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'She seems fine,' but you see pain

There's a fine line to walk when talking about pets' pain.

page 34

Trifexis™

(spinosad + milbemycin oxime)

Chewable Tablets

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

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

Indications:

TRIFEXIS is indicated for the prevention of heartworm disease (*Dirofilaria immitis*).
TRIFEXIS kills fleas and is indicated for the prevention and treatment of flea infestations (*Ctenocephalides felis*), and the treatment and control of adult hookworm (*Ancylostoma caninum*), adult roundworm (*Toxocara canis* and *Toxascaris leonina*) and adult whipworm (*Trichuris vulpis*) infections in dogs and puppies 8 weeks of age or older and 5 pounds of body weight or greater.

Dosage and Administration:

TRIFEXIS is given orally, once a month at the minimum dosage of 13.5 mg/lb (30 mg/kg) spinosad and 0.2 mg/lb (0.5 mg/kg) milbemycin oxime body weight. For heartworm prevention, give once monthly for at least 3 months after exposure to mosquitoes (see **EFFECTIVENESS**).

Dosage Schedule:

Body Weight	Spinosad Per Tablet (mg)	Milbemycin oxime Per Tablet (mg)	Tablets Administered
5 to 10 lbs	140	2.3	One
10.1 to 20 lbs	270	4.5	One
20.1 to 40 lbs	560	9.3	One
40.1 to 60 lbs	810	13.5	One
60.1 to 120 lbs	1620	27	One
Over 120 lbs	Administer the appropriate combination of tablets		

Administer TRIFEXIS with food for maximum effectiveness. To ensure heartworm prevention, owners should observe the dog for one hour after dosing. If vomiting occurs within an hour of administration, redose with another full dose. If a dose is missed and a monthly interval between doses is exceeded, then immediate administration of TRIFEXIS with food and resumption of monthly dosing will minimize the opportunity for the development of adult heartworm infections and flea reinfestations.

See product insert for complete dosing and administration information.

Heartworm Prevention:

TRIFEXIS should be administered at monthly intervals beginning within 1 month of the dog's first seasonal exposure and continuing until at least 3 months after the dog's last seasonal exposure to mosquitoes (see **EFFECTIVENESS**). TRIFEXIS may be administered year round without interruption. When replacing another heartworm preventative product, the first dose of TRIFEXIS should be given within a month of the last dose of the former medication.

Flea Treatment and Prevention:

Treatment with TRIFEXIS may begin at any time of the year, preferably starting one month before fleas become active and continuing monthly through the end of flea season. In areas where fleas are common year-round, monthly treatment with TRIFEXIS should continue the entire year without interruption.

To minimize the likelihood of flea reinfestation, it is important to treat all animals within a household with an approved flea protection product.

Intestinal Nematode Treatment and Control:

TRIFEXIS also provides treatment and control of roundworms (*T. canis, T. leonina*), hookworms (*A. caninum*) and whipworms (*T. vulpis*). Dogs may be exposed to and can become infected with roundworms, whipworms and hookworms throughout the year, regardless of season or climate. Clients should be advised of measures to be taken to prevent reinfection with intestinal parasites.

Contraindications:

There are no known contraindications to the use of TRIFEXIS.

Warnings:

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

Serious adverse reactions have been reported following concomitant extra-label use of ivermectin with spinosad alone, a component of TRIFEXIS (see **ADVERSE REACTIONS**).

Precautions:

Treatment with fewer than 3 monthly doses after the last exposure to mosquitoes may not provide complete heartworm prevention (see **EFFECTIVENESS**).

Prior to administration of TRIFEXIS, dogs should be tested for existing heartworm infection. At the discretion of the veterinarian, infected dogs should be treated with an adulticide to remove adult heartworms. TRIFEXIS is not effective against adult *D. immitis*. While the number of circulating microfilariae may decrease following treatment, TRIFEXIS is not indicated for microfilariae clearance (see **ANIMAL SAFETY**).

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

Use with caution in breeding females (see **ANIMAL SAFETY**). The safe use of TRIFEXIS in breeding males has not been evaluated.

Use with caution in dogs with pre-existing epilepsy (see **ADVERSE REACTIONS**).

Puppies less than 14 weeks of age may experience a higher rate of vomiting (see **ANIMAL SAFETY**).

Adverse Reactions:

In a well-controlled US field study, which included a total of 352 dogs (176 treated with TRIFEXIS and 176 treated with an active control), no serious adverse reactions were attributed to administration of TRIFEXIS. All reactions were regarded as mild.

Over the 180-day study period, all observations of potential adverse reactions were recorded. Reactions that occurred at an incidence >1% (average monthly rate) within any of the 6 months of observation are presented in the following table. The most frequently reported adverse reaction in dogs in the TRIFEXIS group was vomiting.

Average Monthly Rate (%) of Dogs With Adverse Reactions

Adverse Reaction	TRIFEXIS Chewable Tablets[a]	Active Control Tablets[a]
Vomiting	6.13	3.08
Pruritus	4.00	4.91
Lethargy	2.63	1.54
Diarrhea	2.25	1.54
Dermatitis	1.47	1.45
Skin Reddening	1.37	1.26
Decreased appetite	1.27	1.35
Pinnal Reddening	1.18	0.87

[a]n=176 dogs

In the US field study, one dog administered TRIFEXIS experienced a single mild seizure 2 ½ hours after receiving the second monthly dose. The dog remained enrolled and received four additional monthly doses after the event and completed the study without further incident.

Following concomitant extra-label use of ivermectin with spinosad alone, a component of TRIFEXIS, some dogs have experienced the following clinical signs: *trembling/twitching, salivation/drooling, seizures, ataxia, mydriasis, blindness and disorientation*. Spinosad alone has been shown to be safe when administered concurrently with heartworm preventatives at label directions.

In US and European field studies, no dogs experienced seizures when dosed with spinosad alone at the therapeutic dose range of 13.5-27.3 mg/lb (30-60 mg/kg), including 4 dogs with pre-existing epilepsy. Four epileptic dogs that received higher than the maximum recommended dose of 27.3 mg/lb (60 mg/kg) experienced at least one seizure within the week following the second dose of spinosad, but no seizures following the first and third doses. The cause of the seizures observed in the field studies could not be determined.

For technical assistance or to report suspected adverse drug events, contact Elanco US Inc. at 1-888-545-5973. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or http://www.fda.gov/AnimalVeterinary/SafetyHealth

Effectiveness:

Heartworm Prevention:

In a well-controlled laboratory study, TRIFEXIS was 100% effective against induced heartworm infections when administered for 3 consecutive monthly doses. Two consecutive monthly doses did not provide 100% effectiveness against heartworm infection. In another well-controlled laboratory study, a single dose of TRIFEXIS was 100% effective against induced heartworm infections.

In a well-controlled six-month US field study conducted with TRIFEXIS, no dogs were positive for heartworm infection as determined by heartworm antigen testing performed at the end of the study and again three months later.

Flea Treatment and Prevention:

In a well-controlled laboratory study, TRIFEXIS demonstrated 100% effectiveness on the first day following treatment and 100% effectiveness on Day 30. In a well-controlled laboratory study, spinosad, a component of TRIFEXIS, began to kill fleas 30 minutes after administration and demonstrated 100% effectiveness within 4 hours. Spinosad, a component of TRIFEXIS, kills fleas before they can lay eggs. If a severe environmental infestation exists, fleas may persist for a period of time after dose administration due to the emergence of adult fleas from pupae already in the environment. In field studies conducted in households with existing flea infestations of varying severity, flea reductions of 98.0% to 99.8% were observed over the course of 3 monthly treatments with spinosad alone. Dogs with signs of flea allergy dermatitis showed improvement in erythema, papules, scaling, alopecia, dermatitis/pyodermatitis and pruritus as a direct result of eliminating the fleas.

Treatment and Control of Intestinal Nematode Infections:

In well-controlled laboratory studies, TRIFEXIS was ≥ 90% effective in removing naturally and experimentally induced adult roundworm, whipworm and hookworm infections.

