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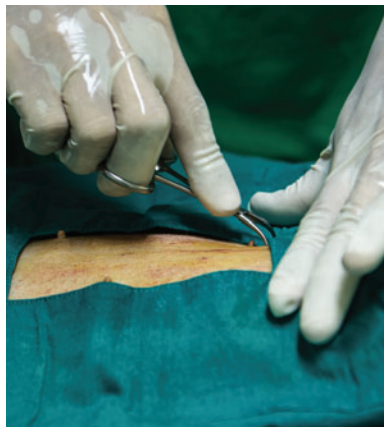
9 ways to up your spay/neuter game

Keeping up with advancements and maximizing efficiency will benefit patients

page M1



The life of a veterinarian: Superhero moments and panic attacks

Veterinarians deserve more props, says Dr. Alane Cahalane. *By Brendan Howard*

After helping another veterinarian in Hong Kong train to become a boarded surgeon, performing lifesaving surgery on a rescued moon bear and co-founding the first veterinary specialty hospital in the area, Alane Cahalane, BSc, DVM, MA, DACVS, found herself invited to take part in an International Women's Day luncheon in Hong Kong.

Dr. Alane Cahalane

"So, in this picture," Dr. Cahalane told Fetch dvm360 conference attendees in Baltimore in early May, showing a photograph of a dozen or so movers and shakers, "are lawyers and CEO whisperers, consultants and fashion designers. For weeks I prepared my outfit and planned how I was going to network with people. I thought, 'This is it. I'm ready to become a career woman in Hong Kong. I'm an intelligent woman. I'm in business.'"

Finally, at the event, how did her conversations go? "'Awww, you're a *vet*! How cute! I have a gerbil. Sometimes it's itchy.'"

See page 22>

Access to care:

Removing the barriers that keep pets out of clinics

If the veterinary profession finds new ways to serve clients with limited finances, pets and practices will both be healthier, experts say. *By Rachael Zimlich*

Pet ownership comes at a cost, literally. Food, supplies and, of course, veterinary care all add up financially over the course of a pet's life. But when should those costs prevent someone from actually owning a pet? And what is the veterinary profession's responsibility to pets and owners who face barriers when it comes to obtaining care?

Veterinarians struggle with these questions, and the answers aren't clear. But some thought leaders say a shift in the way veterinarians provide care is a start.

The scope of the problem

Nationally, the number of pets

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Old School, New School: A Great Dane dilemma

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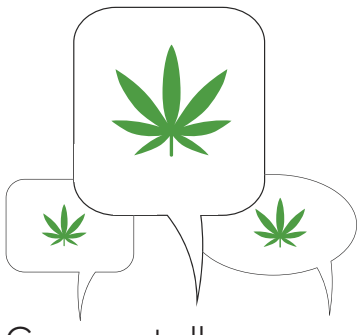

Can you talk about cannabis in veterinary practice?

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What's in a name? For cats, recognition

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Racetrack surface implicated in Santa Anita deaths

page 40

Advantage Multi® for Dogs and for Cats
(imidacloprid + moxidectin)

BRIEF SUMMARY: Before using *Advantage Multi® for Dogs* (imidacloprid+moxidectin) or *Advantage Multi® for Cats* (imidacloprid +moxidectin), please consult the product insert, a summary of which follows:

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

Advantage Multi for Dogs:

WARNING

- **DO NOT ADMINISTER THIS PRODUCT ORALLY.**
- **For the first 30 minutes after application ensure that dogs cannot lick the product from application sites on themselves or other treated animals.**
- **Children should not come in contact with the application sites for two (2) hours after application.**

(See Contraindications, Warnings, Human Warnings, and Adverse Reactions for more information.)

INDICATIONS:

Advantage Multi for Dogs is indicated for the prevention of heartworm disease caused by *Dirofilaria immitis* and the treatment of *Dirofilaria immitis* circulating microfilariae in heartworm-positive dogs. *Advantage Multi for Dogs* kills adult fleas and is indicated for the treatment of flea infestations *(Ctenocephalides felis). Advantage Multi for Dogs* is indicated for the treatment and control *of sarcoptic mange* caused by *Sarcoptes scabiei var.canis. Advantage Multi for Dogs* is also indicated for the treatment and control of the following intestinal parasites species: Hookworms *(Ancylostoma caninum) (Uncinaria stenocephala),* Roundworms *(Toxocara canis)* (*Toxascaris leonina) and* Whipworms (*Trichuris vulpis).*

Advantage Multi for Cats is indicated for the prevention of heartworm disease caused by *Dirofilaria immitis. Advantage Multi for Cats* kills adult fleas *(Ctenocephalides felis)* and is indicated for the treatment of flea infestations. *Advantage Multi for Cats* is also indicated for the treatment and control of ear mite *(Otodectes cynotis)* infestations and the intestinal parasites species Hookworm *(Ancylostoma tubaeforme)* and Roundworm *(Toxocara cati).* **Ferrets:** *Advantage Multi for Cats* is indicated for the prevention of heartworm disease in ferrets caused by *Dirofilaria immitis. Advantage Multi for Cats* kills adult fleas *(Ctenocephalides felis)* and is indicated for the treatment of flea infestations in ferrets.

CONTRAINDICATIONS: Do not administer this product orally. (See WARNINGS). Do not use the Dog product (containing 2.5% moxidectin) on Cats.

WARNINGS:

***Advantage Multi for Dogs:* For the first 30 minutes after application: Ensure that dogs cannot lick the product from application sites on themselves or other treated dogs, and separate treated dogs from one another and from other pets to reduce the risk of accidental ingestion. Ingestion of this product by dogs may cause serious adverse reactions including depression, salivation, dilated pupils, incoordination, panting, and generalized muscle tremors. In avermectin sensitive dogs[a], the signs may be more severe and may include coma and death[b].**

[a] Some dogs are more sensitive to avermectins due to a mutation in the MDR1 gene. Dogs with this mutation may develop signs of severe avermectin toxicity if they ingest this product. The most common breeds associated with this mutation include Collies and Collie crosses.

[b] Although there is no specific antagonist for avermectin toxicity, even severely affected dogs have completely recovered from avermectin toxicity with intensive veterinary supportive care.

***Advantage Multi for Cats:* Do not use on sick, debilitated, or underweight cats. Do not use on cats less than 9 weeks of age or less than 2 lbs. body weight. Do not use on sick or debilitated ferrets.**

HUMAN WARNINGS: Not for human use. Keep out of the reach of children. Dogs: Children should not come in contact with the application sites for two (2) hours after application. Cats: Children should not come in contact with the application site for 30 minutes after application.

Causes eye irritation. Harmful if swallowed. Do not get in eyes or on clothing. Avoid contact with skin. **Wash hands thoroughly with soap and warm water after handling.** If contact with eyes occurs, hold eyelids open and flush with copious amounts of water for 15 minutes. If eye irritation develops or persists, contact a physician. If swallowed, call poison control center or physician immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or physician. People with known hypersensitivity to benzyl alcohol, imidacloprid, or moxidectin should administer the product with caution. In case of allergic reaction, contact a physician. If contact with skin or clothing occurs, take off contaminated clothing. Wash skin immediately with plenty of soap and water. Call a poison control center or physician for treatment advice. The Safety Data Sheet (SDS) provides additional occupational safety information. For a copy of the Safety Data Sheet (SDS) or to report adverse reactions call Bayer Veterinary Services at 1-800-422-9874. For consumer questions call 1-800-255-6826.

PRECAUTIONS: Do not dispense dose applicator tubes without complete safety and administration information. Use with caution in sick, debilitated or underweight animals. The safety of *Advantage Multi for Dogs* has not been established in breeding, pregnant, or lactating dogs. The safe use of *Advantage Multi for Dogs* has not been established in puppies and dogs less than 7 weeks of age or less than 3 lbs. body weight. *Advantage Multi for Dogs* has not been evaluated in heartworm-positive dogs with Class 4 heartworm disease.

Cats may experience hypersalivation, tremors, vomiting and decreased appetite if *Advantage Multi for Cats* is inadvertently administered orally or through grooming/licking of the application site. The safety of *Advantage Multi for Cats* has not been established in breeding, pregnant, or lactating cats. The effectiveness of *Advantage Multi for Cats* against heartworm infections *(D. immitis)* after bathing has not been evaluated in cats. Use of this product in geriatric cats with subclinical conditions has not been adequately studied. Ferrets: The safety of *Advantage Multi for Cats* has not been established in breeding, pregnant, and lactating ferrets. Treatment of ferrets weighing less than 2.0 lbs. (0.9kg) should be based on a risk-benefit assessment. The effectiveness of *Advantage Multi for Cats* in ferrets weighing over 4.4 lbs. (2.0 kg) has not been established.

ADVERSE REACTIONS: Heartworm Negative Dogs: The most common adverse reactions observed during field studies were pruritus, residue, medicinal odor, lethargy, inappetence and hyperactivity. **Heartworm Positive Dogs:** The most common adverse reactions observed during field studies were cough, lethargy, vomiting, diarrhea (including hemorrhagic), and inappetence. **Cats:** The most common adverse reactions observed during field studies were lethargy, behavioral changes, discomfort, hypersalivation, polydipsia and coughing and gagging. **Ferrets:** The most common adverse reactions observed during field studies were pruritus/scratching, scabbing, redness, wounds and inflammation at the treatment site; lethargy; and chemical odor.

For a copy of the Safety Data Sheet (SDS) or to report adverse reactions call Bayer Veterinary Services at 1-800-422-9874. For consumer questions call 1-800-255-6826.

Advantage Multi is protected by one or more of the following U.S. patents: 6,232,328 and 6,001,858.

NADA 141-251,141-254 Approved by FDA V-03/2016

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*Treats and controls roundworms, hookworms and whipworms in dogs and roundworms and hookworms in cats.

CAUTION: Advantage Multi® is only available from a licensed veterinarian. Dogs: WARNING: **DO NOT ADMINISTER THIS PRODUCT ORALLY.** For the first 30 minutes after application, ensure that dogs cannot lick the product from application sites on themselves or other treated animals. Children should not come in contact with the application sites for two (2) hours after application. (See Contraindications, Warnings, Human Warnings and Adverse Reactions for more information.) Cats: Do not use on sick, debilitated or underweight cats. Avoid oral ingestion.

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[1] Poulet H, Minke J, Pardo MC, Juillard V, Nordgren B, Audonnet JC. Development and registration of recombinant veterinary vaccines. The example of the canarypox vector platform. *Vaccine.* 2007;25(30):5606-5612.

[2] Greene CE, Schultz RD. Immunoprophylaxis. In: Greene CE, ed. *Infectious Diseases of the Dog and Cat.* 4th ed. St Louis, MO: Elsevier Saunders; 2012:1166-1169.

[3] Taylor J, Meignier B, Tartglia J, et al. Biological and immunogenic properties of canarypox-rabies recombinant ALVACRG (vCP65) in non-avian species. *Vaccine.* 1995; 13;6;539-549.

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Nominate your veterinary team leader for 2019 Practice Manager of the Year

Managers can enter the dvm360/VHMA contest through July 2; finalists will be announced at Fetch dvm360 in Kansas City.

Like their doctor, technician and receptionist colleagues, the nation's veterinary practice managers are often too humble to think of themselves as Practice Manager of the Year. So they need your help to get them the respect and accolades they deserve and to share the knowledge they've gained.

Now's your chance: The fifth year of the dvm360/VHMA Practice Manager of the Year contest was announced May 2 at Fetch dvm360 in Baltimore, giving the nation's veterinary professionals a chance to highlight the amazing work practice managers do every day in hospitals across the country. The deadline to enter the competition is July 2.

Nominated by colleagues, managers then answer questions on their experiences in leadership, decision-making, team management and adapting to change. Ten finalists will be announced Aug. 23 at Fetch dvm360 in Kansas City. The Practice Manager of the Year will be announced Dec. 12 at Fetch dvm360 in San Diego.

Prizes for the contest focus on sharing the winner's knowledge and plugging them into a network of colleagues to learn with. The Practice Manager of the Year wins complimentary registration to an upcoming Fetch dvm360 conference as well as registration, travel and lodging for attendance at two premier events from the Veterinary Hospital Managers Association: the annual Management Exchange and the annual VHMA Conference.

The new Practice Manager of the Year also offers guidance to the dvm360.com, *dvm360* magazine, *Firstline* and *Vetted* teams on future content and future ways to help the veterinary profession, as well as to highlight the increasingly valuable job of veterinary practice manager.

For nomination and entry forms as well as rules and past content from competition entrants, finalists and winners, visit **dvm360.com/PMOY**.

dvm360 team takes home cross-platform honor for cyberbullying Leadership Challenge

Azbee Awards of Excellence include honorable mention for dvm360.

The dvm360 team was recently awarded an honorable mention for Cross-Platform Package of the Year for its 2018 dvm360 Leadership Challenge on cyberbullying in the veterinary profession (see **dvm360.com/cyberbullying**). The award was announced during the American Society of Business Publication Editors' Azbee Awards of Excellence in May in St. Petersburg, Florida.

The dvm360 Leadership Challenge on cyberbullying examines what happens when veterinary clients and internet trolls gang up on private practitioners. The effects can hurt business, harm reputations and damage psyches of those on the receiving end of cyberbullying. In this series, experts shared tools and plans to help avoid internet rampages, deal with them when they do crop up and help make veterinarians and veterinary team members more resilient when people go on the verbal attack. The cyberbullying series was shared in all of dvm360's magazines, e-newsletters and social media and on dvm360.com.


From left, dvm360 editorial team members Jennifer Vossman, Katie James, Marnette Falley, Hannah Wagle, Brendan Howard, Nicholette Haigler, Kristi Fender, Jessica Zemler and Gabrielle Roman.

"We are extremely proud of our teams that earned the honors received at the 2019 Azbee awards," said Tom Ehardt, president of MultiMedia Healthcare—dvm360's parent company—in a prepared release. "It is an honor to have ... our amazing publications recognized by such a prestigious organization."

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*Brunetto MA et al. Effects of nutritional support on hospital outcome in dogs and cats. *J Vet Emerg Crit Care*. 2010; 20: 224–231. Mohr AJ et at. Effect of early enteral nutrition on intestinal permeability, intestinal protein loss, and outcome in dogs with severe parvoviral enteritis. *J Vet Int Med*. 2003; 17: 791–798.

Walmart expanding pet clinic and pet pharmacy offerings

The retail giant expects to have 100 clinics operational within the next year, expanding access to veterinary care while increasing its share of a growing market.

As of mid-May, Walmart has 21 in-store pet health care clinics operating in six states. The company announced on its blog recently that it will soon up that number to 100 and expand its in-store and online pharmacies with low-cost prescription medications for dogs, cats, horses and livestock. The company also plans to stock the top 30 most-requested pet medications in its 4,500+ in-store pharmacies.

Essentials PetCare opened its first Walmart-based clinic in 2016 in Port Richey, Florida. (Twenty other clinics are operated in Walmart stores in six states by Idaho-based VetIQ Petcare.) Over the next two months, nine additional Essentials PetCare clinics will open for business in Walmart Supercenters in the Dallas-Fort Worth area of Texas.

Within a year the company plans to have a total of 100 clinics operational, although it did not specify where those clinics would be.

The mission of Essentials PetCare is to provide access to veterinary services to pet owners who otherwise would not seek care because of the cost. "Having store locations within 10 miles of nearly 90% of the country's population makes Walmart an ideal venue for our veterinary clinics," said Douglas Spiker, DVM, founder and president of Essentials PetCare, in a company press release. "Convenient access, as well as affordability, are often cited in industry research as key determinants in why millions of pet dogs and cats in the United States

Pet owners are expected to spend $75.38 billion on pet health care products and services this year

are not receiving even the most basic medical care."

Calling themselves a "new breed of pet care," Essentials PetCare clinics provide routine wellness care, including vaccines, and treatment for a variety of minor conditions. Emergencies and other serious conditions, as well as surgeries, are referred to local full-service veterinary hospitals.

According to an article on RetailTouchpoints.com, Walmart enjoyed "a roughly 60% increase in the number of dog- and cat-related health care items sold on its website over the past year." With pet owners expected to shell out an estimated $75.38 billion in pet health care products and services this year, Walmart is well-positioned to become a major player in the pet health care market.

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[1] Freedom of Information: NADA140-971 (January 15, 1993).

[2] Data on file at Boehringer Ingelheim.

[3] Data on file at Boehringer Ingelheim.

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

Please see Brief Summary on page 08.

Study finds homemade feline diets nutritionally inadequate

Not only do these diets lack essential nutrients, some may contain ingredients toxic to cats, report UC Davis researchers.

