transient and will generally resolve about 30 minutes after the patient relaxes. This pattern is most commonly seen in cats (of any age), and possibly in younger "flight" response. This leukogram pattern is due to epinephrine or norepinephrine release. It is also called a "flight or stress leukogram. These leukograms are:

- Increase in ALP activity: Seen only in dogs
- Hyperglycemia: Caused by corticosteroids or corticosteroid medication with chronic increases of endogenous corticosteroids
- Hepatozoon americanum
- Paraneoplastic syndrome (injury/myelophthisis)
- Excitement
- Prostatitis, pneumonia, and abscesses
- Pyometra, pleuritis or pyothorax, peritonitis, hypoferremia should be used to determine the more likely cause. Knowing the degree of change may also be helpful because a stress leukogram is uncommon in species other than dogs and is usually associated with a mild increase in neutrophils.

Other findings that may be seen with an inflammatory leukogram:

- Thrombocytosis: Inflammatory cytokines can cause an increased production of platelets
- Thrombocytopenia: Acute endotoxemia can result in a transient thrombocytopenia
- Changes in albumin and globulins: Generally low albumin or high globulin concentrations or a combination of both
- Changes in parameters: Hypoferremia with low % saturation or hypoferremia with low total iron binding capacity (TIBC) and normal % saturation. Seen most commonly in chronic inflammation

Changes in glucose: If there is concurrent stress, hyperglycemia may be seen. With sepsis, hypoglycemia may be observed.

**LEUKEMOID REACTION**

Pattern: This leukogram is characterized by a marked neutrophilic leukocytosis (>50,000 cells/μL) with a concurrent, orderly left shift. Toxic changes may or may not be present. It is called “leukemoid reaction” because it resembles granulocytic leukemia but is caused by some other process. It is also referred to as extreme neutrophilic (granulocytic) leukocytosis.

**Causes of leukemoid reaction include:**

- Focal suppurative lesions (pyometra, pleuritis or pyothorax, peritonitis, prostatitis, pneumonia, and abscesses)
- Hemolytic anemia (especially immune-mediated)
- Canine babesiosis
- Canine hepatozoonosis (Hepatozoon americanum)
- Paraneoplastic neutrophilia
- Neutrophilia of leukocyte adhesion deficiency
- Granulocyte colony stimulating factor administration

**STRESS OR INFLAMMATION?**

Both stress and inflammation can manifest with relatively similar leukogram patterns (eg, mature neutrophilia, monocytes, lymphopenia, and eosinopenia), although all changes may not be present in every patient. Under these conditions, it is unclear from a single hemogram whether the changes are due to stress or inflammation. In these cases, other clinical data (eg, fever) and laboratory data (eg, hyperglobulinemia, hypoalbuminemia, hypoferremia) should be used to determine the more likely cause. Knowing the degree of change may also be helpful because a stress leukogram is uncommon in species other than dogs and is usually associated with a mild increase in neutrophils.

Remember that a single hemogram is a snapshot in time. Hemogram changes can occur quite rapidly. Therefore, monitoring hemogram results frequently (every 12-24 hours) can be very helpful in determining the course of an inflammatory response and response to treatment. Never treat laboratory data, always treat the patient.
PARTNER PERSPECTIVE

High creatinine levels, low urine output lead to leptospirosis diagnosis

Tinkering with tubules in an acute kidney case

I met Buddy early in my career as a rotating intern and learned a lot from him. Buddy was a Havanese puppy brought to the clinic for not acting normally. His presenting clinical signs were acute onset hyporexia and vomiting en route to the hospital.

Buddy’s initial physical exam was unremarkable, and he appeared to be a happy puppy. His SNAP Parvo Test results were negative, and his radiographs were consistent with a diffuse enteropathy. I prescribed a dose of injectable maropitant citrate (Cerenia), administered subcutaneous fluids, and discharged him. Given Buddy’s presenting physical, I initially was dismissive of his owner’s worry. Three hours later, Buddy returned to the clinic after failing to improve. At this time, he was admitted into the hospital, and hemogram and chemistry panels were submitted.