Palatability:

TRIFEXIS is a flavored chewable tablet. In a field study of client-owned dogs where 175 dogs were each offered TRIFEXIS once a month for 6 months, dogs voluntarily consumed 54% of the doses when offered plain as if a treat, and 33% of the doses when offered in or on food. The remaining 13% of doses were administered like other tablet medications.

Storage Information:

Store at 20-25°C (68-77°F), excursions permitted between 15-30°C (59-86°F).

How Supplied:

TRIFEXIS is available in five tablet sizes. Each tablet size is available in color-coded packages of 6 tablets.

5-10 lbs (140 mg spinosad and 2.3 mg milbemycin oxime)
10.1-20 lbs (270 mg spinosad and 4.5 mg milbemycin oxime)
20.1-40 lbs (560 mg spinosad and 9.3 mg milbemycin oxime)
40.1-60 lbs (810 mg spinosad and 13.5 mg milbemycin oxime)
60.1-120 lbs (1620 mg spinosad and 27 mg milbemycin oxime)

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'She seems fine,' but you see pain

There's a fine line to walk when talking about pets' pain.

page 34

Too many pets, too little care

Once thought to be an eccentric hobby, animal hoarding is beginning to get the attention it deserves. *By Sarah Mouton Dowdy*

The definition of animal hoarding may surprise you. That's because the crux of what classifies a person as a hoarder isn't a particular number of animals—it's whether or not those animals are provided with sufficient care, says Fetch dvm360 conference educator Kirk Miller, DVM.

This means that someone with 20 cats who's able to meet all of their needs wouldn't classify as a hoarder. But a person with only seven cats who's overwhelmed by the situation and unable to provide a minimum level of care would.

As a clinical instructor of small animal primary care and shelter medicine at Oregon State University College of Veterinary Medicine and a practic-

See page 19>

A drug's life

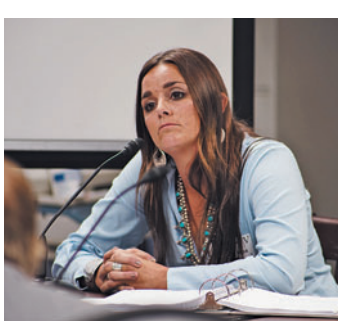
How David Bruyette's biotech startup is changing the way veterinary products come to market. *By Jessica Vogelsang, DVM, CVJ*

Back in the mid-1990s, a pharmaceutical company was investigating a new drug called sildenafil as a potential treatment for heart disease. The drug did not improve anyone's cardiac function, so the company began the standard procedures to discontinue the clinical trial. When investigators told the participants the trial was over, they refused to return the drug. Confounded, the doctors asked why the men would want to keep a drug that didn't do anything for their heart condition.

Thus began the development of Viagra, perhaps the most successful serendipitous discovery in pharmaceutical industry history.

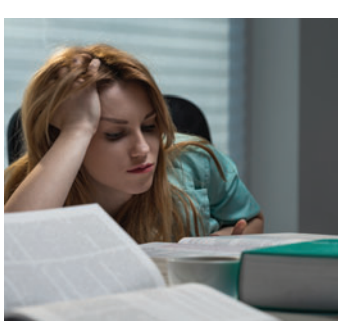
Viagra follows the typical development arc for new pharmaceuticals: Scientists determine what a chemical compound does in the body, then see where it can be applied to human medicine. Lead with the solution, then find the problem. If a pharma company thinks a drug has potential, it launches a four-stage clinical trial.

See page 18>



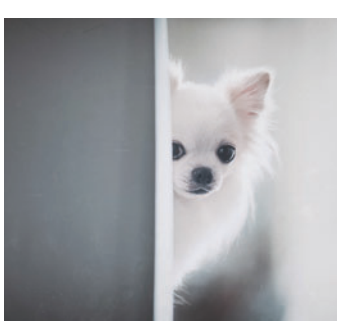
Notorious cat-killing veterinarian loses appeal

page 12



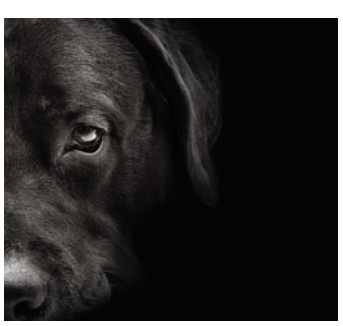
How tired are veterinary students, exactly?

page 16



Do cameras belong in a veterinary hospital?

page 28



Is ace not so ace for patients with fear aggression?

page M6

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For more information, please see full prescribing information on page 03.

References: 1. Semintra® (telmisartan oral solution) Prescribing Information. Boehringer Ingelheim Vetmedica, Inc. 2018.
2. Zimmering T. Ease of use of Semintra® and its effects on quality of life—update on cat owner feedback ("EASY Programme") [abstract]. In: Proceedings from the 21st Federation of European Companion Animal Veterinary Associations (FECAVA); October 15–17, 2015; Barcelona, Spain. Poster.

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Fetch dvm360 conference partners with Roark's Uncharted in Kansas City

Partnership brings an opportunity for attendees to join a live podcast taping with well-known veterinarian Dr. Andy Roark.

The upcoming Fetch dvm360 conference in Kansas City, Missouri, will partner with the Uncharted Veterinary Conference created by Andy Roark, DVM, the groups announced recently. Both conferences are designed to provide veterinary professionals with the latest clinical information, patient care tips, and practice management content in a live format.

The founder of the Uncharted Veterinary Conference, Dr. Roark has been a premier speaker at Fetch dvm360 conferences and a contributor to dvm360.com for many years. "Fetch has a great, fun vibe, just like Uncharted," says Dr. Roark, a practicing veterinarian and international speaker, in a dvm360 release. "I'm so excited for managers, practice owners and veterinary staff to attend Uncharted and Fetch and return home fired up, ready to make changes in the practice together."


Dr. Andy Roark

The 2019 Uncharted Veterinary Conference, which will be held from Wednesday, Aug. 21, to Saturday, Aug. 24, offers attendees a special discount to attend Fetch dvm360 conference sessions from Friday, Aug. 23, to Monday, Aug. 26, with continuing education hours available. In addition, both conferences invite all attendees to join the first live Uncharted Veterinary Conference Podcast taping event Friday, Aug. 24, co-hosted by Dr. Roark and Practice Manager Stephanie Goss.

To find out more information, visit **fetchdvm360.com/kansascity**.

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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.

N.Y. state poised to ban declaws

If Gov. Cuomo signs the bill, New York will impose a civil penalty of $1,000 on people who perform onychectomies, partial or complete phalangectomies, or tendonectomies on cats without 'a therapeutic purpose.' *By Brendan Howard*

New York could become the first state to ban feline declaws if Gov. Andrew Cuomo signs a new bill, passed on June 4, on its way to his office.

The bill (A1303B and S5532B), first sponsored by New York State Assemblymember Linda Rosenthal (D-Manhattan), would create a civil penalty of $1,000 for anyone who performs "an onychectomy, partial or complete phalangectomy or tendonectomy procedure by any means on a cat within the state of New York, except when necessary for a therapeutic purpose."

The bill goes on to state that the procedure can only be performed for the cat's medical needs: "Therapeutic purpose means the necessity to address the physical medical condition of the cat, such as an existing or recurring illness, infection, disease, injury or abnormal condition in the claw that compromises the cat's health. Therapeutic purpose does not include cosmetic or aesthetic reasons or reasons of convenience in keeping or handling the cat."

Gov. Cuomo will review the bill before deciding whether to sign it, according to an AP report.

The state's veterinary association—the New York State Veterinary Medical Society—opposed the law in a recent memo, stating that the declaw decision should be in the hands of veterinarians: "[We] strongly encourage client education prior to consideration of declawing and believe the decision to declaw or not declaw a pet should be made by the pet owner in consultation with his or her veterinarian."