A study conducted by researchers at the University of California, Davis, found that many homemade cat food recipes didn't include all the nutrients cats need, and they potentially contain ingredients that are toxic to cats, according to a release from the university.

Published in the May 15 issue of the *Journal of the American Veterinary Medical Association*, the study evaluated 114 recipes from online sources and books, written by both veterinarians and nonveterinarians. It found that 40% didn't give feeding instructions, and the remaining recipes were unclear or lacked detail.

"Only 94 recipes provided enough information for computer nutritional analysis and, of those, none of them provided all the essential nutrients to meet the National Research Council's recommended allowances for adult cats," says lead author Jennifer Larsen, DVM, PhD, DACVN, UC Davis veterinary professor, in the release.

Regardless of whether the recipes were written by veterinarians or nonveterinarians, they still lacked nutrients, though the recipes by veterinarians had fewer deficiencies in essential nutrients, the release states. The study found most recipes lacking concentrations of three or more nutrients, with some deficient in up to 19 essential nutrients. Further, many had severe deficiencies, offering less than 50% of the recommended amount of several essential nutrients, including choline, iron, zinc, thiamin, vitamin E and manganese.

So would these recipes actually harm cats? It would vary based on feeding instructions, the length of time the cat ate the diet, the overall health of the cat and the degree of the recipe's nutritional deficiency, the release states. The researchers found just five recipes, all created by veterinarians, that met all but one of the requirements for essential nutrients.

Several recipes (7%) called for ingredients that are potentially toxic to cats, such as garlic, onions and leeks. The researchers also found recipes that called for raw animal products without mentioning the potential for bacterial contamination. Recipes that included bones failed to mention the importance of grinding them to prevent gastrointestinal tears, the release continues.

Dr. Larsen says in the release that there was a large increase in cat owners switching their pets to homemade cat food recipes after toxic substances were found in commercial pet food imported from China more than a decade ago. Other cat owners choose homemade because they want more control over their cat's diet. Still others believe their cat should eat a diet with sustainably sourced, organic or vegetarian ingredients. But Dr. Larsen recommends that cat owners be cautious about homemade recipes.

"Homemade diets are not necessarily better," she says. "If you are going to use one, you have to make sure you do it safely, and they should be balanced and appropriate for your individual cat."

Cat owners shouldn't be afraid of commercial diets, Dr. Larsen continues, but recommends that those who want to feed homemade consult with a veterinary nutritionist who specializes in creating homemade diets for pets.

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[1] Zollers B, Huebner M, Armintrout G, Rausch-Derra LC, Rhodes L. Evaluation of the safety in dogs of long-term, daily oral administration of capromorelin, a novel drug for stimulation of appetite. *J Vet Pharmacol Ther.* 2017 Jun;40(3):248-255. doi: 10.1111/jvp.12358. Epub 2016 Sep 25.

IMPORTANT SAFETY INFORMATION: ENTYCE® (capromorelin oral solution) is for use in dogs only. Do not use in breeding, pregnant or lactating dogs. Use with caution in dogs with hepatic dysfunction or renal insufficiency. Adverse reactions in dogs may include diarrhea, vomiting, polydipsia, and hypersalivation. Should not be used in dogs that have a hypersensitivity to capromorelin. Please see the full Prescribing Information on page 10 for more detail.

ENT-0364

ARATANA THERAPEUTICS

CAPC predicts higher heartworm risk, continued spread of Lyme

Southeast, Atlantic Coast, Midwest are of particular concern for parasites in 2019.

The Companion Animal Parasite Council (CAPC) recently released its annual 2019 parasite forecast and corresponding 30-day forecast maps to alert veterinarians and pet owners of pending outbreaks. The organization predicts that heartworm will be higher than average, especially in the Southeast United States; the forecast for Lyme disease is for a continued spread in the Atlantic Coast and Midwest.

"We started providing our annual forecasts over eight years ago because of the dynamic and ever-changing nature of parasites," says Christopher Carpenter, DVM, executive director of CAPC, in a release from the organization. "Over the years, we have seen these diseases continue to move. Our annual forecast will alert pet owners to the risks this year and remind them that our pets need to be tested and protected year-round."

Pet owners and veterinarians who want to monitor parasite activity in their county throughout the year now have access to 30-Day Parasite Forecast Maps at petdiseasealerts.org. These maps provide a local forecast for every county in the continental United States on a monthly basis. In addition, the parasite prevalence maps at capcvet.org provide a snapshot of the percentage of pets that have tested positive for a given disease, also down to the county level.

According to CAPC, the risk of pets acquiring heartworm disease is increasing due to weather patterns and the transportation of companion animals from one area of the country to another. A warmer-than-usual and humid weather pattern has created ideal breeding conditions for mosquitoes across the country, which increases potential transmission of the parasite that causes heartworm disease.

CAPC also predicts that Lyme disease will be higher in three key areas this year: the Appalachian region, Minnesota and the Atlantic Coast. Lyme disease, which is transmitted by *Ixodes* species ticks, is spreading as the white-tailed deer population grows and migratory birds carry ticks to new areas. The organization urges veterinarians and pet owners to test annually and use tick preventive or acaricidal treatment year-round. High-risk patients for vector-borne disease should be tested and their owners should consider a vaccination for Lyme disease, CAPC says.

Here are more specifics on CAPC's risk predictions regarding parasite-related diseases:

Heartworm infection is expected to be higher than average in the south-central and southeastern United States. The areas of greatest concern are those along the Mississippi River from northern Louisiana all the way into Illinois (see map below).

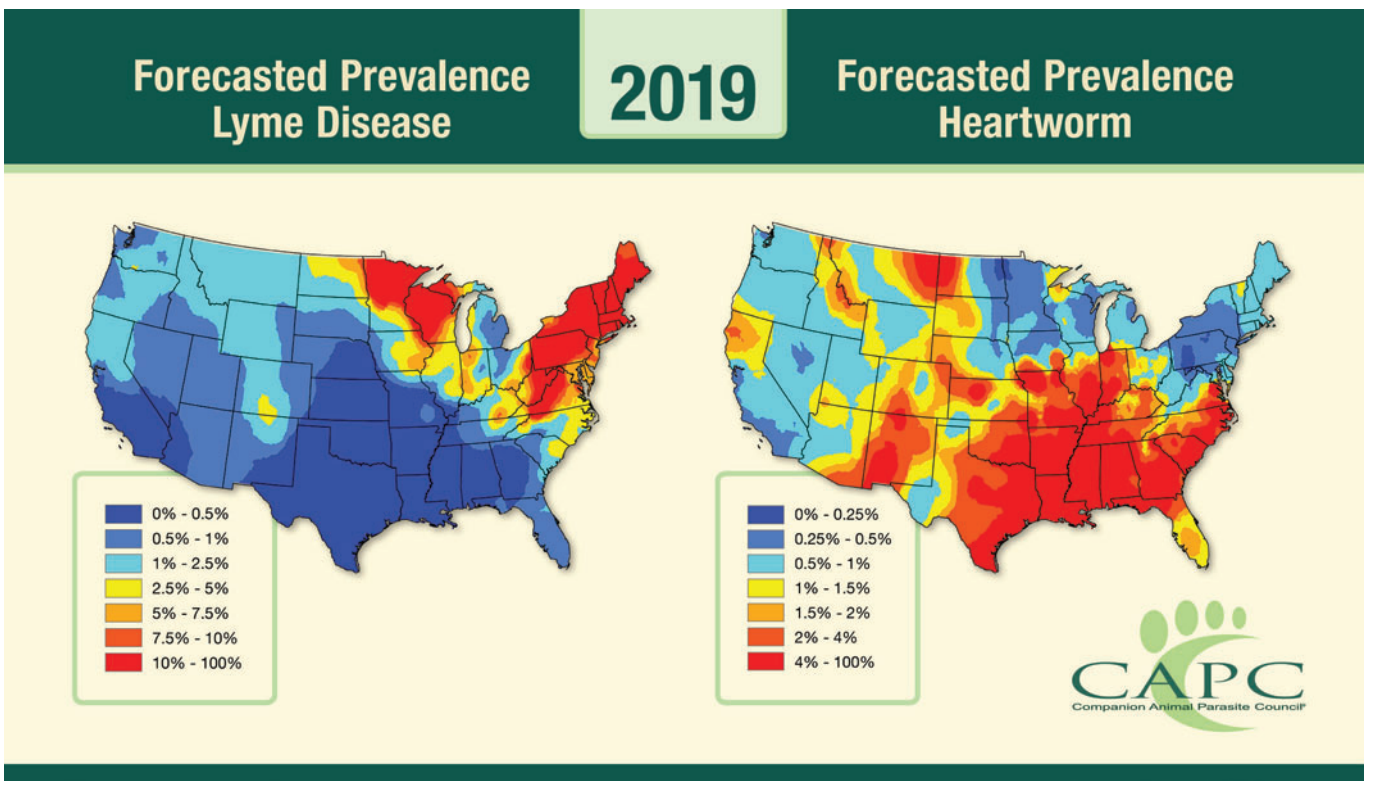
In addition, areas with historically lower prevalences of heartworm should particularly take note of predicted higher prevalence including Indiana, Illinois and Iowa, CAPC says. Southern Louisiana and a small area along the Texas border are currently forecasted to be lower than average. Pet owners should take extra care to limit their pets' exposure to mosquitoes, test their pets annually for heartworm diseases and use heartworm preventatives year-round.

Lyme disease is a high threat again this year and is "oozing" into the entire Appalachian region, the Atlantic Coast, and throughout Wisconsin and Minnesota, CAPC says (see map). Pets living in or traveling to these states are considered to be at high risk; pet owners are adivsed to talk to their veterinarian about a Lyme vaccination in addition to testing for the disease and protecting year-round against ticks.

Anaplasmosis agent transmission is forecasted to be average for much of the United States. However, northwestern Minnesota could have a more active year. Some other spots are expected to see less activity than normal, including the Atlantic Coast of New England, the Wisconsin-Minnesota border, the Upper Peninsula of Michigan and southern Texas.

Ehrlichiosis is expected to be higher throughout the south-central United States, particularly in Oklahoma, Arkansas and Missouri. There are several small areas scattered throughout the south-central and southeastern states that are predicted to be lower than average, most notably eastern Arkansas and across the border of North Carolina and Virginia.

The CAPC Parasite Forecasts are a collaborative effort among veterinary parasitologists and statisticians in academic institutions across the United States, the organization states. These researchers conduct research and analyze data that helps them understand and monitor the transmission of vector-borne disease agents and the changing life cycles of parasites. The forecasts are based on many factors, including temperature, precipitation and population density.



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Nebraska considers tax on veterinary services

On April 15, National Tax Day, Nebraska Gov. Pete Ricketts joined local veterinarians and animal advocates to voice disapproval of the Nebraska Legislature's proposed tax on pet healthcare, according to a release from Ricketts' office. Currently, the Revenue Committee is considering a tax on veterinary services alongside several other sales tax increases for the state.

"Even though Nebraskans already pay sales tax to purchase, train, groom, board, exercise and bury their pets, some state senators are talking about taking even more money from the pockets of pet owners," Ricketts said during a press conference at VCA Midwest in Omaha. "We're here to tell the Legislature: Keep your paws off of pet healthcare! Senators should focus on controlling spending to deliver tax relief for all Nebraskans instead of taxing one group of people to give to another."

"Animals play an important role in people's lives," said Christopher Byers, DVM, DACVECC, DACVIM, of VCA Midwest. "Pets are part of our family, and the health of livestock on Nebraska ranches is vital

"We're here to tell the Legislature: Keep your paws off of pet healthcare!"
—Gov. Pete Ricketts

to our state's economy. It's critical that we provide both routine and emergency veterinary care for these animals. The proposed sales tax on veterinary services would make veterinary care more expensive and less accessible, forcing Nebraskans to make excruciating decisions about the care of their pets."

A hearing on the revenue bill occurred in late April, and debate continues in both houses of the state Legislature.

FDA to continue evaluation of cannabis products

Passage of the 2018 Farm Bill and growing consumer interest in cannabis and cannabis-derived products have prompted the agency to redouble its efforts to protect public health.

In light of the burgeoning interest among consumers for health and wellness products containing cannabis and its components, the FDA has outlined plans for clarifying its regulatory authority in this area.

General enthusiasm for these products skyrocketed late last year with the passing of the 2018 Farm Bill, which established hemp as a unique category of cannabis not included in the Controlled Substances Act. This change means hemp is no longer considered a controlled substance under federal law. Hemp is now defined as cannabis and cannabis derivatives that have extremely low concentrations of the psychoactive compound delta-9-tetrahydrocannabinol (THC). Cannabidiol (CBD), extracted from marijuana or hemp plants, has no psychoactive effects.

Under the Farm Bill, the FDA maintains regulatory authority over all cannabis-containing or cannabis-derived compounds through the Federal Food, Drug, and Cosmetic Act, says FDA Commissioner Scott Gottlieb in a statement from the agency. Therefore, any claims made must be approved by the FDA before the products can be sold to consumers.

In a statement released earlier in April, FDA Commissioner Scott Gottlieb, MD, outlined the agency's immediate plans for establishing a framework for the regulatory pathways for these products, including a public hearing to be held next month.

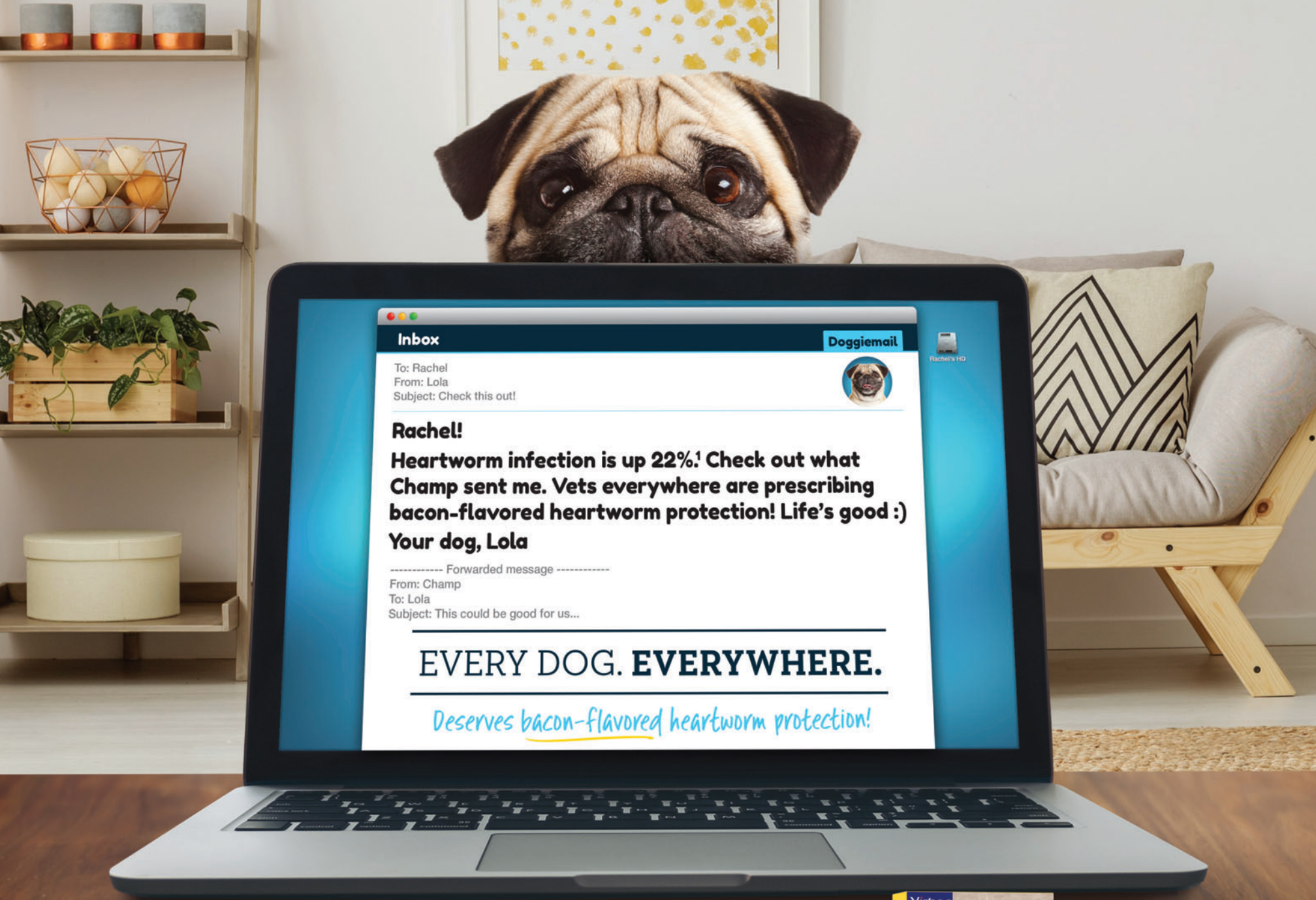
The purpose of the hearing is to "obtain scientific data about the safety, manufacturing, quality, marketing, labeling and sale of cannabis products," according to a notice in the Federal Register. (Electronic or written statements will be collected through July 2, 2019.) In addition to giving industry stakeholders the opportunity to share their experiences and challenges, this hearing will inform the creation of an internal FDA working group to explore potential pathways for lawful marketing of dietary supplements and conventional foods containing CBD.