The hemogram revealed a moderate thrombocytopenia, which I did not confirm with a smear. Chemistry panel revealed a mild elevation in alkaline phosphatase (ALP) and a mild elevation in total bilirubin (0.6 mg/dL; high normal 0.5 mg/dL). Creatinine was elevated at 1.8 mg/dL, which given his vomiting I assumed was prerenal. I went to obtain a cystocentesis urine sample but couldn’t detect his bladder. My second mistake was not being alarmed by the creatinine level. Puppies have low serum creatinine levels; the 1.8 mg/dL was likely a moderate to severe elevation from his normal baseline.

Prior to leaving for the evening, I checked on Buddy and noted that he had not urinated, so I increased his intravenous fluid rate. When I arrived the next morning, I noted that Buddy looked significantly more lethargic and that no urine was noted overnight. A serial chemistry panel revealed a progressive hyperbilirubinemia to 1.8 mg/dL. The creatinine had doubled to 3.3 mg/dL. Both his phosphorus and ALP levels were worse. The most concerning finding was a hyperkalemia of 7.1 mmol/L, which can be an indicator of oliguria or anuria.

Abdominal ultrasound was then performed and revealed mild bilateral renomegaly consistent with an acute kidney injury. Given Buddy’s young age, azotemia, and hyperbilirubinemia, I prioritized leptospirosis. At this point, the team escalated Buddy’s care by placing a central line and urinary catheter. The team administered a fluid bolus and dose of furosemide with no resultant urine production. Given the oliguria and anuria, at this point dialysis was recommended and elected by the client. Unfortunately, because of his small size, Buddy was not a candidate for hemodialysis. Peritoneal dialysis was elected, but Buddy died 18 hours after therapy was initiated.

If I could go back in time, I would have taken the client’s initial complaint more seriously and been more diligent in interpreting the initial chemistry panel. I also should have reattempted to obtain urine. A persistently small bladder may have triggered a concern for oliguria sooner than the serial chemistry panel.

Leptospirosis is a multisystemic disease that primarily affects the kidneys and liver. It is a tubular disease, and when there is a glomerular component, clinicians will see mild to moderate elevated urine protein to creatinine (UPC) ratios. Severe elevations in UPC should raise concern for other glomerulonephropathies. Glucosuria also may be present, which can be indicative of proximal tubular injury. Prognosis is typically fair to good if caught early and managed appropriately.

In the end, my time with Buddy made me a better doctor and, ultimately, a better internist. I learned to take in all the information at hand before jumping to conclusions, which can have a large impact in complicated medical cases.

Written by

Adam Miller, DVM, DACVIM

Miller received his veterinary degree from St George’s University and completed clinical rotations at Cornell University. He then completed an intensive small animal rotating internship in medicine and surgery with VCA in Norwalk, Connecticut, before returning to Cornell University for a 3-year residency in internal medicine. His professional interests include nephrology, gastroenterology, and immune-mediated disease.
IndeVets’ answer to burnout and compassion fatigue
Flexibility, relief from administrative duties, and community support lead to work-life balance

BY BOB ALABURDA, SENIOR EDITOR

A recent episode of dvm360 Live! tackled this topic with Andrew Heller, DVM, IndeVets co-founder, and IndeVets No. 1. Heller and host Adam Christman, DVM, MBA, discussed IndeVets’ approach to work-life balance and how providing freedom to veterinary professionals can help combat burnout. IndeVets supports individuals who are interested in relief veterinary work but don’t want to handle practice administrative work such as staff vacations, forms, and benefits.

IndeVets gives clinicians more flexibility and control over their day-to-day professional lives. IndeVets allows its veterinarians to decide when, where, and how often they work. “When you get to choose the shifts, choose the days you work, choose the hospitals you work at, and choose when you take vacations, and choose, choose, choose, choose everything...It really does get you much closer to that...nirvana of a true work-life balance,” Heller said.

Another way IndeVets tackles burnout is by providing its vets with variety and a path to growing their clinical skill set. Because they can work in different practices and handle a variety of cases, clinicians find themselves in situations they might not normally experience. “It’s really amazing to be able to go into different practices, teach others about things that you do in the way that you work, and then also learn,” Heller said. “It’s a really great give and take.”

IndeVets’ answer to burnout and compassion fatigue

FREEDOM AND FLEXIBILITY

It’s no secret that veterinary professionals are dealing with burnout and compassion fatigue. Findings from a study published in the Journal of the American Veterinary Medical Association revealed that 50.2% of veterinarians had high burnout scores and 58.9% of veterinarians had high secondary traumatic stress scores.