Other groups and governments have banned feline declaws, including many European countries, most of Canada's provinces (and VCA of Canada) and a handful of cities across the United States (including Denver, Los Angeles and San Francisco).

Rosenthal had introduced a bill in 2015 to ban declaws, but it died in committee in 2016. Other declaw bans have been introduced in state legislatures in the past few years, including California, Hawaii, Rhode Island and New Jersey, but none have passed.

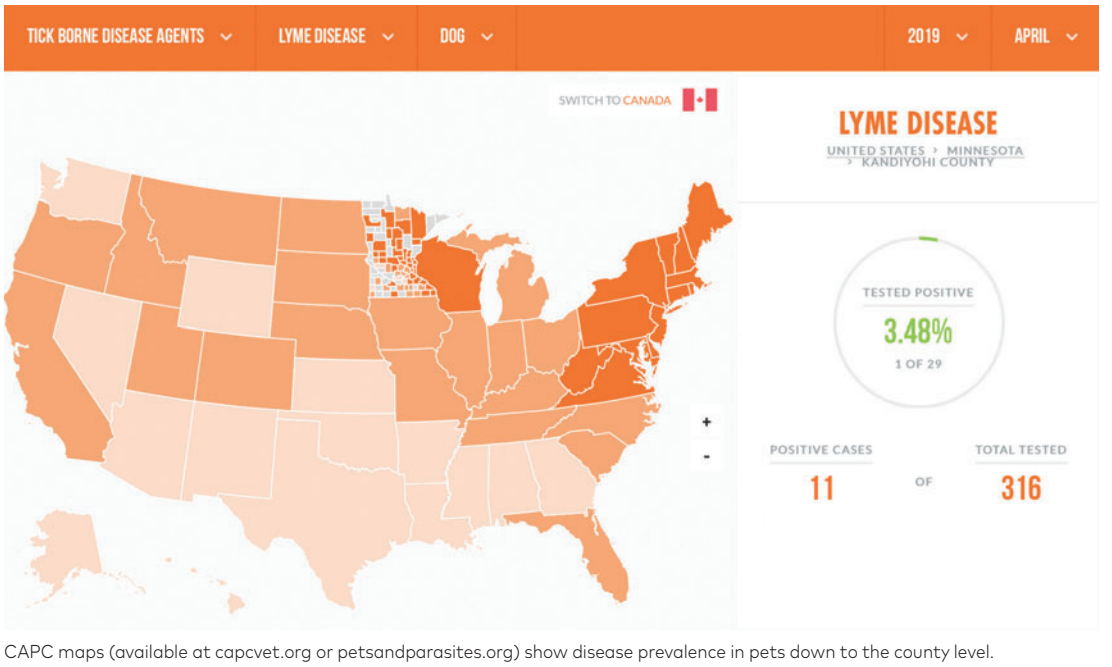
CAPC study: Proactive surveillance means dogs can predict Lyme disease risk for humans

According to new research from parasite council, regular monitoring of canine seroprevalence shows where people are at highest risk of contracting tick-borne disease.

Advocates of the One Health model focus on how veterinary medicine can positively impact other areas of health and vice versa. A new study from the Companion Animal Parasite Council (CAPC) gives credence to this idea. It found that regularly testing dogs for tick-borne illness can help predict where humans are at risk of Lyme disease.

The study quantifies the association between canine seroprevalence for *Borrelia burgdorferi* and human incidence of Lyme disease, according to a release from CAPC. As seroprevalence for *B. burgdorferi* in dogs increases, so does human incidence of Lyme disease.

Using data from dogs is less expensive and logistically challenging than monitoring Lyme disease rates in people, the release states. Canine seroprevalence monitoring is active and data are reported monthly at the county, state and national levels. In contrast, human Lyme disease surveillance is conducted passively, and it's difficult to gather contemporary data, researchers say.



CAPC maps (available at capcvet.org or petsandparasites.org) show disease prevalence in pets down to the county level.

"Unlike human medicine, veterinarians are fortunate to have the advances and commonality of annual testing and vaccination for Lyme disease in dogs," says Karen Fling, DVM, president of East Lake Veterinary Hospital in Dallas, Texas, in the release.

Human risk of exposure now goes beyond the traditional realm of the northeastern United States. States that include mostly high-incidence areas (10 cases or more per 100,000 humans) include Minnesota, Wisconsin and Virginia. Bordering states with some high-incidence areas include Michigan, Iowa, Illinois, West Virginia and North Carolina, according to the release.

Veterinarians, physicians and pet owners can access canine data on the CAPC website (petsandparasites.org) to assess risk for exposure.

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CBD epilepsy trial results 'encouraging'

The team behind the research at CSU found that 89% of dogs in study experienced a reduction in seizure frequency.

New findings from a pilot study to assess the use of cannabidiol (CBD) oil for dogs with epilepsy are "promising and exciting," according to a recent release from Colorado State University.

The study, led by Stephanie McGrath, MS, DVM, DACVIM, a neurologist at Colorado State University's James L. Voss Veterinary Teaching Hospital, and sponsored by Applied Basic Science Co., assessed the short-term effects of CBD on seizure frequency in dogs. Of the patients that received CBD in the clinical trial, 89% had a reduction in the frequency of seizures, the release states.

In this blinded study, 26 client-owned dogs with idiopathic epilepsy were assigned randomly to either the treatment or placebo (control) group for 12 weeks; 12 dogs were treated with CBD-infused oil, while 14 were given noninfused oil. All dogs remained on standard anticonvulsant medications, including phenobarbital and potassium bromide. After exclusions, nine dogs in the CBD group and seven in the control group were included in the analysis.

The CBD oil used in the study was derived from hemp, which has 0.3% or less of the psychoactive component of cannabis (THC), the release states. The compound is not considered to be marijuana and can be used for research purposes based on the 2014 Farm Bill.

In addition to the distinct reduction in seizure frequency in the dogs that received CBD, there was a significant association between the degree of seizure reduction and the concentration of CBD in the blood. "We saw a correlation between how high the levels of CBD oil were in these dogs with how great the seizure reduction was," Dr. McGrath says in the release.

Based on the results of this study, Dr. McGrath adjusted the dose of CBD oil for dogs in an ongoing clinical trial that aims to enroll 60 client-owned dogs with epilepsy. She also hopes to launch a new study later this year to determine the optimal dose of CBD to treat epilepsy in dogs.

Penn Vet announces new entrepreneurship program

This immersive program is designed to build entrepreneurial skills and affect public health on a larger scale. *By Maureen McKinney*

The veterinary profession's influence on public health is becoming ever more evident. Veterinarians can offer insight and ideas that address complex societal issues ranging from public health to human and animal well-being.

That's why the University of Pennsylvania School of Veterinary Medicine has added the Leading Veterinary Entrepreneurs to its continuing education platform.

The intensive executive program, which is intended for veterinarians, scientists, technologists, academic leaders and innovators, covers topics like entrepreneurship fundamentals, global challenges for veterinarians, the landscape of healthcare, utilizing resources, and fostering partnerships, sociopolitics and leadership. The first session took place in June.

"This program is designed to prepare individuals to take on an entrepreneurial mindset that may be outside their areas of education and experience," Andrew Hoffman, DVM, DVSc, Gilbert S. Kahn Dean of Veterinary Medicine at Penn Vet and the program's academic director, says in a release from the university. It's intended to introduce the foundational skills needed to develop a new product, service or to identify new organizational opportunities, says Dr. Hoffman.

Veterinarians are uniquely situated to conceptualize solutions that can enhance the quality of animal and human lives, from appliances that improve pet mobility to devices that monitor our food supply to new medical treatments to treat disease, Dr. Hoffman says.

"It is our role as educators to make sure our students and alumni are well equipped to identify market opportunities that could lead to entrepreneurial careers that parallel, or go beyond, the practice of medicine," he says.