Announcing the hearing on Twitter, Dr. Gottlieb said, "We remain committed to exploring an appropriate, efficient and predictable regulatory framework to allow product developers that meet the requirements under our authorities to lawfully market these types of products."

In late March, the FDA and Federal Trade Commission issued joint warning letters to three companies that market CBD products, saying the companies made "unfounded, egregious claims about their products' ability to limit, treat or cure cancer, neurodegenerative conditions, autoimmune diseases, opioid use disorder, and other serious diseases, without sufficient evidence and the legally required FDA approval."

The FDA also intends to maintain and update an online FAQ addressing how the agency's requirements apply to cannabis-derived products.

ANDRIS TKACHENKO/STOCK.ADOBE.COM



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For complete product information, please see pages 16 and 17.

Reference: 1. AHS announces findings of new heartworm incidence survey. American Heartworm Society website. https://heartwormsociety.org/newsroom/in-the-news/347-ahs-announces-findings-of-new-heartworm-incidence-survey. Accessed January 17, 2019.

Shaping the future of animal health

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AVMA offers certification for workplace well-being

Online program, funded by Merck, is worth four CE hours.

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If you like free CE and championing well-being in your veterinary hospital, you may like the AVMA's new Workplace Wellbeing Certificate Program.

Those who complete the online course (free to AVMA and SAVMA members; $75 for nonmembers) receive four CE hours and information on "critical resources for group and individual problem solving centered around creating a culture of well-being," according to a release.

Everyone starts with the module "Creating a Culture of Wellbeing" with Jen Brandt, PhD, AVMA director of well-being and diversity. Then they finish up the following in any order they want:

> "How to Request, Receive and Give Feedback" with Dr. Brandt
> "Transforming Conflict" with Dr. Brandt and Elizabeth Strand, PhD, founding director of veterinary social work at the University of Tennessee College of Veterinary Medicine
> "QPR Assessment" (risk assessment and management of suicide risk) with the QPR Institute
> "Diversity and Inclusion" with Lisa Greenhill, MPA, EdD, AAVMC senior director for research and diversity, and Dane Whitaker, DVM, president-elect for Pride Veterinary Medical Community.

The online course can be accessed on AVMA Axon, the association's online learning portal. The program was made possible by an educational grant from Merck Animal Health, which also funded the Merck Animal Health Veterinary Wellbeing Study.

"It's significant that the AVMA's first online education certificate program provides the entire veterinary team with a valuable and meaningful user experience that meets their personal and professional needs," says John de Jong, DVM, president of the AVMA. "It is truly 'help for the helpers.' While veterinary professionals are busy protecting the health and welfare of people and their pets, the AVMA wants to protect the well-being of the entire veterinary team by providing this high-quality and unique digital education series."

Pets, stand up and be counted

Wisdom Health planning national pet census.

Wisdom Health, a division of Mars Petcare, has announced that it will conduct a national pet census this year with plans to release the results alongside those of the upcoming 2020 U.S. census. Researchers will examine topics related to pet breed, size, activity level and overall lifestyle, including:

> Average number of pets in each household
> Top purebred and mixed-breed dogs and top pedigreed and random-bred cats
> Places where people get their pets
> Most popular feeding choices
> Preventive healthcare regimens
> Most diagnosed disorders
> Frequency of veterinary visits.

What's more, data collected from the pet census will be combined with Wisdom Panel's genetic data to glean more detailed information that can help improve the health of dogs and cats, company representatives say.

"Not only will the 2020 pet census provide a window into the lives of America's cats and dogs, but it will also better inform the relationship between pets, their owners, breeders, shelters and veterinarians with the ultimate goal of improved pet care and wellness," says Audrey Yoo, the company's general manager, in a media release.

Wisdom Health hopes the insights drawn from the pet census combined with the genetic data will help advance canine and feline health. "We're also hoping a genetic portrait of our nation's pets will lead to greater awareness of which breeds are predisposed to certain complex health conditions such as gastric dilatation and volvulus … or skin allergies (atopy), along with the genetic disorders found in the Wisdom Panel array of tests," says Angela Hughes, DVM, PhD, a genetics expert at Wisdom Health, in the release.

2010 National Mutt Census findings

Ten years ago, Mars Veterinary surveyed more than 16,000 owners of mixed-breed dogs. Here are the key findings from the 2010 National Mutt Census, according to the release:

> German shepherds were among the most popular purebred and mixed-breed dogs.
> Most owners of mixed-breed dogs prefer smaller dogs over larger dogs. Only 11% of mixed breeds weighed more than 80 lb.
> People obtained mixed-breed dogs primarily from shelters (46%), followed by friends, neighbors and relatives (18%).
> Dry diets were the most popular diet (65%) over mixed wet and dry food (21%), wet food (5%), and raw food and scraps (9%).

Combating corporate? There's an association for that

Founded to counter the corporatization of veterinary medicine, the Independent Veterinary Practitioners Association aims to represent the interests and needs of privately owned hospitals in North America. *By Maureen McKinney*

With his vision to advocate for independent veterinarians, to promote the value of independent practices to the public and to the profession, and to increase client visits to privately owned veterinary practices, Florida practice owner Don Woodman, DVM, incorporated the Independent Veterinary Practitioners Association with others in spring 2017.

The group's website says it now has more than 200 members from 42 states and two Canadian provinces.

"Our vision is a world in which independent veterinary practitioners can acquire, own and manage veterinary hospitals so that independent ownership of practices remains a viable and rewarding option, and where veterinarians remain at the center of leadership throughout the veterinary profession," Dr. Woodman recently told *JAVMA News*.

The organization welcomes all private practice owners, regardless of the species they see or the size of the business. "Locally owned practices contribute to the fabric of their communities like no other business entity," the IVPA states on its site. It goes on to say that as "pillars of their community," private practices are vital to cultural and economic prosperity.

The IVPA's four primary goals for this year include:

> Becoming a member of the AVMA Allied Caucus with a seat in the House of Delegates
> Using social media to promote to pet owners the value of independently owned practices
> Advocating for fair pricing for manufactured goods
> Funding a student representative program to support veterinary students who are considering practice ownership.

IVPA offers five annual membership levels: hospital owner ($95), nonowner or retired veterinarian ($75), affiliate ($125), paraprofessional (free) and student (free). For more information, visit the IVPA website at iveterinarians.org.

Corporate veterinary practice ownership

30,000	Estimated number of U.S. practices
4,000	Estimated number of U.S. practices owned by corporations
10%	Percentage of corporate-owned general practices
45%	Percentage of corporate-owned specialty practices
2,000+	Number of hospitals in North America and Europe owned by Mars Veterinary Health
10,000+	Number of veterinarians employed by Mars Veterinary Health
$1.2 million	Minimum revenue a multidoctor practice must generate annually to be considered for purchase by a corporation
4	Number of U.S. practice brands owned by Mars Veterinary Health (Banfield Pet Hospital, BluePearl, Pet Partners and VCA)

Sources: Nolen S. The corporatization of veterinary medicine. JAVMA News, *December 1, 2018; Mars buys hospitals in Europe.* JAVMA News, *August 1, 2018.*

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INDICATION: For use as replacement therapy for mineralocorticoid deficiency in dogs with primary hypoadrenocorticism (Addison's disease).

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WARNINGS: Use ZYCORTAL Suspension with caution in dogs with congestive heart disease, edema, severe renal disease or primary hepatic failure. Desoxycorticosterone pivalate may cause polyuria, polydipsia, increased blood volume, edema and cardiac enlargement. Excessive weight gain may indicate fluid retention secondary to sodium retention.

HUMAN WARNINGS: Not for human use. Keep this and all drugs out of the reach of children. Consult a physician in case of accidental human exposure.

PRECAUTIONS: Any dog presenting with severe hypovolemia, dehydration, pre-renal azotemia and inadequate tissue perfusion ("Addisonian crisis") must be rehydrated with intravenous fluid (saline) therapy before starting treatment with ZYCORTAL Suspension. The effectiveness of ZYCORTAL Suspension may be reduced if potassium-sparing diuretics, such as spironolactone, are administered concurrently.

ADVERSE REACTIONS: The field safety analysis included evaluation of 152 dogs. The most common adverse reactions reported are polyuria, polydipsia, depression/lethargy, inappropriate urination, alopecia, decreased appetite/anorexia, panting, vomiting, diarrhea, shaking/trembling, polyphagia, urinary tract infection, urinary tract incontinence and restlessness. Reports of anaphylaxis and anemia have been associated with a different desoxycorticosterone pivalate injectable suspension product.

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Access to care

> Continued from the cover

whose owners can't afford their care is huge. The University of Tennessee's Access to Veterinary Care Coalition released a national population study in December 2018, with the help of a grant from Maddie's Fund, to understand barriers to veterinary care across the socioeconomic landscape. The report acknowledges that while families who can't afford pets should perhaps not have them, it's also difficult to deny someone the companionship of a pet.

The report revealed that an estimated 29 million dogs and cats live in households that rely on the federal Supplemental Nutrition Assistance Program (SNAP). Most households in the study reported having 2.2 pets, and only one out of four households owned just a single pet. Households with lower incomes were more likely to have just one pet, the report indicates.

Eighty percent of participants in the study considered their pets to be a part of their family, regardless of income. But roughly a third of households studied experienced barriers to veterinary care, and in 80% of those cases, the barriers were financial. This is not just a problem for poor households, either. The report notes that about 75% of Americans working full time live paycheck to paycheck, and even higher-income pet owners say money is a reason they don't pursue some types of veterinary care.

Veterinarians were polled in the report, too. Most of those who participated believe that all pets deserve some level of veterinary care, and almost 90% say pet owners not being able to obtain veterinary care for their pet negatively impacts their (veterinarians') mental and emotional health.

Here are some additional findings:

- 23% of pet owners say they've had trouble obtaining preventive care for their pet in the recent past.
- 44% of pet owners who can't afford preventive care also share experiences of not being able to afford sick care for their pets.
- 74% of pet owners reported not being able to afford sick care, with middle-class people as likely to cite financial barriers as lower-income participants.
- 59% of participants in the highest income bracket reported that they did not pursue sick care for their pet due to financial reasons.
- 56% of pet owners reported not being able to afford emergency pet care.

Other barriers to care cited by pet owners include having trouble getting to a veterinarian, not having a way to transport the pet to a clinic and not knowing where to obtain veterinary services. But financial barriers were by far the most common impediment to veterinary care at every economic level.

Developing new models

Michael J. Blackwell, DVM, MPH, FNAP, director of the Program for Pet Health Equity at the University of Tennessee and chair of the Access to Veterinary Care Coalition, says pet owners' financial dilemmas are a hard pill to swallow for veterinarians.

"Many practices see clients that have needs the practices can't meet because they can only give away so much of their services," Dr. Blackwell says. "Most vets can shave fees or change treatment plans to meet needs, but the cost of operating practices has gone up. The cost of healthcare for both humans and animals continues to increase."

While many veterinarians try to help pet owners where they can, it's a problem that's not going away or getting better. "When we look at demographics across the country, the working poor as a group are not getting smaller," Dr. Blackwell says. "More revenue needs to be in the equation, and the revenue is not going to come from families."

One potential solution is AlignCare,

a program spearheaded by the University of Tennessee College of Social Work and supported by Maddie's Fund that aims to use existing resources to achieve better outcomes for pets and help disadvantaged families.

"Veterinary medicine has operated in a silo," Dr. Blackwell says. "When we look at lack of veterinary care, it's not that we don't know what to do. The problem is human reality, and the ecosystem is low socioeconomics."

AlignCare is a three-year program that enrolls pet owners through social service agencies and pairs them with participating veterinary practices. The program will test Medicare- and Medicaid-type models, paying practices a flat rate for treating a certain number of participating clients each month versus paying a set fee for certain conditions.

The program seeks to develop a better understanding of decision points in veterinary care and also test a managed care environment, where veterinarians agree to provide services at a below-market level while a third party pays a subsidy and pet owners pay a copay.

The program will be implemented in 10 communities by July 2019. After three years, Dr. Blackwell says, AlignCare will assess whether to expand the model throughout the country.

But what's in it for *you*?

Veterinarians have one of the highest suicide rates in the U.S., and Dr. Blackwell says there's no mystery as to why.

"The kind of people attracted to the profession are not the kind of people who ought to be euthanizing animals they can't help," Dr. Blackwell says. "We are not built to do that."

The solution is not to give away services, he says, but to find creative ways to help pet owners. By helping more low-income pet owners, veterinarians can help reduce euthanasia rates or, at the very least, reduce suffering while also helping their practices obtain revenue through new models of care.

"They're able to serve clients because now there's a subsidy that will help," Dr. Blackwell says. In the end, he says the goal is to make veterinary care more available to low-income pet owners, and to allow veterinarians to be reimbursed for cases that in the past may not have generated any revenue at all.

"We believe that the biggest resource of people, knowledge, equipment, skills and facilities is private practice. So AlignCare is based on trying to leverage that resource," says Dr. Blackwell. "We're not trying to promote nonprofits. Let's look at the biggest resource in this nation and figure out how to leverage it."

A new standard of care

AlignCare will also examine providing incremental care versus the gold standard. In gold-standard care, bills are much higher, driven by top-of-the-line tests and treatment options, Dr. Blackwell says. Many times, he adds, the cost of working up a case leaves pet owners unable to afford the actual treatment. Incremental care—or starting with less-expensive treatment options for possible diagnoses before performing expensive diagnostics—is one strategy to control overall costs and one that Dr. Blackwell hopes to standardize.

"In doing that, we don't take care away from middle class citizens who can pay for advanced care, but we also don't let the gold standard be the barrier for other families," Dr. Blackwell says.

David Haworth, DVM, PhD, former president of PetSmart Charities, agrees that finding a way to provide care for low-income pet owners is key to the future of veterinary medicine. In a presentation at the Fetch dvm360 conference in San Diego in December 2018, Dr. Haworth outlined the plight of low-income pet owners and the opportunity veterinarians have in

finding ways to serve this market.

Low-income families (those who make $20,000 a year or less) who *do* spend money on veterinary care spend about $200 yearly on average, Dr. Haworth says. With an estimated 59 million pets in that demographic, "the math gets really big really fast in unrealized revenue."

"I really believe the ultimate solution is a free market–based solution. How do we in philanthropy get the free market to realize it's there and de-risk the market for those who want to get into that space?" Dr. Haworth asks.

While $200 per year may not go far when it comes to chronic conditions or trauma, Dr. Haworth says it can provide benefit in offering pet owners counseling and options. Some practices find success in offering simple options based on what clients can afford—again, incremental care versus the gold standard.

"These pet owners are great owners because they're doing what they can—whatever that is," Dr. Haworth says. "If we said that to ourselves more often, then we would all feel better about the jobs we're doing. A bad veterinarian watches them suffer. A good veterinarian looks at options and does what they can. Gold standards hurt us as a profession, and clients on the lower end of the spectrum suffer."

By doing something instead of nothing, pets and pet owners benefit along with practices, he says.

"If we can do those things, the animals will be better off and there will be revenue," Dr. Haworth says. The key is to find a new model that benefits pets, owners and veterinarians.

"A lot of people think they can't afford veterinary care, but they can afford more than they think, and veterinarians could be getting that revenue if they could open their minds and eyes to take advantage of it in the right way," Dr. Haworth says. "It's up to the veterinarians to say, 'I want to do this because it's the right thing, and this is an area where I can make a living and build a business.' We've got to break out of the traditional practice. There's always room for that. But that's not the only model."

Rachael Zimlich, RN, BSN, is a former reporter for dvm360.

Life of a veterinarian

> Continued from the cover

Dr. Cahalane, whose keynote address was sponsored by Boehringer Ingelheim, said the reponse made her feel unimportant, like it "trivialized veterinarians' contribution to the world." When someone makes this kind of comment, they're just trying to make conversation, she supposes, but it can feel like a patronizing pat on the head to perfectionistic, highy driven, multispecies-medical-expert veterinarians.