What’s more, all the stress, high workload, and staffing shortages may be hurting the profession’s bottom line. Another group analyzed data from the same study, which included responses from more than 5000 veterinarians, to assess the economic impact of the resulting turnover, training, relocation, hiring bonuses, and decrease in staffing. They estimated that the burnout and compassion fatigue epidemic is costing the veterinary profession approximately $1 billion in lost revenue annually.

That’s why it’s more important than ever to address mental health and self-care for the veterinary profession. Clinicians need to be able to offer high-quality care to animals in their community without sacrificing job satisfaction and well-being in the process. “The ethical responsibility...includes not just working really hard but also keeping oneself well so that you can continue in the work and help with the other people in the profession or in your clinics,” Elizabeth Strand, PhD, associate clinical professor and founding director of veterinary social work at the University of Tennessee College of Veterinary Medicine, said in an article for the American Veterinary Medical Association.

VARIETY AND PROFESSIONAL GROWTH

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FOCUS ON POSITIVE MENTAL HEALTH AND COMMUNITY

A key benefit of working for IndeVets, Heller said, is it not only allows vets the freedom to do what they want, but also gives them the freedom to avoid what they dislike. “That means not overworking [and] not being expected to do things that you don’t feel comfortable doing. We have a lot of doctors [who] never want to do surgery. And working with us, they don’t ever have to do surgery,” he said.

IndeVets has an employee assistance program that provides a variety of free counseling services to its vets. Associates also get a Choose Your Own Adventure Stipend®, which helps pay for anything that supports their physical or mental well-being. Some have used it for wellness programs, therapy, gym memberships, and even to purchase a Peloton.

Finally, IndeVets is dedicated to creating a community among its clinicians. All IndeVets are connected through Microsoft Teams and can turn to each other for assistance on cases. Every vet also has access to their area medical director, who is there specifically to support and advocate for their doctors. The IndeVets team does quarterly meetings and gets together for “buzz sessions,” where everyone can talk about difficult cases or other things they find interesting.

“When I hear stories of doctors, where their lives are just so much improved with our model...it really makes me happy I did this,” Heller said. “I was at a crossroads in my career...and it was like a light bulb that went off. ‘Wow, why hasn’t anybody done this before?’ This is amazing for veterinarians, so I hope more people see that and take advantage of it.”

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In the state of South Australia, a troop of chimpanzees at Monarto Safari Park were diagnosed with human respiratory syncytial virus (hRSV) in July 2022. Over the course of a week, all 12 chimpanzees, ranging from 2 to 43 years of age, were showing upper respiratory signs, varying from mild to severe. The chimpanzee exhibit at Monarto Safari Park was closed to the public, and staff wore full personal protective equipment to care for the primates while the animals were in quarantine.

“Swabs were taken from a subset of the group and run against a panel of common human respiratory viruses, [such as] COVID-19, hRSV, influenza A and B, with positive [polymerase chain reaction] results gained to hRSV. The clinical course followed a similar pattern to what would be expected in humans, and all animals have since shown a gradual improvement.

A sick chimpanzee at Monarto Safari Park. (Photo courtesy of Monarto Safari Park)
promoting fluid intake," Ian Smith, senior veterinarian at Zoos SA, told dvm360®. The chimpanzees have since recovered, and their exhibit has been reopened to the public.

AUSTRALIA’S STATE OF THE ENVIRONMENT REPORT

Written by independent experts and combining scientific, traditional, and local knowledge, Australia’s State of the Environment 2021 Report has recently been released by the Australian government. The report is a comprehensive assessment of the health of every aspect of Australia’s environment, and the latest edition provides a decidedly gloomy assessment.

Tim Allard is the CEO of the Australian Wildlife Conservancy, a national nonprofit conservation organization that manages a large network of sanctuaries and land partnership sites across the country. “The Australian State of the Environment Report 2021 paints a bleak picture of decline in Australia’s native animals and ecosystems, emphasizing the lack of coordination and investment in environmental management,” Allard said in a statement. “Key threats, including habitat loss, invasive species, resource extraction, climate change, and pollution, have increased in intensity over the past 5 years, putting intense pressures on our natural environment. The urgent work of protecting, restoring, and managing Australia’s environment requires all of us to work together—governments, First Nations people, pastoralists, private conservation groups, and everyday citizens.”