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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

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Cat-killing veterinarian **loses appeal in court**

The Texas Supreme Court has reaffirmed the decision to hold Kristen Lindsey, DVM, accountable for her actions in 2015 that sparked international outrage. *By Maureen McKinney*

On April 15, 2015, Texas veterinarian Kristen Lindsey, DVM, made the fateful decision to post a photo of herself on Facebook holding a cat that she had just shot with a bow and arrow. The image, accompanied by boastful comments about the kill, including "My first bow kill ... lol," quickly went viral and incited the wrath of pet lovers and veterinary professionals around the world.

Shortly after the incident occurred, Dr. Lindsey was fired from her position at the Washington Animal Clinic in Brenham and her actions were denounced by the AVMA, the Texas Veterinary Medical Association and her alma mater, Colorado State University.

In 2016, citing ethics violations and animal cruelty, the Texas Board of Veterinary Medical Examiners suspended Dr. Lindsey's veterinary license for one year to be followed immediately by four years of probation.

According to court records, Dr. Lindsey's appeal to the Texas Supreme Court to revoke her punishment was denied late last week. She remains permitted to practice veterinary medicine only on a probationary basis until February 2020.

Although Dr. Lindsey admitted to killing the animal, she said the feral cat had been on her property, which gave her the right to kill it. But neighbors said the cat was a pet named Tiger.

"This was a case of a veterinarian not only ignoring her responsibility to relieve suffering, but actually rejoicing in the suffering she was inflicting on Tiger," said Becky Robinson, president and founder of Alley Cat Allies in a statement on the group's website. "The Texas Supreme Court now becomes the highest authority in the state to confirm what we've known all along—that Kristen Lindsey is wholly deserving of punishment for her brutal killing of Tiger."

Prior to appealing to the Texas Supreme Court, Dr. Lindsey made several failed attempts in lower courts to have her punishment revoked, claiming that it negated the right of property owners to protect their home and land against damage caused by animals.

According to a report on the Veterinary Information Network, Dr. Lindsey will not pursue further appeals in her case. It is unclear whether she is practicing veterinary medicine at this time.

Lindsey testifying at an administrative hearing in 2016.

PHOTO COURTESY OF ALLEY CAT ALLIES

Texas Tech takes a $17.4 million step toward new veterinary school

Funding in state budget—now approved by governor—is more than four times previous amounts allotted by legislators.

A Texas state legislative committee voted in May to include $17.4 million in the state budget to establish a new veterinary school at Texas Tech University. The amount is a significant increase from the roughly $4 million included in the first budget, according to a story from the *Lubbock Avalanche-Journal*.

Seven Texas congresspeople announced the funding to help "address the shortage of large and mixed animal veterinarians in rural parts of the state" and "to secure the food supply."

"The school will address the hundreds of students who are leaving the state of Texas for a more costly education, then coming back to practice in their home state with upwards of $250,000 in debt due to out-of-state tuition," the legislators' release states.

Texas Tech first announced plans to develop the school in Amarillo, Texas, in 2015, forming a steering committee the next year. Two years later, plans for the school inspired a local economic development group to pledge up to $69 million to help with construction.

The new college of veterinary medicine would join Texas A&M University as the second Texas school to educate veterinarians. The two schools squabbled back in 2016 about the need for the school, with Texas A&M against a new veterinary school at the time and arguing that their off-campus partnerships would take care of the state's needs for food animal and agricultural veterinarians.

Gov. Greg Abott signed the full $250 million state budget on June 15 with no line-item vetoes.

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HillsVet.com

[1]Kruger JM, Lulich JP, MacLeay J, et al. Comparison of foods with differing nutritional profiles for long-term management of acute nonobstructive idiopathic cystitis in cats. *J Am Vet Med Assoc.* 2015;247(5):508-517. [2]Lulich JP, Kruger JM, MacLeay JM, et al. Efficacy of two commercially available, low-magnesium, urine acidifying dry foods for the dissolution of struvite uroliths in cats. *J Am Vet Med Assoc.* 2013;243(8):1147-1153. [3]Gluhek T, Bartges JW, Callens A, et al. Evaluation of 3 struvite-oxalate preventative diets in healthy cats. *J Vet Intern Med.* 2012;26:801. [4]Data on file. Hill's Pet Nutrition, Inc. 2017. Urine calcium directly measured and risk of calcium oxalate crystal formation measured by Hill's COT test vs. US ROYAL CANIN VETERINARY DIET® Feline Urinary SO® dry formula.


From left: Bella, Luna, Luna.

'Luna' overtakes 'Bella' as top name for puppies

What are the most common puppy names you might be seeing at your veterinary practice? Nationwide says a *Harry Potter*-inspired name beat out *Twilight*.

What are people naming puppies these days? Nationwide shared its list of names of dogs 2 years or younger drawn from a database of more than 750,000 insured pets.

The top five most popular puppy names and in what states are:

1. "Luna" (from fan-favorite character Luna Lovegood in the *Harry Potter* books) was tops in California, Colorado, Connecticut, Delaware, Florida, Indiana, Massachusetts, Michigan, Minnesota, New Jersey, New York, Ohio, Pennsylvania, South Dakota, Utah, Virginia, Washington, Wisconsin and Wyoming.

2. "Bella" (from the main character in the *Twilight* series—a name that has spent years atop lists for both dogs and cats of all ages) was most popular in Alabama, Arizona, Georgia, Hawaii, Idaho, Iowa, Kansas, Mississippi, Nevada, New Hampshire, North Carolina, Oklahoma, Oregon, South Carolina, Tennessee and Texas.

3. "Charlie" was the favorite puppy name in Illinois.

4. "Bailey" was tops in Kentucky and Maryland.

5. "Cooper" won in Maine, Missouri and Rhode Island.

Other state-by-state winners include these classics:
"Buddy" (New Mexico)
"Duke" (Arkansas)
"Louie" (North Dakota)
"Lucy" (Alaska, Ohio)
"Max" (Nebraska)
"Molly" (West Virginia)
"Penny" (Washington, D.C.)
"Ruger" (Vermont)
"Sadie" (Montana)
"Stella" (Louisiana).

Kansas State University announces Bonnie Rush as dean of vet school

Dr. Rush has been at K-State since 1993 and interim dean since 2017.


Bonnie Rush, DVM, MS, DACVIM

After a national search, Bonnie Rush, DVM, MS, DACVIM, has been selected as the new dean of the College of Veterinary Medicine at Kansas State University. Rush has been serving as interim dean since 2017.

"With her strong history of leadership for the College of Veterinary Medicine, Dr. Rush is the right choice to lead this college and its vital teaching, research, service and outreach programs into the future," says Charles Tabor, MS, PhD, provost and executive vice president of Kansas State University, in a release from the university.

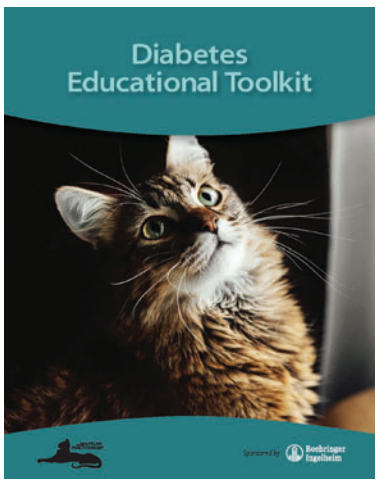
Dr. Rush became a faculty member at Kansas State University in 1993 and head of the clinical sciences department in 2006, where she coordinated core courses, led curriculum reform and maintained responsibility for clinical outcome assessment, according to the release. As a professor of equine internal medicine, Dr. Rush specializes in equine respiratory disease with an emphasis on respiratory physiology, immunology and aerosol drug therapy.

As dean, she will be tasked with program development, faculty and student development, research, teaching and extension, program accreditation, diversity and the 2025 plans for both the college and the university, according to the release. The College of Veterinary Medicine has three academic departments and two service units, and provides broad training opportunities across companion and exotic animals and livestock species.

"It has been an honor to serve as the interim dean," Dr. Rush says in the release. "The students, faculty and staff of the College of Veterinary Medicine are tremendously talented and committed to advancing the missions to strengthen animal health and well-being through research, education and service."