The heart of the problem, though, is not the world's perception of veterinarians—it's their own inferiority complex, Dr. Cahalane says. And it's time to stop. To make that happen, she shared three suggestions for ways veterinary professionals can change their perspective, appreciate their teams (or find better ones) and press the industry to help.

Step 1. Don't live in fear

When Dr. Cahalane got a call from Animals Asia that one of its injured moon bears needed a complex surgery to repair its humerus, she jumped at the chance to fly out to the facility to address Claudia's orthopedic issues.

"For me to be anywhere near a threatened species was really exciting," she says. But as she was driving to the airport, her heart began to race and she started sweating profusely. She pulled over and called a friend in a panic, afraid she was dying. Her friend was calm: "Alane, you're having an anxiety attack."

"This was the most important thing I'd ever done," Dr. Cahalane says—and she was spectacularly afraid of failing. The experience reminded her then, and reminds her now, of all the times she's been motivated not by a desire to do the best she can, but by an intense fear she'll do something wrong.

It's an unhealthy motivation, she says. She recalls another high-stakes case involving a dog owned by a local Hong Kong celebrity. Unfortunately, the patient died suddenly and unexpectedly.

"I thought, 'I'm screwed,'" she says. She'd made a difficult judgment call, and the outcome had not been good. The thought of the media firestorm that could erupt was horrifying.

"I was a little kid who wanted to save animals," Dr. Cahalane says. "When I don't save one, I'm sad. But this time I wasn't just sad—I was terrified. This famous person's dog just died on my watch. He could go to the media that morning. We're terrified of that stuff."

This fear can crush veterinarians' souls, she says. "Am I the superhero surgeon going off to fix moon bears," asks Dr. Cahalane, "or a head case having anxiety attacks and living in fear of being destroyed by a famous person?"

She's both. Most veterinarians are both, she says. But they can't let superhero moments be overwhelmed by fear.

"We have to focus on our superhero moments," she says.

Step 2. Don't go it alone

Psychological safety provided by friends and family who understand can also help veterinarians work through fear, Dr. Cahalane says. Colleagues in and outside the clinic can support you when medicine goes right and—more often than we would like—goes wrong.

An NFL fan, Dr. Cahalane showed a few seconds from the last Super Bowl in which a receiver missed a pass, leading to a game-ending interception by the opposing team. As the other team celebrated, the receiver lay on the ground facedown for a solid minute.

"He's paid a lot of money to make that catch," she said as she paused the footage. "But you can't make every catch … you just can't. Each of us has been that guy, lying on the field saying, 'I can't believe that just happened.'"

Dr. Cahalane continued the clip, which next showed the head coach and the quarterback consoling the abject receiver. "They're telling him, 'Man, that's OK. It happens.' When you drop that pedicle or the dog dies, who says that to you? Your spouse. Yourself. Your nurses. Who says that to us as a profession? We're not perfect. This is *medicine*."

Step 3. Get the word out

Now it's time for the rest of the world to understand what veterinary professionals do, how amazing they are and why veterinary medicine is so incredible.

"Our pet owners need veterinary care, but we don't have a brand or PR around our profession about how we're great and we're a comfort," Dr. Cahalane said. "What if we did?"

The Starbucks logo instantly conveys warmth and comfort—even joy—to millions of coffee drinkers around the world, Dr. Cahalane continued. It's time for the veterinary profession to generate a similar brand awareness that conveys the warmth, joy and comfort of animal health to the world of pet owners.

It's time to lobby the companies and associations spending money in the market to talk to pet owners about what veterinarians are really like.

"We need a brand overhaul, and it has to start somewhere," she says. "We have to tell our story on social media, our everyday story on the important impact we're making on this world."

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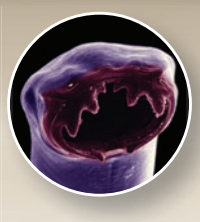
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Please see Brief Summary on page 22.

A great **Great Dane** dilemma

What will Dr. Seasoned do when faced with a cash-strapped, longtime client and a patient who can be (expensively) saved? The corporate medical director's not going to be happy ...

It's been a long hiatus since we last informed you about what's happening with Dr. Seasoned. (Did you miss the lead-up to this? Dr. Codger finally sold to corporate, and Dr. Greenskin got married and stayed on as Dr. Seasoned. Catch up on the whole saga at **dvm360.com/campfield**.)

Having enjoyed a nice long honeymoon and indulging newfound interests in things like nonstick cookware and thread counts, Dr. Seasoned is settling into a nice routine of work and family life. The flow of corporate general practice, while a bit mundane, is also providing some welcome stability. For the most part, the post-transition dust is settling within the practice walls. Dr. Seasoned is finding some comfort in following established company policies. She also now has a retirement account and can't wait for the day when that 401(k) balance exceeds her student loan balance (and neither can her new husband)!

It's a morning like any other, with some puppy wellness checks, itchy old dogs and even a case of chronic cat diarrhea to spice things up a little. Dr. Seasoned is in an exam room when she hears some commotion in the lobby. One of the practice's longtime and best clients, Mrs. Giant, is frantically searching for someone to help her bring her Great Dane inside from the car.

"I think she has bloat!" cries Mrs. Giant. "You need to save Burpy!"

Dr. Seasoned alerts the technicians to get catheters, fluids, ultrasound and trochar ready while she quickly wraps her current appointment. Upon evaluating poor Burpy, who's only 3 years old, she diagnoses a gastric dilatation-volvulus. She quickly and efficiently starts basic care while directing reception staff to reschedule the day's appointments and get the OR ready.

"Mrs. Giant says she can't afford the surgery," says Mrs. Stern. "I gave her the euthanasia consent form. She's upset, but I think she'll sign it."

This is when things get a bit hairy. The new practice manager, Mrs. Stern, comes back to the treatment area to talk with Dr. Seasoned.

"Mrs. Giant says she can't afford the surgery," says Mrs. Stern. "She keeps talking about Dr. Codger's payment plan, and I've told her we don't do that anymore."

Dr. Seasoned is working diligently as she continues treatment with fluid resuscitation and successfully trocharizes the stomach. She responds, "She caught this pretty early, and I think we can save this young dog. I've known Mrs. Giant since I started working here, and she always pays her bill eventually."

Mrs. Stern pushes back. "I just don't see how we can get this dog in the OR today. I gave her the euthanasia consent form. She's upset, but I think she'll sign it."

With Burpy a little more stable and some pain meds on board, Dr. Seasoned turns to face Mrs. Stern.

"We're going to surgery," she says. "I'll take it up with the regional director if I have to."

"I know they won't authorize this," Mrs. Stern bites back, "and the interim director is out of the office until next month. Also it's a holiday weekend so we won't be able to reach anyone until Tuesday."

The rest of the staff keep their heads down and continue working as they feel the air heating up a few degrees.

"Then we'll deal with it on Tuesday!" barks Dr. Seasoned.

She gives one last nod to the technicians and a curt "Get her on the table!" Then Dr. Seasoned heads out to speak with the inconsolable Mrs. Giant.

Dr. Seasoned just wasn't prepared to deal with this sort of thing in vet school, but this is a situation in which decisions must be made in the moment. Dr. Seasoned can almost feel the calming presence of Dr. Codger, empowering her to follow her heart to do the best for this patient and client. The old man may not have always been the most tactful, or the best manager, but there's no way he would have let Mrs. Giant's young dog be euthanized over money. Mrs. Giant's agony is transformed to tears of joy as Dr. Seasoned ensures her that they're going to do their best to save Burpy.

Was Dr. Seasoned being heroic or reckless? Would she have done the same thing if she owned the practice? Do we sometimes have to shake things up to save a life, or should professionals always play by the rules? Tell us what you think by emailing **dvm360@mmhgroup.com**.

Dr. Jeremy Campfield lives near Sacramento, California, with his family, including an aging mini Aussie and a pitbull mix that some mistake for a chocolate Lab (to the delight of her owners).

ILLUSTRATION BY RYAN OSTRANDER

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Can you talk about **cannabis** in practice?

What can a veterinarian tell clients about marijuana and related products in a state where they're illegal? Our ethicist wrestles with a scenario.

Before buying his small hospital on the East Coast, Dr. Lou Knox had owned a progressive small animal practice in Southern California. He prided himself for years on practicing cutting-edge medicine and giving patients and his clients every option the 21st century had made available: laser therapy, acupuncture and physical and massage therapy. He also discusses and recommends, where indicated, medical cannabis use for pet patients. Use of these therapies and medical marijuana therapy discussions in the practice of veterinary medicine in California is an acceptable part of the veterinary landscape (see California Assembly Bill 2215).

Practicing in his new hospital far from California, Dr. Knox kept up-to-date on the impact of cannabis on canine patients. In the area of pain management, certain forms of renal disease and anti-inflammatory properties, Dr. Knox had seen great therapeutic potential. So, his waiting-room display included a number of nonprescription, non-FDA-approved, holistic products—everything from glucosamine to melatonin—that included some perfectly legal low-TCH cannabis supplements.

Due to the fact there had been many articles in the news and legislation in various states about legalizing cannabis, Dr. Knox was frequently asked questions on this subject by his clients. He responded to the best of his professional and ethical ability—in short, honestly. When asked if he thought cannabis could help certain pets, he replied yes. When asked if he could prescribe the medication, he said no. He explained to clients that there were over-the-counter options they could pursue to assist their pets. He also said he thought that cannabis, in the not-too-distant future, would be an available therapeutic option for pets in most states.

Unfortunately, it didn't take long for the rumor mill to report that Dr. Knox was recommending and prescribing marijuana for patients. Some fellow vets heard the rumors and reported him to the board.

Dr. Knox prided himself on his professionalism and was anxious to appear before the board and clear his name. When his day in court (so to speak) came, Dr. Knox had an opening statement prepared. He first stated that he believed his license gave him wide latitude to make judgments and recommendations for patients as long as client-informed consent accompanied his medical recommendations. In addition, his ethical responsibility required he act in the best interests of his patient. As a result, he honestly gave his professional opinion about the use of cannabis derivatives in pets. He finished by saying he never prescribed an illegal substance.

The board heard him out. They advised him that at this time in this state there were federal and state prohibitions concerning the possession, prescription and use of cannabis. They understood that regulations were different in California and that things might change in his home state in the future. Nevertheless, the board members said he must cease and desist recommending and directing clients to procure a banned substance. No further sanction was issued.

Dr. Knox told the board, with all due respect, that legislating progressive change to assist pet patients in the state should be a priority. It's always more admirable to be in the forefront, he argued, not to be reluctantly dragged from behind.

Do you agree with the board or Dr. Knox? Let us know at **dvm360@ubm.com**.

Dr. Rosenberg's response

Let's start by talking about cannabis for pets, not human beings. Therapeutic cannabis formulations for dogs don't impair dogs' judgment. Dogs cannot acquire or abuse the medication. On the other hand, there are clearly medicinal benefits. So, the real issue is potential irresponsible use of cannabis by dog owners.

I see myself as an animal advocate. Veterinarians and responsible pet owners—emphasis on the word "responsible"—should lobby legislators to allow cannabis derivatives to assist pet patients in need. Rome wasn't built in a day, nor were state board regulations. We must continue to help animals that can't help themselves, which requires innovative cooperative change at the federal, state and local levels.

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

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Checklist: Better **communication** as a veterinarian

You get what patients are saying to you in their blood work and their body language, but are you always paying enough attention to what your team members and clients are telling you?

Learning to communicate effectively with coworkers, clients and family is perhaps the most important skill we can have, and we could all improve at these aspects of it:

Do you stop and listen? Listening, really listening, is a vital communication skill that all of us need to work on. In a conversation, there's a tendency for us all to focus on our personal perspective on an issue. We don't so much listen as focus on what we're contributing and what we'll say, anticipating our response before the other person has conveyed their message. This frequently results in a lack of clarity, regular misunderstandings and frustration for both parties.

Active listening means paying attention, asking questions and restating what you believe you heard to verify understanding so you can formulate a truly productive response.

Do you show respect? Show you know the value of others' time and space. Pay attention to your inflections and tone of voice. Be aware of your body language, which can communicate more than your words.

Do you work to stay open-minded? Good communication requires flexibility and receptivity to the perspectives and ideas of others—caring what the other person thinks and how they feel. Listen attentively to the "other side" and hear their perspective.

If you can, did you pick a good time and place? I think face-to-face and person-to-person is the best form of communication. Unfortunately, virtual communications seem to have replaced the human voice and eye contact. While technology may be a quick way to connect, it can be a terrible way to communicate effectively. But if you insist on e-communication, keep it short and focused. If a subject is dire or serious, if it requires a discussion or explanation, if it could be misconstrued or result in conflict, a phone call or meeting is more appropriate.

Set the stage for your conversations by stopping to listen, showing respect for someone's time and communication style, staying open-minded about the other person's opinions and feelings and picking the right moment in the right place for sensitive discussions. You'll be well on your way to better communication.

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

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Flavored chews for dogs.

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

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

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

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

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

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

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

Bravecto should be administered with food.

Dosage Schedule

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

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

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

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

Warnings:
Not for human use. Keep this and all drugs out of the reach of children. Keep the product in the original packaging until use, in order to prevent children from getting direct access to the product.

Do not eat, drink or smoke while handling the product. Wash hands thoroughly with soap and water immediately after use of the product.

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

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

Percentage of Dogs with Adverse Reactions in the Field Study

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

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

For technical assistance or to report a suspected adverse drug reaction, contact Merck Animal Health at 1-800-224-5318. Additional information can be found at www.bravecto.com. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or online at http://www.fda.gov/AnimalVeterinary/SafetyHealth.

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

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

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

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

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

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

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

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

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

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

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

Storage Information:
Do not store above 86°F (30°C).

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

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A **hospital** to be *seen in*

Clients come when they want. Music keeps things pleasant for people and pets. And doctors are visible to pet owners as they move in and out of exam rooms. These touches and more garnered El Paso Animal Hospital in Derby, Kansas, a 2019 dvm360 Hospital Design Competition Merit Award. *By Sarah A. Moser*

In a way, Gary Oehmke, DVM, has parvovirus to thank for the initial success of his practice. In 1978 Dr. Oehmke opened El Paso Animal Hospital in Derby, Kansas, with zero clients. But soon after, his 1,200-square-foot, two-exam-room practice was filled with clients, lined up outside the doors to get their pets vaccinated for parvo.

"I was happy to have anyone come in the doors, so parvovirus gave me a good start," he says.

And starting at zero, Dr. Oehmke didn't bother taking appointments. Even when his practice grew enough that he hired an associate 10 years later—one who eventually became a co-owner—he kept to the walk-in practice strategy.

Now, 40 years later, Dr. Oehmke and that associate-turned-owner, Jeff Herod, DVM, have built their business on providing exceptional care in a no-appointment practice. The 1,200-square-foot facility eventually turned into 2,800 square feet. And a few years ago, bursting at the seams, the doctors had to make a decision: get out of business or build a bigger facility.

By the numbers

El Paso Animal Hospital

Owners: Drs. Gary D. Oehmke and Jeffrey J. Herod
Number of doctors: 10 full-time
Exam rooms: 8
Total cost: $2,255,461
Cost per square foot: $288.40
Square footage: 8,878
Structure type: Freestanding, new
Architect: Paul Gladysz, BDA Architecture

The building was so tight, Dr. Oehmke's wife, Debbie, likened it to working in a submarine.

Dr. Herod took a trip to Kansas City to attend the dvm360 Hospital-Design360 conference and came back all abuzz with plans for a new facility.

Finally, in May 2018, the pair opened the doors on their new 8,878-square-foot practice, with eight exam rooms, a sprawling reception area with a refreshment station, and a dual-surgery suite with tons of natural lighting. In January 2019, they won a Merit Award in the 2019 dvm360 Hospital Design Competition.

Design to see—and doctors to be seen

No wonder clients love Drs. Oehmke and Herod so much. The doctors deliberately designed their practice so they'd "get caught" by clients when coming in and out of exam rooms, rather than avoiding them. All of the exam rooms except one filter back into the lobby, all centered around the checkout area.

"A few exam rooms have entry from the back, but we rarely use it, as we prefer to go room to room via the front doors," says Dr. Oehmke. "We like the personal connection, to be able to make eye contact and tell people we'll be with them soon."

Debbie Oehmke—who shares the role of practice manager with Dr. Herod's wife, Becki—says this personal touch lets clients know that the doctors really are working, "not just hanging out in the back eating French fries," she jokes.

dvm360 Find it all here.