Veterinarian Michael Banyard, a spokesperson for the Australian Veterinary Conservation Biology special interest group of the Australian Veterinary Association, highlighted that the report reminds us that biodiversity is essential to human survival, well-being, and economic prosperity. “The potentially positive outcome for this report comes with its detail and timing. The incoming government can and should use this report to draw a line under a system in crisis and now systematically implement meaningful change. As with climate change, business as usual can only threaten more ecosystems and, in the end, planetary well-being and sustainability,” Banyard said.

VIGILANCE AGAINST FOOT-AND-MOUTH DISEASE

Australia is on high alert to prevent an incursion of foot-and-mouth disease (FMD), with an outbreak of the disease unfolding in nearby Indonesia. Australia is free of the disease, which affects cloven-hoofed animals, such as cattle and sheep, and it has been estimated that a large multistate FMD outbreak would have a direct economic impact over 10 years of approximately AUD$80 billion.

Australian Chief Veterinary Officer Mark Schipp has asked veterinarians to be vigilant and to report any unusual signs of disease seen in livestock to Australia’s Emergency Animal Disease Watch Hotline (1-800-675-888). “My message to Australian veterinarians is that we [must] be vigilant. No one wants to be the veterinarian [who] ruled out an exotic disease too early,” Schipp told dvm360®. “We can amplify awareness of emergency animal diseases by working with producers and drawing [from] the excellent resources available, such as the Emergency Animal Diseases field guide for veterinarians and website. At the moment, there is a real appetite amongst Australian livestock producers for factual information, [so] make the most of this opportunity!”

Stringent biosecurity screening is in place for travelers arriving to Australia from Indonesia, with checks on incoming mail and trade products. The latest information about FMD is available on the Department of Agriculture, Fisheries and Forestry website.
A veterinary rehabilitation specialist shares his approach to osteoarthritis management and more

written by BOB ALABURDA, SENIOR EDITOR

Many aspects of veterinary medicine factor into rehabilitation and sports medicine: pain management, medication, acupuncture, and physical therapy, to name a few. For one veterinary rehabilitation specialist, it all comes down to mobility. The latest episode of dvm360 Live!® featured Matt Brunke, DVM, DACVS, CCRP, CVPP, CVA, who shared his multimodal approach to osteoarthritis management and more. Brunke sat down with Adam Christman, DVM, MBA, the host and dvm360®’s chief veterinary officer, to discuss his path to a rehabilitation specialty, his experience with military working dogs, and the concept of targeted injectable therapy for osteoarthritis.

WHY VETERINARY REHABILITATION AND SPORTS MEDICINE?

Brunke has a personal rule: Walk your dog for an hour a day. That may have been the catalyst that set him down the road of rehabilitation and sports medicine, he said. For Brunke, mobility directly relates to quality of life for the patient and the pet owner. Helping animals be more active by managing chronic pain and treating mobility issues allows everyone to get that 1 hour a day that can mean so much to both the pet and the human-animal bond.

“The first part is just that it’s quality of life; we want to spend more time with our pets,” Brunke said. “I’ve accrued a bunch of letters after my name in the pursuit of fixing mobility...and for me, mobility is life...because you want to have an active life with your dog or other pets, right?”

Brunke added that learning how to manage and improve chronic issues has been a focal point for his career. “It became a quest of understanding how to fix things...We don’t always have cures, but the best we can do to [help patients] improve is key,” he said.

REHABILITATION FOR MILITARY WORKING DOGS

Part of Brunke’s rehabilitation journey involved serving military working dogs and police dogs. He worked in the Albany area of New York for over a decade, where he had the opportunity to treat New York State Police canines. He recalled a story in which they brought him a dog with an anterior cruciate ligament injury. The policy at the time, he said, was to treat the dog but retire it from service on the spot.