Her appointment began June 16.

RAWPIXEL.COM / STOCK.ADOBE.COM; PHOTO COURTESY OF KANSAS STATE UNIVERSITY



AAFP releases feline diabetes toolkit

Resource aims to make treatment of diabetes in cats more effective.

Diagnosing, treating and monitoring diabetes in cats is challenging, in part because every patient requires a customized treatment plan that must be reassessed and adjusted on an ongoing basis.

To help veterinary professionals make the best diagnostic and treatment decisions for their feline patients, the American Association of Feline Practitioners (AAFP) has released a Diabetes Educational Toolkit.

This digital resource is intended to help veterinary professionals access and gather information quickly from clients, according to an AAFP release. The toolkit focuses on diagnosis, treatment, remission strategy, troubleshooting and frequently asked questions. Each section of the toolkit can be downloaded and printed for easy accessibility in the practice.

The release notes that effective treatment of diabetes in cats is based on a combination of patient goals, client finances, implementation of the treatment plan and the patient's response. A strong partnership between the veterinarian and the cat owner is key.

"We are excited to release this digital resource to the veterinary community in the hopes that we can help veterinary professionals in the diagnosis and treatment of their diabetic feline patients," Apryl Steele, DVM, president of the AAFP Board of Directors, says in the release.

The toolkit was made possible by an educational grant from Boehringer Ingelheim and developed by Audrey Cook, BVM&S, Msc VetEd, DACVIM-SAIM, DECVIM-CA, DABVP (feline); Kelly St. Denis, DVM, DABVP (feline); Sonnya Dennis, DVM, DABVP (canine/feline); and Elaine Wexler-Mitchell, DVM, DABVP (feline), chair.

Access the toolkit at catvets.com/diabetes-toolkit.

Another resource dvm360

Visit us online to find more feline care content dvm360.com/felinecenter.

From our readers

We got some great personal feedback on this study on Facebook. A few highlights:

"The pinnacle for me was my surgery rotation. There were supposed to be eight students, but there was an outbreak of MRSA on the surgery ward, so four dropped it last minute. So we had the case load for eight, with four students. I was there every day until 11 p.m., and had to be back the next morning for 5 a.m. to have all my patients written up before rounds. Let's just say that is not the ideal way to learn. Definitely nearly passed out holding a leg for the surgeon. I lost 10 pounds in two weeks."

—Teresa Bousquet

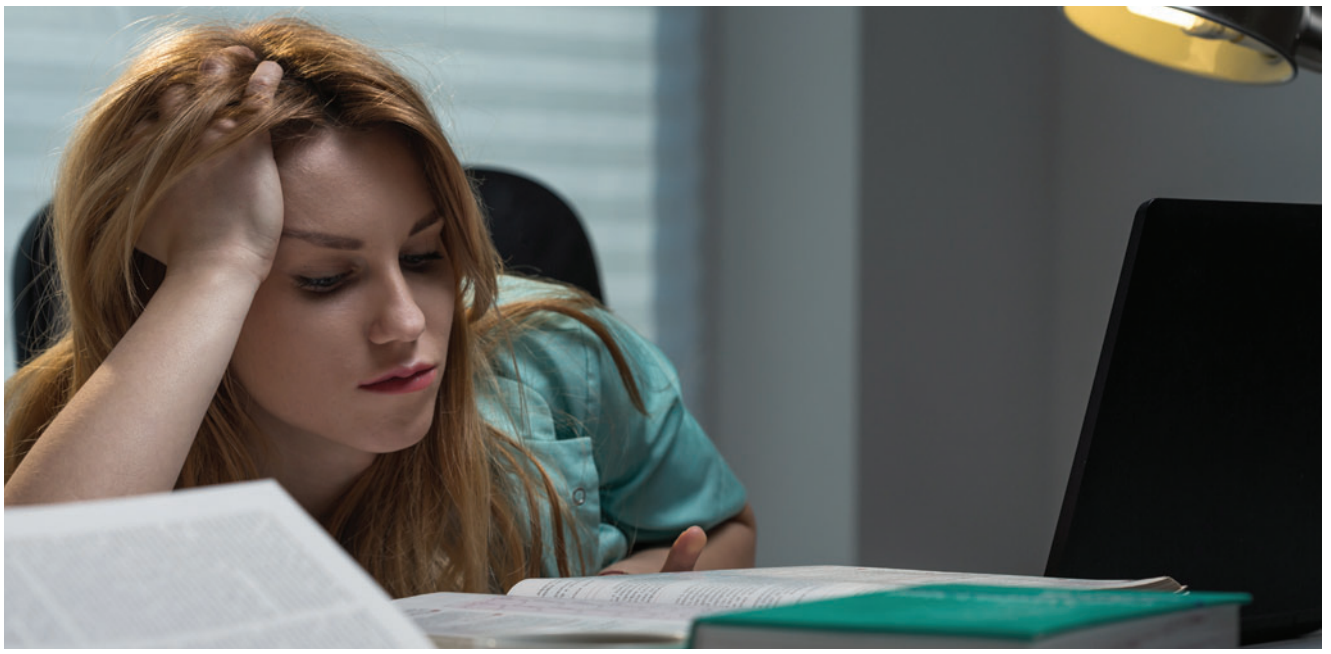
"I was super sleepy, and still am 12 years later. In vet school I used to stay at school until sometimes 8 or 9 at night, study until 1 a.m. then set my alarm for 4, study for a bit then go back to school. I can't believe I did it. Then 10 years of on call. Needless to say, my sleep is now permanently screwed."

—Heather James

"Just because it's the way it's always been, doesn't mean it has to be that way forever. Even if that's how it is in practice, no reason schools can't have it be better. I'm sure someone will reply with something along the lines of 'spoiled millennials,' and 'we had to put in our time, so should you.' But if that's true, and you suffered, why not let that motivate you to affect change?

"IDK. I survived clinics despite the lack of sleep. I know there's sleepless nights ahead. But if students after me can have it easier? Great. I want that for them."

—Lucy Rose



Veterinary students sleep like babies ... as in definitely not enough and they usually wake up crying.

How tired are vet students, exactly?

No shocker, veterinary students are tired. This new study proves it and raises a new question: Now what? *By Brendan Howard*

See, it all started when Michael Nappier, DVM, DABVP, was making the argument that checklists built from Partners for Healthy Pets material could help veterinary students perform better, more consistent wellness exams. He was surprised at the pushback.

"Believe it or not, I got this feedback: 'We know checklists are useful in situations where people are under stress or sleep-deprived, like airline pilots or human-medicine surgeons, but we have no data that veterinary students are stressed or sleep-deprived,'" Dr. Nappier says. "It was one of the most confoundingly ridiculous statements I'd heard in a long time, especially with all the talk in the profession about wellness."

So, Dr. Nappier and three other study coauthors surveyed veterinary students at the Virginia-Maryland College of Veterinary Medicine in Blacksburg, Virginia, at five points (September, November, December, February and May) over the course of an academic year to quantify their perceived sleep quality and sleepiness during activities. The study used the Pittsburgh Sleep Quality Index and Epworth Sleepiness Scale, and the results showed that the 312 students participating had poor sleep quality and above-average to excessive daytime sleepiness. (See Table 1.)

Table 1: Means across 5 time points for sleep quality and sleepiness

Month	Sleep Quality	Sleepiness
September	7.05	9.24
November	7.43	9.79
December	7.38	9.68
February	7.37	9.41
May	6.78	8.63

Dr. Nappier hopes the research will spur critical examination of veterinary school curriculum and evaluation of how students spend time in school. One possible takeaway for Dr. Nappier: "I remember my own time as a veterinary student. I'd be in the hospital 24 hours straight. As I review this data about how tired students are, I'm thinking hey, if you're going to work overnight in ICU, maybe you shouldn't have to be on the next day."

Adjusting the curriculum and pace of assessments is another change the research could support, he says. "We're asking students to digest so much, and we cram in back-to-back assessments during their education. Let's step back. Why are we doing it this way? Is everything we're teaching truly material they need as veterinarians? How many hours are we physically expecting them to be there and learning?"