More accolades

El Paso Animal Hospital also won the 2019 Hospital Design Competition People's Choice Award. Read more at dvm360.com/peopleschoice.

ALL PHOTOS BY CODY TRACY

Veterinarians and veterinary team members regularly come out of exam rooms directly into the reception area.

"In a walk-in-only hospital, this kind of interaction goes a long way when clients might have to wait a long time," Becki says. "They're more patient when you communicate regularly with them."

Taking technology seriously

At El Paso Animal Hospital, the technology used is nearly as important as any physical room in the building. For starters, the team had 64 4-megapixel video cameras placed throughout the hospital with access on both PCs and mobile devices. They use three 65-inch TV screens that sync with the computers as giant digital whiteboards to communicate when technicians or doctors are needed in a room or otherwise talk with one another, rather than using a loudspeaker or paging system.

The software system they use allows them to tailor the messaging system, so each doctor and each group of people have a separate color and sound that alerts them when they need to be in a certain place in the hospital. Becki says this feature makes for a quieter and more streamlined hospital.

Every exam room has two computer monitors as well. One is used for veterinary team communication, and the other is for client education or entertainment while waiting.

"We also have a really good sound system for piping in music throughout the hospital," says Becki. "I had no idea it would make such a big difference, but we all love it."

The cat ward, for example, has been nicknamed the "meditation room" because the piped-in classical music keeps it so calm. "The music really makes a difference for the animals," Becki says. The music is tailored to different zones—exam rooms, reception and treatment.

Technology was so important in their thinking that before breaking ground on the hospital, the team hired an IT expert to design a plan for the hospital.

"You don't think of technology as a design element, but it has been pretty huge for us," says Dr. Oehmke. "We also love the ability to go into different doors with magnetic-stripe readers, giving us the ability to lock down certain areas, restricting client access to certain areas of the hospital. We spent a lot of time and money on technology and it was worth it."

From submarine to cruise ship

If working in the old facility was like working in a cramped submarine, moving to the new facility was more like spreading out on a cruise ship. Dr. Oehmke says the move was a bit overwhelming, with a learning curve, but with such a great team already in place and even more employees hired for the move, they did just fine.

The practice went from 34 employees crammed into a small space to about 60 in the new space. They credit technology and the great team, who feel like family, to making it work. Becki credits clients with making the move great, too.

"Clients were so in awe of this place when we first opened, so happy for us, that they extended extreme amounts of patience to us," she says. "We had thousands of people come to our open house, and our growing pains went exceptionally well in the early days."

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

The veterinary team is kept up-to-date at every moment, thanks to 65-inch digital whiteboard screens.

The cat ward has been nicknamed the "meditation room" because piped-in classical music keeps it so calm.

Get in touch

Contact us on Twitter: @dvm360, on Facebook: facebook.com/dvm360, via email: dvm360news@mmhgroup.com or online at dvm360.com.

Should non-DVMs 'fire' nasty clients?

A *dvm360* commentary asked veterinarians to set firmer guidelines for abusive pet owners, but one reader said state boards could penalize you for firing clients the wrong way. We asked two regular contributors to weigh in.

Read the story that started it all

In case you missed it, you can read what Brian Andrew Maran, DVM, MS, DACVIM (Cardiology), had to say about setting boundaries for yourself at dvm360.com/boundaries.

I just read "Commentary: Veterinarians need better boundaries." I strongly agree with this article. I wanted to share with you a situation I am personally dealing with. I am the hospital administrator of a large practice in Dallas, Texas. Recently, I received notice of an investigation the state veterinary board has filed against me for "firing" a client. I'm concerned that the article says we should "empower staff to fire clients" when our state board is not supportive of veterinarians allowing this to happen.

Insights from *dvm360* contributor Marc Rosenberg, VMD

The commentary in question certainly has merit. It describes a situation in which a veterinarian was pushed too far by an out-of-control client. Emotions took over, a confrontation resulted, and the client was "fired." In order to avoid state board sanctions, in cases such as these where the client feels they were mistreated, maintaining professionalism is the key.

I personally feel that firing a client should be avoided at all costs. This does not mean that a private practice veterinarian does not have this option under extreme circumstances. A veterinarian or administrator, while maintaining a professional demeanor, can inform a client that the pet can no longer be treated at the facility. The doctor then offers to give the owner a copy of the medical records and the contact information for referral options of area veterinarians who can provide continuing care. The doctor should also offer to consult with the new veterinarian if it is deemed necessary.

The only exception to this protocol would be if the pet was being treated as an emergency. In this case the animal must be stabilized before clinic care is terminated. The veterinarian must consider the health and welfare of the pet patient the priority.

As long as the doctor adheres to this protocol and maintains a professional demeanor, no reasonable state board will mandate a sanction for terminating a client for cause.

Insights from *dvm360* contributor Christopher Allen, DVM, JD

This commentary and the reader's response both present interesting angles on the issue of "empowering"

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non-DVM staff members to "fire" a veterinary clinic client when that client displays patently improper behavior. I would offer, with respect to both contributors' input, both an observation and a recommendation.

First, we need to recognize the reality of potentially conflicting regulatory objectives in situations where non-DVM team members are allowed to "fire" clients. On the one hand, state regulators are charged with protecting employees in the workplace. We know that unstable members of the public, and even employees, have many times acted out in contentious situations at businesses in the past. (Remember the reason we sometimes refer to outrageous expressions of frustration in the workplace as "going postal.") Government agencies charged with protecting our staff members run the gamut from OSHA to state workers' compensation boards—these folks don't want your receptionist in danger or abused in any way while carrying out her job.

You wouldn't walk out of surgery mid-splenectomy if you heard the veterinary client giving your receptionist a hard time.

On the other hand, state veterinary boards are charged with protecting the public from behavior of veterinary team members and veterinarians that may endanger animal health and safety. The state licensing boards are empowered to look not only at veterinarians' qualifications and behavior, but also what veterinary team members are allowed to do.

The original commentary writer has identified a situation where these two government objectives are at cross purposes. Government agencies and state boards want animal hospitals to keep their staff safe from potential physical and emotional injury, while at the same time maintaining a professional level of care for animals. As is so often the case, it's up to the doctor in charge to satisfy both bureaucracies.

I feel that the final legal responsibility for refusing service to an existing client is that of a staff DVM. Most practice owners wouldn't want a relief doctor to make the decision to do it, and they probably shouldn't let a non-DVM staff member do it. Here's why.

Refusing to continue professional service to a member of the public is a big deal. For example, lawyers aren't allowed to unilaterally "fire" a client during litigation, as it could severely damage the fired client's case as it moves forward. That's why a judge generally must approve attorneys' removing themselves from a pending case.

The same applies to veterinarians and physicians. You wouldn't walk out of surgery mid-splenectomy if you heard the veterinary client giving your receptionist a hard time. You'd finish the procedure, review the circumstances of the argument and decide whether it's safe and appropriate to discharge the patient and thereafter refuse further business with the pet owner.

While that surgical example is the extreme, look at the general concept of allowing non-DVM staff to "fire" a client. The state veterinary board might ask, "How do we know that the veterinary staff member has considered the health and ongoing treatment plan for the animals belonging to the obnoxious pet owner?" and "Are the front-desk staff qualified to decide whether a doctor needs to be involved with helping this impossible client obtain qualified specialty care after the 'firing'?"

A veterinary board investigator has no way to know whether the patient's medical needs are being taken into due consideration when a staff member "fires" a client. The agency just knows that there has been an allegation that a nondoctor withdrew a clinic's care from a member of the public—whose interests the state agency is bound to protect.

So, here's my suggestion as to how to proceed when a client behaves inappropriately:

> The offended staff member(s) may tell the veterinary client that the behavior will not be tolerated at the hospital.

> The staff member or practice manager gathers a written narrative of the encounter from staff members who witnessed it.

> The staff member or practice manager provides details to the doctor who was on duty and to the practice owner.

> The veterinarian with decision-making authority notes in the patient's record the current medical status and forward-looking treatment strategy for all of the offending client's animals.

> If the decision-making veterinarian elects to discharge the client, they should do it as diplomatically as possible first by phone, then in writing sent certified mail with return receipt requested.

I would also recommend explaining to the client that your veterinary hospital will continue to offer services for a period of time—say two weeks—but only in the event of a genuine veterinary emergency.

Dr. Marc Rosenberg and Dr. Christopher Allen are regular contributors to dvm360 *magazine.*

Hope or hoax?
Evaluating cancer therapies

Use these five questions to determine whether certain oncology therapies might benefit your veterinary patients on their path toward better health. *By Michael Childress, DVM, MS, DACVIM (oncology)*

"Hey, doc, I was doing some research online, and I found this new treatment. Do you think it'll help Buddy's cancer?"

Small animal veterinarians often hear some variation of this question from pet owners. Most of the time, the treatment in question is one the veterinarian has never encountered and knows little about. With little time to undertake exhaustive research into every therapy marketed for pet cancer, practicing vets might (understandably) feel a sense of exasperation trying to answer these questions accurately and fairly. However, by asking themselves a few simple questions first, busy practitioners can determine whether a therapy is likely to benefit their patients.

Question 1: Is the therapy described in peer-reviewed scientific literature?

The first acid test for evaluating an unfamiliar cancer therapy's potential efficacy is whether it's referenced in PubMed, CAB Abstracts or another online database of reputable scientific literature. If the therapy or its active ingredient is not indexed in one of these databases, it's less likely to be effective.

Question 2: Have results been published of clinical trials using the therapy in animals with a naturally occurring disease?

Therapies that have only shown anticancer efficacy in an in vitro setting, rather than in clinical trials in the target patient population, are unlikely to be effective. Frequently, therapies that show promising anticancer activity in vitro (such as in cell culture) fail to show similar promise when tested in the target species (such as humans or companion animals). There are several reasons for this, including differences in tumor biology or in drug pharmacokinetics in experimental vs. real world settings. Speaking of pharmacokinetics …

Question 3: What is known about the pharmacokinetics and pharmacodynamics of the drug?

Pharmacokinetics? Pharmacodynamics? *Really?* Yes, these arcane subjects that tormented you in vet school actually do matter when critically evaluating anticancer drugs. Drugs that kill cancer cells in a petri dish may do so only at concentrations that can't be achieved in blood plasma after administering the drug to an animal, or can be achieved only by administering doses that are excessively toxic. Drugs are less likely to be efficacious if published research has not documented a specific pharmacodynamic effect (such as tumor regression) in the context of pharmacokinetic data showing that the effect is possible after the administration of tolerable drug dosages.

Question 4: How was benefit of the therapy measured?

There are only two ways a therapy can benefit patients with cancer: (1) The therapy causes measurable cancers of a defined histologic type to undergo significant reduction in size in some proportion of animals with that cancer, and (2) a group of treated animals lives significantly longer or experiences a significantly longer time to cancer progression than a group of contemporaneously treated animals that didn't receive the therapy (i.e. a control group).

The first of these is easy to demonstrate in clinical trials involving small numbers of animals. The second is difficult to demonstrate, as clinical trials with adequate statistical power involve large numbers of animals, are time-consuming and, consequently, are expensive to conduct. As a result, few such trials related to veterinary cancer therapies are ever undertaken.

However, the importance of a representative control group in cancer trials where patient survival is the benchmark for efficacy cannot be overstated. For example, cancer therapies given after surgical tumor removal may be deemed beneficial when patients receiving the therapy live longer or appear to be cured. But without results from a contemporaneous control group treated with surgery alone it's impossible to tell if the "cures" resulted from the new therapy or simply from surgical tumor removal itself.

Similarly, the efficacy of new cancer therapies may be reported in comparison to a historical control group of animals in a previous trial. Historical control groups are rarely faithful surrogates for contemporaneous control groups. In fact, studies have shown that the results of clinical trials involving historical control groups tend to be biased in favor of new therapies. Therapies that purport to improve survival relative to historically treated animals should be regarded with circumspection.

Question 5: What side effects are associated with the therapy?

All treatments produce some side effects with a defined frequency. Because of this, veterinarians should be wary of cancer therapies claiming to produce no side effects. Rather, veterinarians should pay closer attention to therapies claiming to produce "acceptable" or "tolerable" side effects. Effective cancer drugs for small animals will produce side effects, but these can often be mitigated by dosage modification or administration of other treatments at the same time. A therapy producing "no side effects" should be suspected of simply being biologically inert.

By seeking the answers to these five questions, veterinarians can evaluate new cancer therapies quickly and efficiently. Those that seem favorable in light of these questions may warrant additional research, while those seeming dubious probably don't.

These questions should be asked not only of therapies identified on the internet by pet owners, but also of those produced and marketed by major pharmaceutical companies or under clinical evaluation at academic teaching hospitals. No matter how trusted the source of a new drug might be, it still deserves your careful scrutiny when judging whether the drug is a good option for your patient.

Dr. Michael Childress is associate professor of comparative oncology at Purdue College of Veterinary Medicine.

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Getting Consistent Outcomes with Laser Therapy Just Got Easier

Technological advances continue to make treatment of many conditions in veterinary medicine more effective and efficient, and laser therapy is no exception.

Sherman O. Canapp Jr., DVM, MS, CCRT, DAVCS, DACVSMR

A half-century ago, Hungarian physician Endre Mester discovered that photobiomodulation therapy, or PBMT (formerly known as low-level laser therapy), had positive effects on hair growth and superficial wound healing in a mouse model.[1] Since then, advances in our understanding of the basic science of PBMT have influenced the development of laser technology innovations and practical applications of these devices to treat a variety of conditions in veterinary medicine, particularly pain and orthopedic conditions.

The use of best-in-class PBMT devices allows clinicians to apply higher doses of light safely at the skin surface and to reach deeper tissues.

Over the years, hundreds of in vitro studies have characterized the doses needed to achieve a cellular response with light. While these studies offered a baseline for the amount of laser energy needed to achieve results at a tissue level, the development of definitive protocols has been slower to evolve as scientists must consider the wide range of contributory factors for various conditions.

Parameters for Laser Success

One of the most important advances in PBMT was the recognition that optimal therapeutic parameters for transcutaneous dosing (laser light applied to the surface of the skin with an applicator) should be based on the dose of light energy reaching the intended target tissues[2] (intraarticular surfaces, muscles, nerves, etc.). Historically, effective energy density (fluence) doses were based on cell culture studies, but these lower doses proved ineffective when clinicians began using them to treat tissues located deeper within the body.[2,3] The recognition that these negative results may have been due to underdosing in vivo rather than to the modality itself was a huge advance.

To achieve optimal clinical results, sufficient light must reach the target tissue. Various parameters are considered when calculating dose[2,3]:

- Wavelength (nm) of light being used
- Fluence (J/cm^2)
- Irradiance (W/cm^2)
- Size and depth (in cm^2) of the treatment area and the optical properties of any tissues being treated
- Application technique (on-contact vs. off-contact as well as operator differences)

Much of the published research either does not report these parameters or reports them inaccurately. Closer examination of the dosimetry used in a study is often required before conclusions can be drawn about the relevance of the results. Fortunately, more research is being published every day that allows for continual improvement in our approach to PBMT dosing and our ability to achieve optimal clinical results for our patients.

Advances in Therapeutic Devices Make Dosing Easy

Advances made in the devices we use to apply PBMT in clinical practice have allowed us to address these dosimetry challenges. Compared with older, lower-power devices, the use of higher-power class IV devices allows clinicians to apply higher doses of light safely at the skin surface and to achieve adequate total doses of light for deep tissue musculoskeletal conditions (especially pain) within a more efficient time frame.

More advanced software in laser devices allows for designing and updating automatic protocols, which calculate doses for treatments ranging from superficial wounds to deep tissue swelling or painful conditions. While these protocols should never replace a thorough understanding of how to customize your own doses safely and effectively for each patient's individual condition, they serve as a convenient guide for starting out.

Recent studies of light transmission in the spinal canal of dogs,[4] as well as a review of effective parameters used in previously published in vivo studies, have also shown that light losses due to reflection from the surface of the skin can be minimized. This allows an increase of up to 67% in light transmission to deeper tissues by treating in firm contact with the skin compared with off-contact application. The issue of incidental light absorption by non-biologically active chromophores (such as melanin and hemoglobin) must also be addressed[3] in order to optimize light penetration to deeper tissues.

The Benefits of Smart Software and Smart Delivery

Certain laser manufacturers have consistently improved their technologies to address the challenge of optimizing clinical treatment parameters in practice. Companion Animal Health's CTX-IQ laser with SmartCoat Plus technology calculates patient-specific treatment parameters based on the laser therapist's input of patient characteristics and treatment conditions. This specialized software makes adjustments not only for coat and skin color (taking melanin into account) but also for increased tissue depth (overweight vs. thin body condition) or unshaven or thicker haircoats. A patented deep tissue applicator designed for the type of on-contact treatment mentioned above also compresses tissue and blanches superficial blood vessels to deliver even more light to deeper tissues.