That’s when Brunke made a bold statement: “This is a 3-year-old dog [who] they had already invested over 6 figures of training into, so I was a little brash and said, ‘No, we can fix this. We can put this dog back to duty in 3 months.’ And my boss [said], ‘You just said that in front of the head of all the New York state troopers, so you better be right.’ That dog was back to work in under 3 months and served another 9 years after treatment by Brunke’s team. From there, Brunke went on to Washington, DC, to help treat active and retired military working dogs with both the Central Intelligence Agency and the United States Secret Service.

A NEW MODALITY FOR MULTIMODAL OSTEOARTHRITIS MANAGEMENT

Brunke described osteoarthritis management as a passion project, which he feels may be under-appreciated at times. He said many clients, and even veterinarians, may resign themselves to the idea that pets naturally lose mobility as they get older. “We just think ‘Well, they got old, so they shouldn’t move around as well,’” Brunke said. “That shouldn’t be a standard [of care] for us….Age is not the disease.”

Following up that statement, Brunke shared a new modality his team has added to its toolbox: targeted injectable therapy. He asked rhetorically: Why treat a single joint or site with systemic drugs that may have the potential for adverse effects? Brunke then walked Christman through how he uses a product called Synovetin OA® (Exubrion Therapeutics®) in his clinic to treat dogs with elbow osteoarthritis. “Synovetin OA is a new treatment that is injected into that joint—it doesn’t get out into the rest of their body—and it starts to decrease all those white blood cells and angry inflammatory things that are eating away the cartilage...for 365 days,” he said.

Brunke also added that “Synovetin OA attacks the synovitis. That’s what makes all the fluid [and causes] all the pain.” He said that taking this targeted approach may improve the patient’s symptoms to the point where systemic drugs are no longer needed. As of June 2022, his clinic has treated 80 patients and 137 joints with this treatment and is seeing 20- to 30-degree improvements in range of motion within a month, and pain relief lasting for up to a year.

REFERENCE

1. Oliver K. Introduction to rehabilitation: the what and how-tos of physical rehabilitation. Presented at: Directions in Veterinary Medicine; June 24-25, 2022; Indianapolis, IN.
Island displays human-animal bond at its best
A different kind of canine-friendly lifestyle is shown to tourists on a trip to Mexico

We went to Holbox Island, near Cancun, Mexico, to swim with whale sharks—an awesome experience—and returned reminded of how complex the human-animal bond can be. Holbox is a Fantasy Island for dogs. They are everywhere on the small island, and although cats aren’t nearly as abundant, they are here too.

Many of the roaming dogs on Holbox seem to have owners. Many of the dogs wear collars and, based on conversations with locals, are mostly vaccinated for rabies. And when I say that dogs are everywhere, I do mean everywhere, from playing on the beach and frolicking in the ocean, to walking up and down streets, and wandering into stores and open-air restaurants. Roaming dogs are a part of the culture, and no one seems to mind. We were told that has been the case for decades, though no one we asked could target the canine-loving origins. Simply put, if you don’t like dogs, Holbox is not for you.

When thinking about the human-animal bond, my mind goes to a survey by the American Pet Products Association. Companionship, love, and affection were the primary benefits of having dogs, according to 61% of owners who responded.1 In Holbox, owners often don’t know where their dogs are on the island—they merely have a general idea. Yet these dogs have names, and mostly they return to their human’s home at some point each evening, although they may not share their beds.

The dogs in Holbox are often dirty by American clients’ standards. During the rainy season and away from the beaches, mud is difficult to avoid. We even saw a few dogs with raincoats and a few wearing life preservers for when they take a dip in the ocean. And when we watched owners interacting with their dogs, we saw expressions of love that require no translation.

Some dogs in Holbox are leashed, but most are not. Although some of these leashless dogs freely amble where their noses take them, others stay within a few feet of their owner. Holbox is a great place to document natural dog behaviors, particularly appeasement signaling. The dogs are often well-socialized and nearly always avoid conflict with other dogs. There are no cars on the island but there are trucks, slower-moving golf carts, and all-terrain vehicles. Residents say the dogs (or cats) are never hit by the vehicles.

There is at least 1 shelter on the island that enlists tourists to walk dogs, and voluntourism is encouraged. When dogs beg tourists for food, they’ve learned to do so by appearing as cute as possible, sitting, and silently staring with a gentle tail wag. Few people can resist offering a sample.