It's easy to say veterinary school is just stressful. Veterinary students will survive, graduate and get out in the real world, where, in theory, they'll be more well-rested. "Veterinary school is their real world for a number of years, though," says Dr. Nappier. "Yes, we produce excellent clinicians—but at what personal cost?"

PHOTOGRAPHEE.EU/STOCK.ADOBE.COM

What's your vision for the future of your business?

3 Questions to ask as you enter discussions with potential partners.

– Dr. John Paulson, Ridgetop Animal Hospital. NVA partner since 2012.

NO. 01

Is it the right culture fit for your team?

As you begin considering your options for selling your pet hospital business, it's important to find a partner aligned with your values, respectful of the individuality of what you've built, and equipped to grow your business, while your team and culture remain intact.

Ask around to find out which buyers have the best reputation for caring for pets and the people who love them.

NO. 02

Are there flexible deal structures?

Because selling your pet hospital is such a personal decision, you'll want to understand what types of options are available, and to what level they can tailor the terms to meet your needs.

ASK IF THE BUYER CAN:

- Make all cash offers with no finance contingency
- Offer Joint Venture partnerships for growth and flexibility
- Buy the real estate outright or lease from you

NO. 03

How comprehensive are the support services?

As you contemplate transitioning your business, you'll want to know every aspect is covered. Seek out a partner with a dedicated team seasoned in marketing (including digital advertising and social media strategy), web development and hosting, client satisfaction surveys, IT, HR, accounting, taxes, legal and more.

We're confident that we can care for and grow your practice like no one else. We'd be more than happy to talk through your questions. You can reach us at: 888.767.7755 | NVA.com | info@NVA.com

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Join Us. Stay You.

A drug's life

> Continued from the cover

Ten years and $100 million later, about 14% of those drugs make it through the FDA approval process to market. The FDA mandates a drug be safe and effective. The pharmaceutical company that spends the $100 million mandates it be profitable.

Somewhere in another part of the building, the animal health divisions of large pharma companies wait on the sidelines. "What typically happens in these big pharma companies is that a drug bombs on the human side and they give it to the vet side," says David Bruyette, DVM, DACVIM, chief medical officer at Anivive Lifesciences. "Then they say, 'See if you can make something happen with it.'"

If there's potential, the process starts all over again with a new veterinary trial. This laborious, time-consuming and expensive series of steps may explain why FDA-approved veterinary drugs are so sparse. But Dr. Bruyette thinks Anivive can change all that.

"It's not really surprising that 85% of the diseases that veterinarians face either don't have any treatment, or veterinarians tend to use human drugs off label," says Dr. Bruyette. "It just doesn't make financial sense to spend 10 years and $100 million on a product that may only sell $10 million a year. And that doesn't mean that that product and that disease aren't important. It just means there are probably better ways to invest your capital."

The intro that almost didn't happen

Dr. Bruyette's entrance into the startup world began three and a half years ago, with a random email sent through LinkedIn. At the time, he was medical director at VCA West Los Angeles. Before that, he was head of internal medicine at Kansas State. Well-entrenched in traditional clinical practice, Dr. Bruyette almost ignored the LinkedIn message from a 20-something entrepreneur asking if he knew anything about dog diabetes. Dr. Bruyette, a diplomate of the American College of Veterinary Internal Medicine, replied that he did. Eventually.

"I wrote him back. I said, who are you? I don't know you," Dr. Bruyette says, laughing. "I couldn't find him on the Internet anywhere."

The entrepreneur in question was Dylan Balsz, who had already launched several successful companies, including International Pet Solutions, which sells a "pet potty" called PetLawn. Impressed by Balsz's success, Dr. Bruyette agreed to meet him. Balsz shared that he'd been approached by a pharma company wondering if he had any ideas for determining whether one of its shelved drugs might be of use in the veterinary space. Although the drug wasn't applicable on the human side, much of the preliminary testing had already been performed.

"On the human side, to get a drug approved, you show that it's safe in rodents and then typically you move it into something larger," says Dr. Bruyette. "The larger animal could be a primate or a pig. A lot of times, it's a dog."

Much of this research is in pharmacokinetics, Dr. Bruyette continues: "Do dogs absorb it? What concentrations? Does it get in their blood? Is it safe?"

In a large company, this would be where the handoff to animal health would take place if the drug had no human application. But in smaller companies with no easy way to access the veterinary market, the products are simply shuttered.

The company that contacted Balsz hoped he might know how to discover whether any of those drugs might improve the lives of animals. Balsz knew business, but he had no background in veterinary medicine—hence his out-of-the-blue LinkedIn message to a prominent veterinary endocrinologist.

Dr. Bruyette was in. Although he and Balsz did not end up developing the original drug they explored, things were about to get more interesting.

Re-inventing drug discovery

In talking about the drug approval process, Balsz and Dr. Bruyette questioned whether there was a way to more make it more efficient and streamlined. "Does it really need to take 10 years and $100 million to get a drug approved?" says Dr. Bruyette. Making the process more cost-effective would remove a huge barrier to new drugs entering the veterinary market. "Is there a way to leverage existing data and target an unmet need?"

His and Balsz's goal became even loftier than their original idea of taking human medicine's castoffs and trying them on animals. What if, they asked, they could use software platforms to develop potential new therapies more efficiently?

Fast-forward to today. If you look at the who's-who on the Anivive homepage, you'll notice that many are software engineers and computer scientists. How does this jibe with the stereotypical image of the lab-coat-wearing, beaker-holding scientist we associate with pharma research? "The best way to develop a lead," says Dr. Bruyette, "is to develop software."

"It's not really surprising that 85% of the diseases that veterinarians face either don't have any treatment, or veterinarians tend to use human drugs off label."

—Dr. David Bruyette

Turns out that software development has kicked off a new golden era of drug discovery, and it's all thanks to the approach.

"We look for an unmet need—for instance, lymphoma," says Dr. Bruyette. "And then we ask, OK, what's really needed for lymphoma patients? What we would like to have for treatment is a veterinary-approved drug with a good safety margin that can be administered orally, that works through a mechanism of action that's different from other chemotherapeutics that are out there." Anivive takes a veterinarian's therapeutic wish list and, through specially developed software platforms, starts sorting through existing data to see if such a compound might exist.

The software delivers an initial set of compounds. Then the process of elimination begins. "Do those compounds interact with a target that we know is present in lymphoma?" Dr. Bruyette says. "Is there a mutation in dog lymphoma cells and human lymphoma cells that would generate a target, and would this drug interact with that target?" The list of 20,000 becomes 10,000.

"Then we ask how many of those 10,000 compounds have data," says Dr. Bruyette. The team also researches whether any of the compounds are already protected by a patent. Eventually, the list is whittled down to just a handful. With that list in hand, Anivive approaches the groups working with the drugs.

"We go out to whoever those people are, whether they're universities or pharma companies. We take an option so we can learn a little bit more about the drug. And if we like it, then we end-license it for veterinary use," says Dr. Bruyette.

Anivive's internal regulatory team has experience taking therapeutics through both the FDA and USDA approval processes and eventually to market. The importance of the regulatory component can't be underestimated—particularly when it comes to determining whether a new product falls under the auspices of the FDA or USDA. In human medicine, it's easy: it all falls to the FDA. In animal medicine, there used to be a clear delineation: FDA for drugs that treat, USDA for vaccines that prevent. But today's newest biomedical technologies can blur the lines.

"The FDA has ruled that viral vector gene therapies are therapeutics. They're not biologic in nature," says Dr. Bruyette. "But Cytopoint is a monoclonal antibody that went through USDA. Things that rely on the host to elicit the response, like a biological response modifier or monoclonal antibody—those are USDA products."

Sometimes not even the agencies themselves are sure where to file a product. What if something is therapeutic by virtue of its immune-modulating properties? One product under investigation by Anivive is just such a compound. "We actually had a joint meeting with the USDA and FDA and presented our information to them and said, 'Where does this go?'"