Lastly, when combined with the Companion Animal Health Empower IQ Delivery System, the laser therapist can take advantage of real-time recommendations for appropriate treatment head selection as well as visual and haptic feedback on treatment delivery speed (CTX-IQ is the only laser currently on the market with this capability). This ensures consistent treatments among therapists within the same veterinary practice and provides guidance beyond the initial training for any staff members new to laser therapy.

Looking to the Future

This is an exciting time for the use of advanced modalities in the treatment of many conditions in veterinary medicine. Through further research on the optimal parameters for PBMT as well as the continued development of PBMT devices, we will only continue to advance patient care and wellbeing in veterinary practice.

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Dr. Canapp is co-owner and chief of staff at Veterinary Orthopedic Sports Medicine Group in Annapolis Junction, Maryland. His clinical areas of interest include regenerative medicine, sports medicine and canine sports-related injury and arthroscopy. His personal interests include playing drums and tennis (not at the same time), racing cars and mountain biking.

MEDICINE | Shelter Snapshot

9 ways to up your spay/neuter game

Whether you perform five surgeries a day or 40, keeping up with surgical technique advancements and striving for more efficiency will benefit you and your veterinary patients.

By Uri Donnett, DVM, MS, DABVP (shelter medicine practice), and the Association of Shelter Veterinarians

Want to reach new levels of expertise when sterilizing cats and dogs? Here are some tips and tricks to help you increase efficiency while performing high-quality spays and neuters.

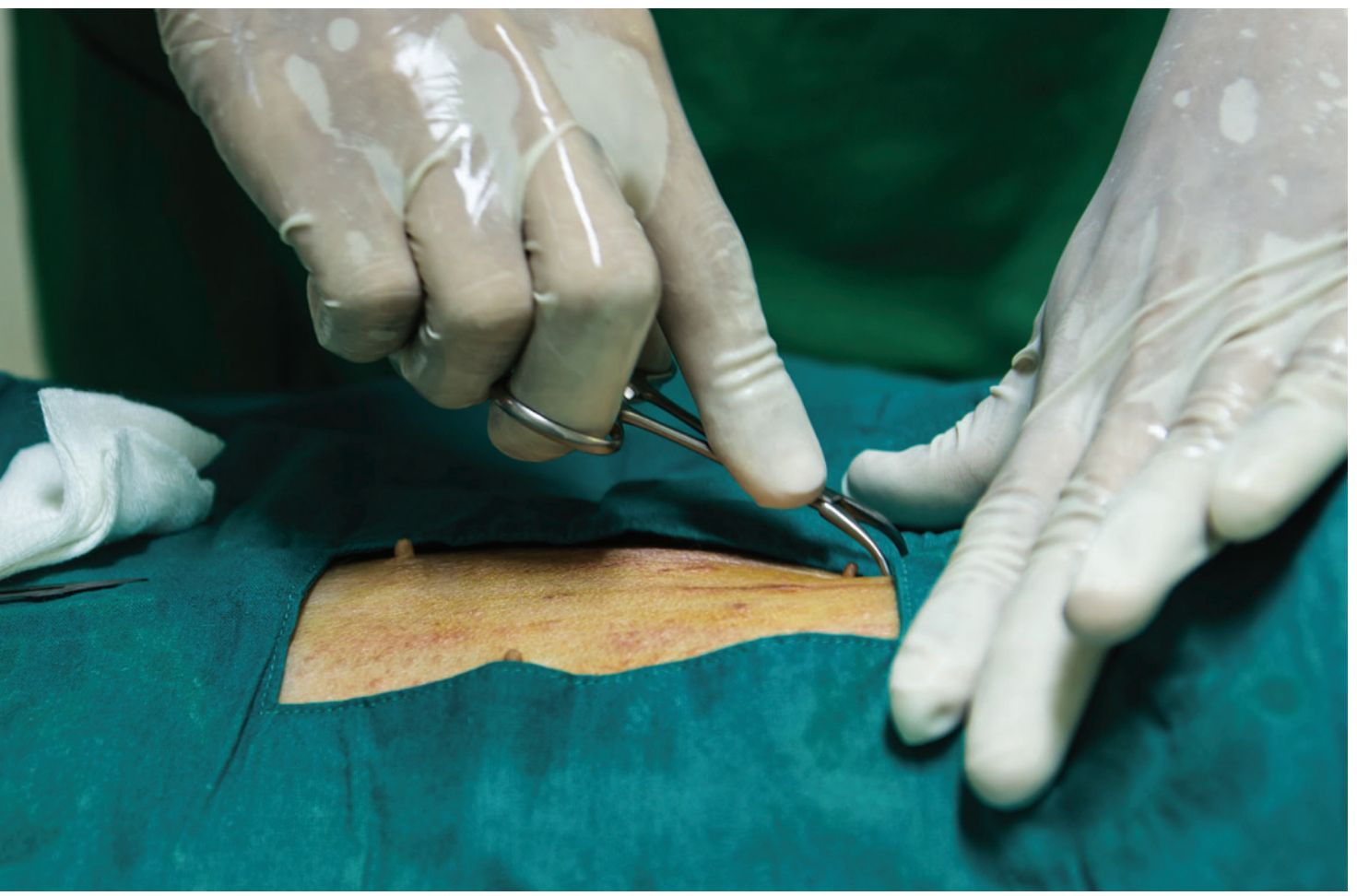
1 Simplify your surgical packs. Every instrument you reach for during surgery should be easy to locate, so limit your pack instruments to those you use regularly. This could mean making separate packs for spay/neuter procedures or simply reevaluating which instruments you use during surgery.

Be sure your pack includes all the instruments you need. Nothing slows down a procedure like waiting for someone to open a separate pack for you or searching your surgical tray for an elusive instrument.

Finally, keep your instruments organized within your pack. Arranging instruments before surgery begins will ensure they are ready when you reach for them. If you're not sure where to start, there are resources that provide recommended pack lists.[1]

2 Relax your patient's position. Patient positioning can make a difference in your access to the reproductive tract. Placing the forelimbs down at the patient's sides, rather than stretched toward the head, may relax the suspensory ligaments by relaxing the epaxial muscles.

3 Plan before you cut. A well-placed incision facilitates access to the reproductive tract while minimizing tissue handling and trauma. Evaluating the age and reproductive



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Strategic placement of your incision will prevent unnecessary traction on the reproductive tract as well as time spent extending and then closing a larger incision.

maturity of a dog, locating the umbilicus and pubic rim, and planning your incision save time not only when accessing the reproductive tract but also when closing.

Of the many factors that can help you determine where to make your incision, the most important is your surgical comfort level. If you generally have difficulty accessing the ovaries, move your incision more cranially. If you can access the ovaries but not the uterine bifurcation, consider moving your incision more caudally. Strategic placement of your incision will prevent unnecessary traction on the reproductive tract as well as time spent extending and then closing a larger incision.

Here are some general spay incision placement recommendations:

- Unless a flank procedure is being performed, all incisions should fall on the ventral midline between the umbilicus and the cranial brim of the pubis.
- The feline uterine body is typically more friable, with both traction and suture being able to cut through the tissue, so make the incision in cats more caudal on the ventral midline than in dogs.
- The ovaries and ovarian pedicles in adult dogs are typically more difficult to exteriorize than the uterine body, so make a more cranial incision in adults than you do in puppies.
- Due to its immature nature, the reproductive tract in pediatric patients may be more caudal, flexible and disproportionately small compared with body size, so place your incision midway between the umbilicus and pubis.

4 Minimize incision size. Many veterinarians are laser focused on the size of the incision. I have seen many students so intent on making a small incision that they end up struggling to access and exteriorize the tract. Conversely, a large incision allowing easy access to the entire tract requires a longer time to close. With proper placement, incision size can be minimized.

Smaller incisions mean decreased skin and subcutaneous tissue trauma as well as less time spent closing. Decreased surgical times have many benefits, including less time under anesthesia and hence less overall risk, decreased risk of surgical site infections, faster recovery, and lower costs with regard to both the facility and the welfare of the animal. More efficient surgeries may also result in an increase in the number of procedures that can be performed daily.

There is a happy medium between a small incision and an incision through which you can work efficiently. If you find that you regularly have to stop

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[1]Data on file.

and increase your incision length, then consider making your initial incision 0.5 cm longer. Conversely, if you find that the tract is always smaller than anticipated and you spend a disproportionate amount of time closing the surgical site, consider decreasing your incision length. The need for incision adjustment should be the exception, not the rule.

5 Perform auto-ligation in cat spays. You may be familiar with the popular technique of auto-ligation of feline ovarian pedicles.[1] If you're not performing this technique routinely, you may be spending more time than necessary on your cat spays.

A recent study found that use of the pedicle tie procedure decreased surgical time by two minutes compared with double-ligation of the ovarian pedicles with suture ligature, and lowered the risk of hemorrhage in the process.[2] This procedure is included as acceptable practice in the Association of Shelter Veterinarians' 2016 Veterinary Medical Care Guidelines for Spay-Neuter Programs, an important reference for anyone routinely performing spay/neuter surgery.[3] That study, coupled with my personal experience, prove that this procedure is safe, provides effective hemostasis and is effective for cats of all ages, including those that are pregnant and in estrus. It should be noted that this is not considered an acceptable practice in dog spays.

6 Let dogs join in on the auto-ligation fun. Regardless of whether you perform the pedicle tie during feline spays, you are likely familiar with auto-ligation of feline testicular cords during neuters performed through scrotal incisions. While this has been common practice for years in cats, it is also safe and effective for neutering prepubescent dogs.[1]

A recent publication described this method as simple with no intraoperative and very few postoperative complications.[4] Additionally, it was found to be more efficient than a prescrotal approach with suture ligation for neutering adolescent dogs. In my experience, whether you perform a figure 8 tie or a simple cord tie, this method of neutering dogs under 6 months of age is very effective, does not lead to increased complications or self-trauma, and reduces surgical and anesthetic time.

7 Release the suspensory efficiently. Releasing the suspensory ligament is often a point at which surgery can slow down or, depending on the level of anesthetic depth, stop altogether. This is because manipulation of the suspensory ligament is one of the most stimulating parts of the procedure. If an appropriate anesthetic depth is not achieved, manipulation of this ligament will result in the animal becoming light and responsive during surgery. Thus the more efficiently you can release the suspensory ligament with minimal manipulation, the faster you can continue the procedure.

A recent study comparing manual disruption of the suspensory with sharp dissection demonstrated that cutting the suspensory ligament was about one minute faster than digital strumming.[5] In this procedure, the suspensory is isolated and released by cutting with either scissors or a blade instead of stretching the tissue until release occurs. The same study found that sharp transection resulted in a smaller increase in heart rate during the procedure than manual disruption with no increase in intraoperative or postoperative complications. While one minute may not seem clinically relevant, two minutes earned back during each surgery, plus less time spent responding to an increased heart rate and potentially having to wait until a deeper anesthetic plane can be reached, make this a technique to consider.

8 Minimize your ligatures by maximizing security. While many sutures may be necessary when learning surgery and suture handling fundamentals, once you master knot security you should minimize the number of ligatures needed. Decreasing the number of ligatures placed will increase your surgical efficiency, improve ligature security and lower suture costs. Single ligation of each ovarian pedicle and the uterine body is generally sufficient to provide appropriate hemostasis via a modified Miller's knot. One exception to this would be spays on pregnant animals, in which additional ligatures (either a second encircling or transfixing ligature) are needed to secure the uterine arteries.

A review of ligation techniques and security found that surgeon's knots were less secure than other friction knots and that the Miller's, constrictor and strangle knots were the most secure for vascular ligation.[6] Many surgical teaching programs now focus on the modified Miller's knot.

9 Evaluate yourself. There is no better way to understand where technical improvements can be made than by collecting and evaluating data. Videotaping yourself performing surgery and reviewing the footage will provide perspective on where time is being lost and where efficiency can be increased.

At the end of the day, increased efficiency during surgery will allow you to perform more surgeries, get to your medical cases faster and decrease anesthetic time and risk for your patients. Although many practices have historically been accepted as safe and efficient, there is a growing body of evidence allowing us to practice high-quality, high-volume, evidence-based surgery.

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Shelter Snapshot is a collaborative column between the Association of Shelter Veterinarians (ASV) and dvm360.com to help inform veterinarians and team members involved in veterinary shelter medicine and in related aspects of veterinary general practice. To learn more about the ASV, visit sheltervet.org.

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A practical approach to **evaluating pain** in cats

Pain management is fundamental to feline health and welfare. Here's the latest on what tools work best to assess acute pain in these patients. *By Natalie Stilwell, DVM, MS, PhD*

Assessing pain in feline patients can be difficult, as the process uses primarily subjective methods. However, relatively new methods are helping to refine veterinary recognition and management of patient pain. A recent *Journal of Feline Medicine and Surgery* article reviewed the latest advancements in acute pain assessment in the cat.[1]

Physiologic and behavioral changes

Pain causes physiologic changes in heart and respiratory rates, pupil size and various neuroendocrine parameters. However, most of these changes are nonspecific and can also occur due to stress and anxiety. Blood pressure is currently the only physiologic parameter closely correlated with feline pain; however, blood pressure monitoring is not always feasible.

Behavioral changes frequently observed in painful cats include:

- Reaction to palpation of the painful area
- Withdrawing or hiding
- Decreased appetite
- Hunched posture
- Lowered head position
- Vocalization
- Partially closed eyes
- Decreased grooming activity
- "Feigned sleep" in severe cases.

Acute pain scales for cats

Two pain-scoring instruments, the Glasgow Composite Measure Pain Scale: Feline (Glasgow CMPS-F) and UNESP-Botucatu Multidimensional Composite Pain Scale (UNESP-Botucatu MCPS), are validated for use in feline patients. Several other scales are also available, including the visual analog scale, the numeric rating scale, the University of Melbourne Pain Scale and the Colorado Feline Pain Scale; however, these scales are not validated and thus are not recommended for clinical use.

The two validated scales address similar behavioral changes in posture, demeanor, vocalization and interaction with the observer. A revised version of the Glasgow CMPS-F also addresses facial expression, and the UNESP-Botucatu MCPS includes blood pressure measurement as an optional variable. Each scale indicates a cutoff score above which rescue analgesia should be provided. While the Glasgow CMPS-F is appropriate for assessing medical, surgical and trauma-associated acute pain, the UNESP-Botucatu MCPS was validated specifically for pain following ovariohysterectomy.

Each scale has certain limitations. For example, administration of opioids or ketamine may inadvertently affect behavioral parameters and lead to falsely increased pain scores. Also, a side-by-side comparison of the two scales revealed they provide slightly different cutoff values for rescue analgesia in the same patient. Finally, multiple studies have shown that veterinary students record lower pain scores than do graduate veterinarians and anesthesiologists; therefore, users still require appropriate training to recognize signs of pain. The Glasgow CMPS-F and UNESP-Botucatu MCPS both offer online video tutorials with examples of pain-associated behaviors.

The Feline Grimace Scale

Veterinarians at the University of Montreal in Canada recently developed the Feline Grimace Scale, which evaluates ear position, orbital tightening, muzzle tension and position of the head and whiskers. Several unique changes in facial expression are reliable indicators of feline pain. For example, a painful cat may exhibit squinted eyes and an increased distance between the ear tips compared with a pain-free cat.

While the Feline Grimace Scale demonstrates reliability and repeatability at detecting pain, studies to determine an appropriate cutoff for rescue analgesia are ongoing.

Veterinarians at the University of Montreal recently developed the Feline Grimace Scale, which evaluates ear position, orbital tightening, muzzle tension and position of the head and whiskers.

Dr. Natalie Stilwell is a medical writer with Seastar Communications and Consulting. In addition to her DVM from Auburn, she holds an MS in aquatic sciences and a PhD in veterinary sciences from the University of Florida.

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Can oral vaccination help **eliminate** global rabies?

As an adjunct to traditional prevention and control methods, experts believe oral vaccination of dogs may help thwart this deadly disease. *By Ashley Bohn, PhD, MS, RVT, and Syeelah Stoessel, BSc*

Rabies, an endemic zoonotic disease found across the globe, causes roughly 60,000 human fatalities every year, mostly in Africa and Asia. The rabies virus is spread through contact with the saliva of an infected animal. More than 99% of human rabies cases are transmitted through dog bites; 46% of those affected are children.