Downsides to Holbox include a lack of routine veterinary care, which is largely dependent on socioeconomic factors. For example, some dogs receive spay/neuter service but many others do not. The canine diet is questionable, with many dogs appearing to eat whatever they find. I am guessing that obstructions aren’t uncommon. I was told that most owned dogs have their diets supplemented by pet food. Still, I doubt many dogs in Holbox benefit from a complete and balanced diet.

Although dogs far outnumber cats in Holbox, cats are there, too. Most cats live both indoors and outdoors. Of those that are only outdoors, some have names and have diets supplemented with pet food. We met a very round, indoor cat that is as spoiled and loved as the owner suggested.

In just a few days in Holbox, we saw many touching examples of the human-animal bond. What comes to mind is a man who gently and with great patience took his small dog out into the ocean, perhaps for the first time. I later noticed, when looking at the pictures, that I wasn’t the only one watching this scene, which included a dolphin circling the man and dog. Countless times, we saw a handful of tourists from various nations gather in a circle to watch dogs play, clearly bringing as much joy to spectators as to the frolicking dogs.

Dr Jane Goodall once told me, “Dogs are the most wonderful creatures on earth.” Who can argue?

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The Dilemma: 
**Whom should I hire?**

Hiring is often an unavoidable, if stressful, process. How do you decide who is best for you as well as your clinic?

**Editor’s note:** All names and businesses in this dilemma case are fictitious, but the scenario is based on real occurrences.

Reed Animal Clinic is a companion animal facility in an affluent suburban area. Dr John Reed, the owner, founded the practice 16 years ago and now employs 4 veterinarians and a support staff of 20. He attributes much of the clinic’s success to the interaction between his staff and his clients: “We spoil pet owners,” Reed says, “which ultimately allows them to become better pet care providers.” For a variety of reasons, not the least of which is the increased demand for pet care during the COVID-19 pandemic, the doctor needs to hire another veterinarian. He knows what he’s looking for: an experienced, clinically skilled, well-credentialed individual who is comfortable interacting with clients. He also knows that such candidates command significant compensation and feels that high salaries are an investment in the clinic’s future.

Because of a very attractive employment package, Reed received a great response from the veterinary community. Of the 7 candidates who applied, 3 made it to the final round. All spent a day shadowing a staff veterinarian, met in-person with Reed for 2 hours, and met virtually with important nonveterinarian members of staff. When it came time to decide, Reed chose the candidate he felt would most benefit the diverse needs of his suburban practice and relied on responses to the follow questions:

**WHAT ARE YOUR PRIORITIES WHEN TREATING A PATIENT?**

- Candidate 1 said that she always assessed the interaction between pet and pet parent to determine the best way to achieve owner compliance, which would ultimately help the patient.
- Candidate 2 said that he felt it was important to bond with patients and establish a clear line of communication with owners so that they would be well informed during the decision-making process.
- Candidate 3 said: “My goal is to ensure that my patient is neither frightened nor in pain.”

**HOW DO YOU HANDLE OWNERS WHO SAY THEY CANNOT AFFORD TREATMENT FOR A PET THAT IS IN DISTRESS BECAUSE OF A TREATABLE CONDITION?**

- Candidate 1 said that she would strongly advocate for treatment, offer reasonable payment options, and tactfully advise that, as painful as it might be, humane euthanasia had to be considered.
- Candidate 2 said that he would make it clear that the pet was treatable, offer several treatment and payment options, and discuss the importance of assisting the patient if at all possible.
- Candidate 3 said that she would tell owners that she wanted to help the patient as much as they did but that they had to find a way to finance treatment and begin. She also said that she would do all that she could to make the treatment affordable but that she did not see parting with the family pet as an option.

In the end, Reed chose candidate 3 because he felt that she was less the product of an institutional approach and more the kind of clinician who thinks outside the box in an effort to cure patients. Although all 3 interviewed well and gave satisfactory responses, he felt that the third candidate’s simple goal and dogged determination were the qualities he wanted in a colleague.

Do you agree with Reed’s choice? We would like to know.

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**Rosenberg’s response**

US veterinary schools are excellent, and it is safe to assume that any 2022 graduate is very capable medically. However, the ability to communicate with clients, cooperate with colleagues, and understand financial realities is also essential. Reed felt that through her interview and answers, candidate number 3 demonstrated that she was best equipped to master those skills.
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