At the moment, the product is available only through clinical trials under the FDA's pre-approval compassionate use provision.

'We're an unmet needs company'

Nowhere is the need for novel drugs more apparent than in veterinary on-

MARIA SBYTOVA/STOCK.ADOBE.COM

cology. Before Tanovea's initial approval in 2017, there was no FDA-approved treatment for canine lymphoma. Patients were presented with the same off-label treatment options for decades: chemotherapy protocols like CHOP (cyclophosphamide, hydroxydaunorubicin [doxorubicin], Oncovin [vincristine], and prednisolone), corticosteroids or imminent death. Options are similarly sparse with other neoplasias.

In its short time in existence, Anivive has launched investigations into 14 compounds; two are nearing the final stages of the approval process. The first is an oral product for lymphoma treatment. Imagine, for a moment, instead of the weekly IV infusions, telling clients about an effective oral medication. What might that mean for the thousands of afflicted pets diagnosed with lymphoma every year? And that's just the first product on the list.

Dr. Bruyette says Anivive's approach of starting with the end goal instead of the drug itself is unique among companies. "I think that's the thing that separates us," he says. "We're not an oncology company; we're not an infectious disease company. We're an unmet needs company."

Starting with the unmet needs of the field allows Anivive to target heavy-hitting diseases often considered a death sentence. In addition to the lymphoma treatment, Anivive plans to introduce a coccidiomycosis (valley fever) vaccine licensed from the University of Arizona, a feline infectious peritonitis (FIP) antiviral product licensed from Kansas State University and a recombinant angiotoxin-targeting hemangiosarcoma treatment currently in trials at the University of Minnesota. Any one of those treatments would be a major victory in veterinary medicine, but to move all of them forward at once—well, that's unheard of.

These partnerships have the benefit of streamlining both cost and time to approval. "It's significantly less money because we'll be able to leverage things like manufacturing. A lot of the time these companies already have worked out how to make it," says Dr. Bruyette. "There'll be clinical studies they've already performed that may help us offset the costs of safety and toxicity studies." This allows Anivive to produce drugs for smaller, often-ignored markets. Dr. Bruyette estimates that the time needed for their first drug's development and approval process will be shrunk from 10 years to somewhere between three and five.

What frustrates you the most?

While Anivive's current drugs are limited in availability to clinical trials through universities, Dr. Bruyette notes that general practitioners will be able to participate in future trials. "Cancer studies typically are going to be done at private practices or universities with oncologists," he says, noting that participants must be willing to follow the stringent requirements of the FDA. The FIP treatment, however, "will be a general-practice-driven product." Anivive's software platform has an arm specifically designed to identify and recruit general practitioners for clinical trial participation when the time comes.

Dr. Bruyette emphasizes that they view every practitioner, both specialist and GP, as a part of this new process. "We want to hear from them. What are the diseases that you see that are the most frustrating to you?" he says. "What are the diseases that you want to see successful therapies for, either because they're associated with a very poor prognosis or the treatments are difficult or expensive? We really want to partner with the general practice doctor to bring things into the clinic that they'll actually use and that they need."

Imagine the possibilities.

Dr. Jessica Vogelsang is a certified veterinary journalist, a regular contributing writer for a number of publications, author of the memoir All Dogs Go to Kevin, *and creator of the blog Pawcurious.com.*

Too many pets, too little care

> Continued from the cover

ing veterinarian with the Oregon Humane Society in Portland, Dr. Miller is no stranger to the world of animal hoarding—a world that includes an estimated 250,000 animals per year in the United States alone.

With so many affected animals, there's unfortunately a good chance that if you haven't witnessed animal hoarding yet, you will in the future.

"According to the Animal Legal Defense Fund and the Pet Abuse Database, the animal hoarding trend seems to be going upward, especially in the past 10 years," says Dr. Miller. "But it's hard to say if that's because there's more hoarding going on or if awareness is simply growing. Thanks to television shows on the topic, the problem is more top of mind."

Animal hoarder typology

Building on the definition of hoarding we started with, Dr. Miller says animal hoarders are often characterized by obsessive attempts to accumulate or maintain a collection of animals in the face of progressively deteriorating conditions.

"Even though things are bad or going downhill, they're still trying to get more animals or keep the ones they've got," he explains.

Animal hoarders fail to provide their pets with minimal standards of sanitation, space, nutrition and veterinary care, and they are unable to recognize the effects of this failure on the welfare of the animals, themselves and other people who live in the household, says Dr. Miller.

Though he stresses that there can be a lot of overlap and gray area, Dr. Miller explains that it can be helpful to know the three types of hoarders, as the typology can be used to guide authorities on the most appropriate intervention approach.

The overwhelmed caregiver. According to Dr.

Miller, this is a person with good intentions who's trying to take care of their animals but eventually becomes overwhelmed. Pets in this situation are often passively acquired, he explains—consider the "neighborhood cat lady" who keeps getting cats brought to her until the situation spins out of control.

"Overwhelmed caregivers are more likely to understand there's a problem and thus typically have fewer issues with authority and accepting intervention," Dr. Miller says.

The rescue hoarder. Rescue hoarders, on the other hand, have a compulsive need to rescue animals from euthanasia and tend to see humane organizations as the enemy—in their eyes, they're the only ones who can help these animals, explains Dr. Miller. Unlike overwhelmed caregivers, they actively acquire pets and will avoid authority.

"They're not amenable to help because they believe they're the only ones who can help," he says.

The exploiter hoarder. The exploiter hoarder, explains Dr. Miller, is indifferent to the animals they acquire.

"Accumulating animals satisfies some need they have," he says. "Sometimes it's just to have a bunch of animals."

This category can include those who run puppy mills and who illegally sell animals into research. Exploiter hoarders have an extreme need for control and will lie, cheat and steal to achieve their ends.

A detriment to pets and people

Malnutrition, neglect, stress and infectious diseases are common with these animals. Dr. Miller says hoarded pets are sometimes too far gone—medically, behaviorally or both—to be adopted out after being rescued.

The people involved in these situations don't go unscathed either—risk of zoonotic disease is high and sanitation concerns and self-neglect are common. To illustrate his point, Dr. Miller describes a case in which a woman lived in a one-bedroom apartment with 48 cats. When her toilet stopped working, she was unable to ask for help from her landlord (due to violating the conditions of her lease) and started using her bathtub as a toilet.

That's not the worst of it. "Sometimes, the hoarder's home is so bad that it has to be destroyed," he says.

From an eccentricity to a disorder

While the effects are obvious, the causes of animal hoarding are less clear. When animal hoarding was first reported in the early 1980s, it was referred to as "animal collecting." Such a term made it sound more like an eccentric hobby, says Dr. Miller.

Hoarding disorder is now a separate listing in the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, and theories regarding the cause abound. Some speculate that it's linked to a traumatic event or an attachment disorder developed in childhood (i.e. a person who wasn't cared for properly as a child may turn to animals and develop unhealthy dependencies). Others have pointed to addiction models, delusional disorder, borderline personality disorder, obsessive compulsive disorder and insistent caregiving—none of which adequately describes every hoarder, says Dr. Miller. Dementia has also been documented in many hoarders, but not all of them.

Problematic prosecution

Prosecuting animal hoarders and getting them the long-term monitoring and therapy they need is difficult, Dr. Miller says. Animal hoarding is typically prosecuted under state animal cruelty laws as a crime of omission or neglect, though some states have developed hoarding-specific legislation.

Forfeiture laws are often used but can have a dramatic effect on the shelters that must house the seized animals while the case moves through the legal system. Bond laws, which require the animals' owner to post a security or bond to pay for the care of the seized animals, can also be used. According to Dr. Miller, this approach can either help defray the costs associated with caring for these animals or can be used as a negotiating tool for getting hoarders to sign over their animals so they can be fostered and adopted out.

The penalties for animal hoarding are often inconsistent and ineffective at deterring the crime. For one, district attorneys may try to lump everything into one charge to avoid clogging the court system, says Dr. Miller.