Developed countries have had success in eliminating rabies in dogs through parenteral mass vaccination programs, but developing nations lack the awareness and resources to control rabies effectively. In areas with canine populations that are not accessible for parenteral vaccination, oral vaccination is beneficial to increase protection against the rabies virus.

According to the World Health Organization, at least 70% of the canine population must be vaccinated to break the cycle of transmission from dogs to humans. Oral vaccination of dogs via a palatable bait offers numerous benefits; however, because baited oral vaccines may come in contact with other species, including humans, strict safety and efficacy requirements exist. Researchers from the French Agency for Food, Environmental and Occupational Health & Safety recently reviewed major studies evaluating vaccine candidates for OVD, including modified-live, attenuated and recombinant vaccines.[1]

Oral vaccines delivered via enticing bait can help increase overall rabies protection in areas with large populations of free-ranging dogs, researchers say.

Developing a vaccine

Oral vaccine developers must establish a candidate vaccine, evaluate its safety and efficacy in laboratory trials, choose a palatable bait matrix and conduct field trials in target populations to ensure all aspects of the vaccine are in line with international standards.

To establish efficacy, animals vaccinated with a successful vaccine candidate are challenged with a well-characterized street virus of canine origin at a concentration known to induce rabies in 80% of control animals. The duration of immunity in both laboratory and field conditions is also examined according to international guidelines.

Numerous factors are considered when choosing a bait matrix, including palatability, shape, size and texture as well as local preferences of both the target canine populations and the humans administering the bait. For example, chicken head baits were very successful in Tunisia and Guatemala, but dogs in Turkey were less likely to eat chicken heads if they were typically fed table scraps. Additionally, dog owners in the Philippines were worried that chicken heads would encourage dogs to kill free-roaming poultry in the area. Logistics of bait distribution strategies should also be considered.

A look at candidate vaccines

For this study, several vaccine candidates were evaluated in laboratory and field settings as recommended by regulatory agencies. Due to the potential for human contact with the saliva of vaccinated dogs, salivary excretions were examined for viral replication. V-RG (vaccinia-rabies-glycoprotein), SAD (Street-Alabama-Dufferin) Bern, SAG2 (SAD Avirulent Gif) and SPBN-GAS-GAS excretions were positive for viral replication at several timepoints. SAD B19 did not test positive for viral replication in saliva.

Reversion to virulence was not detected in SAG2, V-RG or SAD B19. Two human cases of vaccinia-like illness were reported in people with immune suppression or dysfunction who were exposed to dogs vaccinated with the recombinant vaccine V-RG.

Viral neutralizing antibodies were detected in dogs vaccinated with numerous candidate vaccines, and protection against rabies challenge was demonstrated in dogs that lacked viral neutralizing antibodies after vaccination with SAG2. Efficacy in dogs receiving oral vaccines was evaluated at least six months post vaccination with SAG2, VRC-RZ2 and CAV-2-E3D-RGP (at two years).

The logistics of bait production and distribution were also evaluated. Ideally, bait production should be low in cost and done locally in large numbers, and baits should be examined in the field to ensure proper delivery and uptake by the target species. Chicken head baits in Tunisia and Guatemala, köfte (meatball) baits in Turkey, cooked pig intestine in the Philippines and cooked cow intestine on the U.S. Navajo Nation reservation were most successful.

Delivery methods should factor in thermostability of vaccines, and uneaten baits should be removed after the window of thermostability. Two methods of bait distribution were evaluated: distribution to dog owners and bait placement for wildlife. Distribution to dog owners was time-consuming but enabled safe administration of the vaccines to owned dogs in Tunisia. Baits distributed to predetermined stations to target wildlife were successful in Morocco, Tunisia and Turkey.

Adverse effects were reported with the use of SAG2 OVD in Finland, where hundreds of thousands of baits were distributed annually. Nine cases of gastrointestinal upset and related behavioral signs were reported in dogs that consumed the baits while hunting.

Take-home points

Oral vaccination of dogs is a useful tool in the elimination of rabies worldwide, but safety concerns exist. The vaccine strains V-RG and SAG2 have been used extensively in the field with acceptable safety and efficacy profiles. Parenteral vaccines utilize inactivated viruses and are less expensive to produce than the self-replicating biologics currently used in oral vaccines. In regions where stray dogs are in close contact with humans, the likelihood of human contact with baits as well as with recently vaccinated dogs is much higher than with wildlife vaccine campaigns. With increasing use of immunosuppressive agents and immune modulators in humans, there is potential for unknown effects from oral vaccines using self-replicating biologics. The effective clearance of rabies in any region will likely require the use of parenteral vaccines and oral vaccines coupled with population control of stray dogs and strong public education campaigns to meet the international goal of rabies eradication in humans.

Reference

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Which cats need heartworm control? **All of them**

The heartworm disease landscape isn't what it used to be, which is why it's so important for the veterinary field to prioritize prevention for cats. *By Richard Gerhold, DVM, MS, PhD*

The heartworm disease landscape has substantially changed since I first started learning about it in veterinary school back in 1998. Although heartworms were historically a concern mainly for the southeastern United States, the parasites are now reported in most of the country. This wider distribution is due to the expansion of *Dirofilaria immitis*, the filarial nematode transmitted via infected mosquitoes, as well as the warming climate's allowance of sustained transmission in northern states.

While dogs used to receive a disproportionate share of preventive attention (as evidenced by the 2011 Companion Animal Parasite Control report that found higher percentages of heartworm-positive cats than dogs in every state except Arkansas, Louisiana, Mississippi, Oklahoma and Texas), the need to protect cats is becoming increasingly apparent—to the point that year-round heartworm preventives and yearly testing are recommended for all dogs and cats, regardless of where they live geographically and whether their days are spent indoors or outdoors.

Dogs and cats experience heartworm disease differently. For example, while dogs may require several parasites before exhibiting signs of infection, a single parasite can cause clinical signs and even death in cats. These signs include respiratory disease, vomiting, syncope, neurological disease and sudden death, although infected cats can also be asymptomatic. Heartworm disease should be considered in cats with respiratory disease, cardiac disease or chronic vomiting and those that have been exposed to mosquitoes.

Dogs and cats differ with regards to diagnostics too. Although the Knott's test is recommended for both yearly exams and as a part of the diagnostic plan when heartworm disease is suspected in dogs, cats infected with *D. immitis* are rarely microfilaria-positive, so the test is usually unrewarding. Instead, yearly testing of cats should include a combination of antibody and antigen testing. Antibody testing is used in cats because they tend to have either male heartworms or arrested development of females. Because of this, there can be a lack of detectable uterine antigen—the antigen that commercial heartworm tests are designed to detect. A positive antigen test indicates circulating antigen in cats, whereas positive antibody titers indicate current or previous *D. immitis* infection.

Further diagnostic modalities for cats include echocardiograms, complete blood counts and serum chemistry profiles (cats with heartworm disease can have increased eosinophils and basophils), radiographs and thorough physical exams. These are needed to determine appropriate therapeutic treatment regimens in cats that are antibody-positive and antigen-negative.

Although adulticidal treatment is the recommended choice for dogs infected with *D. immitis*, the same isn't true for cats. The goal for feline heartworm disease treatment is to relieve or control clinical signs with the use of corticosteroids and supportive care and prevent future infections through prevention.

Diagnosing and treating heartworm disease in cats is tricky, which is why it's so important to emphasize the need for *all* cats—even those that are strictly indoors (mosquitoes don't ask permission before entering)—to be given year-round heartworm preventives. Taking it a step further, it's also recommended to keep cats indoors to minimize not only heartworm infections, but infections from other parasites such as *Cytauxzoon felis*, *Toxoplasma gondii*, hookworms and roundworms.

Dr. Richard Gerhold works in the Department of Biomedical and Diagnostic Sciences in the College of Veterinary Medicine at the University of Tennessee.

Heartworm prevention should include every cat, every month, regardless which side of the pane it lives on.

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Voting opens for American Humane Hero Awards for vet professionals

Voting is now open for the sixth annual American Humane Hero Veterinarian and Hero Veterinary Nurse Awards, according to a recent association release. A blue ribbon judging panel of veterinary professionals and animal care experts has selected 10 of the country's top veterinary professionals as finalists after reviewing more than 250 nominations.

This event is hosted by American Humane and sponsored by Zoetis Petcare. Veterinary professionals, pet owners and animal lovers can read all finalists' stories and cast their vote for the Hero Veterinarian and Hero Veterinary Nurse now until Aug. 8 on the Hero Awards website at herovetawards.org.

"These 10 finalists are inspiring examples of the veterinary community," says Tara Bidgood, DVM, PhD, DACVCP, executive director of Zoetis Petcare Veterinary Professional Services, in the release. "Congratulations to these extraordinary finalists and all our veterinary professionals who work so hard every day to protect and give better, healthier lives to the beloved animal members of our families."

As part of the celebration for the American Humane Hero Dog Awards, the winners will be flown to Los Angeles to be honored on Oct. 5, and the ceremony will air nationwide as a two-hour special on the Hallmark Channel.

"Animals are often heroes to us, and we need to honor and recognize those who are heroes to them," says Robin Ganzert, PhD, president and CEO of American Humane, in the release. "These dedicated professionals work behind the scenes to keep our best friends happy and healthy, and for that we thank them."

Get voting!
For a list of all the Hero Award finalists and a chance to cast your vote, go to herovetawards.org.

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What's in a name? For cats, **recognition**

Curious? Clearly. Aloof? Absolutely. Unintelligent? No way. A new study proves that your feline veterinary patients recognize their own name. (Of course, that's no guarantee that they'll bother to acknowledge it.) *By Maureen McKinney*

Cats may have been domesticated 10,000 years ago, but that doesn't mean we know much about what or how they think. That's because cats are notoriously difficult to study in controlled experiments, largely because they just can't be bothered to cooperate.

But that doesn't stop researchers from trying. And sometimes they do learn a thing or two.

In Japan, investigators recently attempted to learn whether cats could distinguish between their own name and random, similar-sounding words. What they found may surprise you.

Hey, Fluffy. I know you hear me ...

In a series of experiments led by cognitive biologist Atsuko Saito and her colleagues at the University of Tokyo, cats heard either their owner or a stranger reciting four random (recorded) words followed by their own name with a 15-second interval between each. The words used were similar in length and rhythm to the cat's name. In some of the experiments, the "random" words were the names of other cats living in the household. The cats' reactions were recorded to look for ear and head movements and tail swishing, all of which are telltale signs of recognition.

The reason for saying four words before saying the cat's name was to habituate the cats to hearing words spoken. Cats often react to the spoken word, but their response diminishes after four words. Therefore, a reaction from the cat upon hearing the fifth word, its name, indicated to investigators that the cat could distinguish its own name from other words.

Surprise! Cats know their name

Most of the cats moved their head or ears in response to hearing their name. This, the investigators said, showed that the cats could pick out their own name among similar words. This was true whether the words were spoken by the owner or the stranger.

"Cats can discriminate the content of human utterances based on phonemic differences," the investigators wrote in the April issue of *Scientific Reports*. "This is the first experimental evidence showing cats' ability to understand human verbal utterances."

What remains uncertain

Although this study proved that cats clearly responded to the sound of their name, what remains unclear is whether cats understand that the word they are reacting to represents their identity. It's possible, the investigators said, that cats simply associate hearing their names with good things like treats, petting or play.

So even though Fluffy may not identify as Fluffy, she knows that the word carries a special meaning.

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Updates and reminders? Pet owners want a text

When it comes to communicating with your clients, make sure you're speaking their language—the language of texting. *By Maureen McKinney*

Pet ownership and expenditures in the U.S. have been exploding and show no signs of slowing down. According to results from the American Pet Products Association's 2019-2020 National Pet Owners Survey, 67% of American homes (84.9 million) include at least one pet, and millennials represent the largest pet-owning generation. The authors of a recent study explored two types of communication between veterinary hospitals and pet owners—medical updates and appointment confirmations—to determine how practices can best meet clients' needs.[1]

What the researchers did

An anonymous online survey of pet owners was conducted from Oct. 9 through 29, 2018. Participants had to own a dog and/or a cat as well as a pet that required at least four consecutive hours of hospitalization in the past. Participants were asked how, and how frequently, they were given updates about their hospitalized pet as well as their personal preferences regarding updates. They were also asked whether they'd be willing to pay for updates if their pet were hospitalized. Also included in the survey were questions about actual and preferred methods of communication from the veterinary hospital regarding appointment confirmations.

Of the 1,031 survey respondents, 45% owned a dog, 24% owned a cat, and 32% owned both a dog and a cat—and all had a pet that had to be hospitalized for at least four hours. Most pets had been hospitalized overnight (41%), followed by four to eight hours (35%), two nights (10%) and longer than eight hours but not overnight (7%).

What they found

Most owners (n = 782; 76%) reported that they did receive updates about their pet during hospitalization. Nearly half of those received updates once daily (48%); 40% received twice-daily updates. For most of the remainder, three or more updates were provided per day. The number of updates correlated with the amount of time the pet was hospitalized—the longer the hospitalization, the less frequently the owner was updated.

By and large, owners reported that updates during pet hospitalization were appreciated and important. The update preferences for most owners of pets hospitalized for longer than 24 hours were either every four to six hours (35%) or every two to three hours (27%).

When their pet had been hospitalized in the past, clients reported that updates were provided primarily by phone call (90%), but practices also communicated via text message (13%), email (5%), video (1%) and "other" ways (3%). The owners' reported communication preferences for receiving updates during hospitalizations were phone (42%) and text message (38%).

Of those who reported that updates were important to them, more than half said they would be willing to pay an additional percentage of the pet's hospital bill to receive updates: 24% would pay 3%, 20% would pay 5%, and 10% would pay 10%.

More than half of the surveyed pet owners currently receive appointment reminders via phone (57%); a quarter (25%) receive reminders via text. But pet owner preferences are actually the reverse: 52% would prefer to receive reminders via text, while 29% would prefer phone calls.

Take-home message

It's clear that when it comes to communication from veterinary hospitals, what pet owners want is not necessarily what they get. A 2014 study revealed that texting is the preferred mode of communication for more than half of Americans under age 50. Surely this number is even larger today.

Because millennials are such a large part of the veterinary practice client base, it's particularly important to meet their communication needs. This group values convenient and accessible communication options. In the 2017 Pet Owner Paths report, younger pet owners chose as one veterinary service they value most the availability of round-the-clock texting and chatting.

To satisfy these clients' desires, more practices need to make texting their priority mode of client communication for pet health updates, appointment reminders and a host of other communications. Bonuses: Client compliance will improve, and your team will spend less time texting than making calls. Furthermore, many pet owners place enough value on receiving updates when their pet is hospitalized that they'd pay a premium for the service. (You can even have some fun with it—see **dvm360.com/petstext**.) This could be one way that practices can be reimbursed for the extra time and effort of communication updates like these.

EVGENIA/STOCK.ADOBE.COM

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Reference

1. Kogan L, Schoenfeld R, Santee S. Medical updates and appointment confirmations: pet owners' perceptions of current practices and preferences. *Front Vet Sci* 2019;6:80.

UF to study bupivacaine in racehorses

Extended-release version has potential for misuse, says group funding research.

Veterinarians at the University of Florida (UF) College of Veterinary Medicine will be investigating a local anesthetic with the potential for misuse in racehorses, thanks to funding from a national racing group, according to a UF release.

The Racing Medication and Testing Consortium, which is funding the project, says the study is in line with its focus on eliminating illicit substances in racing, the release states.

UF researchers will be studying extended-release bupivacaine, which has longer-acting effects than other local anesthetics. These agents are often used to help localize the source of pain in equine lameness examinations, says Taralyn McCarrel, DVM, a UF surgery professor and principal investigator.

"Bupivacaine has been around for a while," Dr. McCarrel says in the release. "We don't use it a lot, as most of the time we're doing very short procedures and for those, we tend to use drugs that are shorter-acting. This is true also when we're using them in a lameness examination; we only need the drugs to last a few hours."

Horses racing at Churchill Downs Racetrack; photo courtesy of Churchill Downs.

In an equine lameness examination, nerves in the lower limb are desensitized using local anesthetics. If the lameness improves, the source of the lameness is known to be in the area innervated by the "blocked" nerve.

Recently, two new liposomal formulations of bupivacaine have been approved, one for use in dogs and cats (Nocita—Aratana) and the other for humans. These formulations allow the drug to be released slowly over a number of days and were developed to control perioperative pain and reduce the need for opioid use, McCarrel said.

The investigators proposed this study because they were concerned about the potential that the new formulation could be used unethically to mask pain or an injury in a racehorse.

"You could potentially keep exercising or training [a lame] horse for up to three days, since it would be unable to feel its injury," she says.

The UF researchers' first goal will be to determine the minimal effective dose to block pain in a horse's foot and to assess how long that local anesthetic effect lasts. The researchers' second goal is to better understand how the drug is metabolized and eliminated by the horse's body.

Racing surface at Santa Anita likely contributed to **25 equine deaths**

Catastrophic injuries peaked in late February and March; equine veterinarians call for further investigation. *By Ed Kane, PhD*

On Feb. 23, Battle of Midway, a prominent 4-year-old thoroughbred racehorse, severely shattered his hind pastern during a training exercise at Santa Anita Park in Arcadia, California, and had to be euthanized. On that same day another equine athlete also suffered a catastrophic injury, and on Feb. 25 a third horse in three days had to be put down. This was the peak of a wave of catastrophic injuries at Santa Anita beginning in late December 2018 that would reach 25 total by late May—a sharp increase from previous years.

When the fatalities reached their peak, the California Horse Racing Board and Santa Anita Park management announced their decision to close the track for evaluation. Mick Peterson, PhD, director of the University of Kentucky's Agricultural Equine Programs and an analyst for Santa Anita track soil, was brought in to evaluate the racing surface and attempt to resolve the issues leading to horse injuries during training and racing.

Peterson noted that heavy winter rains had led to track "segregation," a process in which fine material in the top surface cushion moves to the inside rail as water washes across the track surface. He issued a call for ground-penetrating radar tests and further analysis. "We have two responsibilities," Peterson stated: "to find out what happened and to fix it so it does not happen again."

Scrutiny of the surface—and below the surface

The Stronach Group, owner of Santa Anita Park, issued a statement in early March acknowledging the track's altered composition due to heavy rains over the winter. "I honestly don't think there's a problem, but weather has been a factor," said COO Tim Ritvo.

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He admitted that the track had been floated and sealed a lot, "so that it's tighter than it has been."

The ownership group brought in Racing Surfaces Testing Laboratory (RSTL)—an organization that analyzes, maintains and enhances racing surfaces for consistency and safety—for additional work on the track at Santa Anita. In addition, they announced that several new safety and welfare measures would be put in place. Going forward, Santa Anita would require trainers to apply at least 24 hours in advance for permission from a veterinarian to work a horse. This would allow time to review each horse's racing and training history and, if necessary, physically examine horses before their workouts. Additionally, each horse would be observed going to and from the racetrack by a team of two track veterinarians.

"This will allow track veterinarians to assist in identifying 'at risk' horses," Ritvo said. "Santa Anita has hired additional veterinarians to observe all horses entering and exiting the tracks each morning during training hours."

By March 11, the owners and track analysts were ready to reopen Santa Anita's main track for limited training. "We've been able to do a great deal in terms of amending the soil and inspecting it," said RSTL's Dennis Moore, head of the team investigating the track. "The most important thing is that we closely monitor compaction levels. With all the rain—and this is the case in any wet winter—the 'fines'—silt and sand—can change very quickly and that affects the clays as well. Compaction as well as dilution of silt and sand are all factors in the overall composition of the soil."

Despite the work that had been done, yet another horse broke down on March 14 during a training session at Santa Anita and had to be euthanized. This was the 22nd fatality of the season.

Race-day med reforms

The next day, the Stronach Group announced that it was taking "the unprecedented step of declaring zero tolerance for race-day medication" at Santa Anita, along with its Golden Gate Fields racetrack in Berkeley. These thoroughbred courses would be the first in North America to follow the strict International Federation of Horseracing Authorities standards.

"We have arrived at a watershed moment," the owners announced. "The Stronach Group has long been a strong advocate for the abolishment of race-day medication, but we will wait no longer for the industry to come together as one to institute these changes. Nor will we wait for the legislation required to undertake this paradigm shift. We are taking a stand and fully recognize just how disruptive this might be."

The new policy completely revised previous medication rules "to improve the safety of our equine and human athletes and to raise the integrity of our sport," the announcement continued. It called for:

- Banning the use of furosemide
- Increasing the ban on legal therapeutic NSAIDs, joint injections, shockwave therapy and anabolic steroids
- Ensuring complete transparency of all veterinary records
- Significantly increasing out-of-competition testing
- Increasing the time required for horses to be on site prior to a race
- Investing in new diagnostic equipment to aid in the early detection of pre-existing conditions
- Allowing the use of therapeutic medication only with a qualified veterinary diagnosis.

These changes would be in addition to the owners' continued commitment to engage outside experts to review dirt, turf and synthetic courses, they said.

Dennis Moore (left), a racetrack surface expert with the Racing Surfaces Testing Lab, takes racing surface measurements at Santa Anita Park in Arcadia, California.

PHOTO COURTESY OF MIKE WILLMAN, SANTA ANITA PARK

The veterinary perspective

Equine veterinarians are voicing their concern in response to the high number of catastrophic injuries this season at Santa Anita.

"The rain and its effect on the track surface is likely a factor," says Susan Stover, DVM, PhD, DACVS, a professor at the University of California, Davis, School of Veterinary Medicine. "But other factors are also probably playing a role here. One is the frequency and intensity of racing and training. When the level of exercise is too high, the skeleton does not have time to recover and strengthen from the previous training or racing event. The skeleton becomes transiently weaker and susceptible to mild injury. If affected horses continue to train and race before a mild injury has had time to resolve, they are highly susceptible to a catastrophic injury, particularly if another factor, like an unfavorable racing or training surface, adds abnormal loads to the skeleton."

Consequently, Dr. Stover notes, "the racehorse inventory needed to support the racing schedules of the racetracks needs to be examined. Horses must be trained and raced at a level at which they can maintain musculoskeletal health. If too few horses are trained and raced at a high frequency to meet the needs of the race schedule, those horses will be at higher risk for injury."

While the rain and its effect on the racetrack surface has clearly been an issue, Dr. Stover says, "I'm not sure if you started out with completely healthy horses that the horses would have been injured."

Jeff Blea, DVM, of Von Bluecher, Blea, Hunkin Equine Medicine and Surgery, wants to see some data from the recent round of catastrophic injuries. "Twenty-two horse deaths are disgusting in this short period of time," he says. "There are a lot of data points that need to be reviewed, such as necropsy findings—every horse that suffers a catastrophic breakdown in California undergoes a necropsy. The data from those necropsies will be essential to help determine what has occurred, specifically to see if there were any pre-existing problems or commonalities."

It remains to be seen whether the reforms that have been instituted will have an effect, Dr. Blea continues, along with what changes still need to be implemented. "We need to determine what needs to be done from a practitioner's standpoint, a horseman's standpoint and from the management standpoint," he says. "Although they've issued a mandate for no race-day medication (i.e. Lasix), I'm not sure that will make any difference as to what has occurred regarding these recent catastrophic breakdowns. I really don't think medication or lack thereof can take the blame for this."

The racing surface analysts also have their work cut out for them, he says: "It's a daily thing. Adjustments and testing are going to take place for a while, possibly several weeks, especially when the weather changes. You have to make sure the racing surface is consistent rail to rail.

"Regardless of what occurs over the next several weeks or more, I believe a lot of work will have to continue to be done to get Santa Anita Park back to 'normal' to get this situation fully resolved," Dr. Blea says. "I don't think we're out of woods!"

Epilogue

Dr. Blea's words turned out to be portentous. On March 31, a gelding named Arms Runner suffered a fatal injury at Santa Anita just three days after the park reopened for racing. The track remained open, however, and the Santa Anita Derby passed without incident on April 6. But two more horses were fatally injured in mid-May, bringing the season's death toll to 25.

The horse racing industry, regulatory organizations, animal welfare groups and veterinarians remain on high alert. Whether Santa Anita continues to be "The Great Race Place," as it bills itself, remains to be seen—along with the sport's continued survival in the face of concerns over equine safety.

Ed Kane, PhD, is a researcher and consultant in animal nutrition and a veterinary writer based in Seattle.

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Elanco to acquire Aratana

Two companies with successful working history set to become one.

Since its founding in 2010, Kansas-based Aratana Therapeutics has become a major player in the animal health industry. Elanco Animal Health, a subsidiary of Eli Lilly and Co., has been a player for more than 60 years. In May, the companies announced that Aratana will be acquired by Elanco for $245 million.

The two companies already have a history together. In 2016, Elanco agreed to pay Aratana $45 million to develop, manufacture and commercialize the canine osteoarthritis drug Galliprant (grapiprant).

According to company press releases, the deal is structured as a stock-for-stock transaction, with Aratana shareholders receiving 0.1481 share of Elanco stock and one contingent value right for each share of Aratana stock if the inappetence drug Entyce (capromorelin) achieves certain sales levels before the end of 2021. That results in a premium of about 40% on Aratana's current share price. The deal is contingent on Aratana shareholder approval and antitrust considerations.

Aratana has won regulatory approval for four drugs for use in companion animals, with the most recent, Nocita (bupivacaine liposome injectable solution), being approved in 2018. The company currently has several additional pipeline products in development for conditions ranging from atopic dermatitis to pain and inflammation to oncology.

"Aratana has been one of the most innovative startups in animal health, bringing breakthrough solutions to the market," said Jeff Simmons, Elanco's president and CEO, in a company press release. "We look forward to putting greater energy behind these brands with our increased share of voice in the field while leveraging Aratana's strong presence in the specialty market. ... We believe the deal would bring greater value to veterinarians and pet owners, as well as both Elanco and Aratana shareholders."

Earlier this year, Aratana founder Steven St. Peter resigned as CEO of the company. He is succeeded by Craig Tooman as president and CEO.

"This proposed transaction acknowledges Aratana's contribution of pet therapeutics to the animal health industry, specifically recognizing our strong track record as a drug developer and our field team's unmatched expertise delivering innovation to veterinary specialists," Tooman said in the Aratana release.

The deal is expected to be finalized by the middle of 2019. Aratana's board has already voted unanimously to approve the transaction.

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December 12-15
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Here are the CE opportunities coming in the next few months

June 28-29
2019 Access to Veterinary Care Symposium
Knoxville, TN
pphe.utk.edu

July 10-12
Updates in Dermatology, Anesthesia and Emergency Critical Care
Aspen, CO
(888) 488-3882
vetvacationce.com

July 16-19
World Small Animal Veterinary Association Congress and 71st Canadian Veterinary Medicine Association Convention
Toronto, ON
canadianveterinarians.org

July 19-21
PRIMA Move—Integrative Rehabilitation: Canine Cranial Cruciate Ligament Disease
Fort Collins, CO
(970) 818-0851
curacore.org

July 21-23
Great Lakes Veterinary Conference
Traverse City, MI
michvma.org

July 26-28
31st Fred Scott Feline Symposium
Ithaca, NY
(607) 253-3200
bit.ly/2Xe10DG

July 26
North Carolina Regional Wildlife Medicine Symposium
Banner Elk, NC
(828) 898-3521

August 1-4
Bluegrass Veterinary Conference
Elizabeth, IN
(252) 422-0943
vetmeetings.com

August 2
20th Annual Hambletonian CE Seminar
East Rutherford, NJ
(908) 581-7673
firstchoice marketing.us

August 2-5
Southern Veterinary Conference
Birmingham, AL
(205) 655-2320
thesvconline.com

August 2-6
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avma.org/events

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August 11-14
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August 15-18
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August 21-24
Uncharted Veterinary Conference: Staff Drama
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unchartedvet.com

August 23-26
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September 8-10
Pet Loss & Grief Companioning Certification Course
Boston, MA
(317) 966-0096
twoheartspetloss center.com

September 12-15
Colorado VMA Convention 2019
Denver, CO
(303) 318-0447
colovma.org

September 25-26
119th Penn Annual Conference
Philadelphia, PA
(215) 746-2421
vet.upenn.edu/education

September 26-29
Southwest Veterinary Symposium 2019
San Antonio, TX
(972) 664-9800
swvs.org

September 28-30
Pacific Northwest Veterinary Conference
Tacoma, WA
(800) 399-7862

October 4-6
Alaska State VMA Annual Symposium
Anchorage, AK
akvma.org

October 4-6
2019 New York State Veterinary Conference
Ithaca, NY
cvent.me/xaxKg

October 12-13
Colorado VMA CE Southwest
Durango, CO
(303) 318-0447
colovma.org

October 14-17
The Atlantic Coast Veterinary Conference
Atlantic City, NJ
(609) 325-4915
acvc.org

October 17-19
2019 ACVS Surgery Summit
Las Vegas, NV
(301) 916-0200
acvssurgery summit.org

October 31-November 3
2019 AAFP 5th World Feline Veterinary Conference
San Francisco, CA
(908) 359-9351
catvets.com/education

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Oh joy! **It's a boy!**

The 2.5 miles from my house to the veterinary clinic was great. The equine birthing emergency when I got there I liked a lot less.

Until a racehorse backed over my knee about 15 years ago, I liked to jog. Since then, well, it just doesn't work anymore. But when I first graduated from veterinary school, I ran quite a bit. And when my house was 2.5 miles from the clinic, I used to get up early on the weekend, jog to the clinic, look at my cases, then turn around and jog back home.

One morning in 1990, I arrived in jogging attire and was headed to look at the horses in the pens. I was about to go into the clinic when I discovered I'd picked up my truck keys instead of the clinic keys, which for some unknown reason I had never put on the same key chain. I figured I'd check on everything right quick and then head home for a shower. But when I rounded the corner, dread filled my brain. The mare that people had left to foal out was in labor, with one leg hanging out of her birth canal. She wasn't due for two more weeks, so I never expected her to be in labor so soon.

It was before I had a mobile phone, and stores weren't open on Sunday to use their landline. By the looks of things, if I didn't get that baby out pretty quick, it wasn't gonna be good.

It took a few passes, but I got her caught. I did the best I could to tie her to the top rail of the fence and proceeded to go to work on labor and delivery. I had no lube, no sleeves, no tranquilizer, no antibiotics, no chains or cables to connect to the baby's legs, no lidocaine for an epidural, no soap to sanitize anything, no one to keep the mare in one place, and not enough time to jog the 2.5 miles back home.

At first the mare was a willing participant, so I reached in and felt around to see what I was dealing with. The left front leg was out, and the head and right front were hung up at the pelvic inlet. I went to work, trying to get things straight.

My shirt was covered in blood and several layers of stall sand. My shorts were tan and looked like I'd pooped them.

Now, when a mare has a contraction and your arm is between the baby and the pelvis—ouch. It squashes all the feeling out of your arm and sends tingles down your spine. This squeezing happened again and again until both mare and I were exhausted. She was moving back and forth now and making all kinds of grunting sounds that I was afraid were a prelude to a kick, but she never did. I would just about get the head in the canal, and she would take a step with her hind legs to the left, and everything would go back to crooked. I could feel that the baby was still alive and I knew I had only a few more attempts at getting things done.

On about the tenth attempt to straighten things out, I got the head lined up and ready. Now the only thing holding that baby in was the other leg. I reached in and grabbed it just behind the elbow and began pushing the elbow towards the mare's head and pulling the baby's carpus toward me. I had a few inches left to go when suddenly the mare dropped to the ground like someone had shot her. I found myself lying face down in a pool of afterbirth and goo still holding fast to the leg. As I gathered my wits to make another attempt at fixing the leg, the mare, just as suddenly, stood back up. My hand had no hope of coming loose. The force of my weight lagging behind her sudden move to get up was just the boost of momentum that I needed to get the leg the rest of the way straight. As she finished getting up to shake, the baby slid out so easy, it was unbelievable.

There it was, tongue a little swollen, but the rest looked absolutely fine. It was blinking and shaking its head. I was so happy I stood up and high-fived myself several times, then got it out of the afterbirth and made sure it stood and suckled. What a morning.

When it was time to head back home, I looked down at myself. My shirt was covered in blood and several layers of stall sand. My shorts were tan and looked like I'd pooped them. My legs and hair were covered in goo, and my arms were covered in dried blood and afterbirth. I washed off the best I could at the water hose and headed home.

I kept a wary eye out for passing cars and took the alleys in order to not be seen. I couldn't imagine what people would think if they saw the new veterinarian in a town of 2,000 people running through the streets on a Sunday morning covered in blood.

I arrived home almost three hours after I had left, and my wife, Kerri, was standing at the front door. She saw me coming and headed down to give me a fanny chewing for being gone so long and not telling her where I was. Her eyes got even bigger when she saw me covered in blood and dirt. I could see her expression go from anger to worry and then back to anger. I went right past her into the house while trying to explain what had happened.

My objective? I was gonna put those clinic keys on the same keychain with my truck keys right then.

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

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*Source: Among veterinary brands. Survey conducted among small animal veterinarians who recommended oral joint health supplements.

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