"These are individual animals and should be treated as individual cases," he continues. "Having all of those separate charges really helps during the penalty phase."

Moreover, because the causes of animal hoarding are not well understood, and because hoarders are usually in denial that they have a problem, therapy is rarely mandated or followed through on, Dr. Miller explains. Monitored probation is also uncommon.

In cases that do go to trial, Dr. Miller highlights the importance of having veterinarians serve as expert witnesses.

"Someone with a white coat who can tell it like it is carries a lot of weight," he says. "The defense is going to have their own medical expert witnesses, so it's really important that the prosecution has expert witnesses as well."

Hope for hoarding?

According to Dr. Miller, the recidivism rate for animal hoarding is estimated to be 100 percent.

"The old adage that an animal hoarder is going to leave the courthouse and pick up another animal on the way home likely has a lot of truth to it," he says.

But that doesn't mean Dr. Miller doesn't think things can improve.

"Overall, the legal system needs to treat the problem more seriously," he explains. "The biggest thing we can do is to mandate therapy for these people so we can start collecting data to learn what's behind animal hoarding. And we need to institute monitored probation to make sure offenders don't leave the area and keep doing what they're doing elsewhere."

Sarah Mouton Dowdy, a former associate content specialist for dvm360.com, is a freelance writer and editor in Kansas City, Missouri.

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1. Data on file.
2. Carprieve Challenge Survey Results – December 2018, Brief Media, data on file.

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The reception area at Goose Creek Veterinary Hospital in Ashburn, Virginia, a 2019 Hospital Design Competition Merit Award winner.

Minimal clutter, maximum efficiency

Using her work as an associate and then locum tenens, this Hospital Design Competition Merit Award winner knew what she wanted: good-looking and clutter-free, with a much-needed break room for team members to decompress. *By Sarah Moser*

By the numbers

Goose Creek Veterinary Hospital

Owner: Dr. Margaret Fortier
Number of doctors: 1
Exam rooms: 3
Total cost: $2,255,461
Cost per square foot: $120
Square footage: 3,000
Structure type: New, leasehold
Architect: Charles Joch, CHJ3 Architecture

The red steel panel at the front of the reception desk ties into the red accents of the exterior.

PHOTOS COURTESY OF MARGARET FORTIER, DVM

Experience is a great teacher. After 10 years practicing veterinary medicine in Washington, D.C., in a four-story row house, Margaret Fortier, DVM, moved to the suburbs with a dream of opening her own veterinary practice. She had served as hospital director at her previous facility, and now her work as a relief veterinarian was invaluable to thinking over exactly what her practice would look like, she says.

"I saw a lot of what I liked and didn't like, and I was able to learn what size practice I was hoping for," says Dr. Fortier.

Her No. 1 design objective turned out to be neatness: "Clean, no clutter, every object has a purpose, and everything is easy to clean," she says. "A minimalist, industrial design element was the look I wanted. It was extremely important to me to have an appealing visual aesthetic, especially since I hope to be working and thriving in this space for the next 20 years."

In March 2018, Goose Creek Veterinary Hospital in Ashburn, Virginia, was born. The 3,000-square-foot small animal hospital earned a 2019 Hospital Design Competition Merit Award for its clean, open and airy design and uncluttered style.

'I'm a clean, minimalist person'

"Veterinary clinics tend to accumulate stuff over time," says Dr. Fortier. "Personally, I'm a clean, minimalist person, and I wanted that reflected in my practice."

Her design objectives were to have everything off the ground, have a place and a purpose for everything in the hospital, for everything to be easy to clean, and for the practice to look and smell clean at all times.

These objectives led every design decision. For example, in the dental area, the counter was built higher than usual to store the dental compressor underneath. Dr. Fortier says the area doesn't feel as crowded thanks to this detail.

Custom-built shelves in the pharmacy give a home for each and every drug and supply, making inventory management easier.

"I've practiced in places where drugs and supplies were all over the building; we couldn't find anything," Dr. Fortier says.

She also focused on building spaces for as many items as possible to go under counters, leaving countertops clear. This included designing a space for the centrifuge to sit under the cabinet with a hole in the counter for access. An added benefit, besides a clear counter, is that it helps muffle the noise of running the centrifuge.

Even small details—like not putting too many trash cans in treatment—caught Dr. Fortier's attention. She has only one trash can on the floor in the treatment area, and staff members have been trained to take the few extra steps to keep the area clean.

Giving everything its own space extends to the staff members, too.

"I've worked in a practice before that was a 'U' shape, with doctors sitting at high-top bars in the middle of the treatment area, with no personal space," says Dr. Fortier. "I felt like we could never get away from the animals, never had privacy or a place to breathe."

This led to Goose Creek's staff area

at the back of the hospital featuring a full kitchen area, a separate desk for technicians to sit and a beautiful view of the Blue Ridge Mountains out the large windows.

'If you don't ask, you don't get'

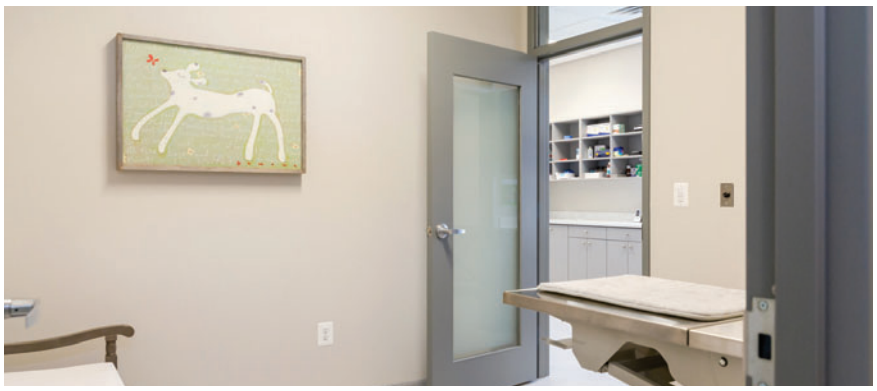
Obviously, Dr. Fortier had clear thoughts on what she wanted in a practice. And as a first-time practice owner and builder, it would have been easy for her to let others dictate how the process should go.

"In the beginning, I felt shy to ask for what I wanted, but that soon faded and I developed the philosophy that this is my life's dream and that it's going to look the way I want it to look," says Dr. Fortier. "I'm not afraid to ask for what I want and speak up. This applied to getting good prices, fixing mistakes and getting stuff for free when things didn't go smoothly. If you don't ask, you don't get."

Dr. Fortier says she's been undermined in her job in the past, and she wasn't about to let that happen to her again, especially in her very own practice—the place she spends most of her days.

"Life knocks you down from time to time, and as women we might feel that we don't deserve things," she says. "But If I have to be pushy or aggressive to get what I want, I won't apologize for it. It's my money, my dream, and ultimately me working to make it work."

Exam rooms feature whimsical artwork, decorative benches and glass-paned doors that let light flow in.



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Bonus! Practice owners from both of this year's Hospitals of the Year will be on hand to share their secrets.

Hospital Design 360

The treatment area has heated cages and clear countertops.

A walk through

Goose Creek Veterinary Hospital is in a newly constructed leasehold space. The neutral color exterior with a pop of red on the awning sets the tone for what awaits inside.

Crisp white greets pet owners when they first walk in. To tie into the red in the logo, Dr. Fortier had a bold-red-printed commercial-grade steel panel applied to the front of the reception desk. The piece "makes a statement," she says, and people see the pop of red when driving up.

The lobby is sparsely decorated on purpose, with only a magnetic chalkboard labeled with the day's incoming patient names, which kids can also write and draw on.

The surgery suite features equipment including a Baxter IV pump and surgical table from VSSI.

The designated staff room gives the team a break from the chaos.

In the lab and pharmacy, all equipment is up and out of the way but still accessible.

The three exam rooms hold to Dr. Fortier's less-is-more philosophy. A simple aesthetic with minimal decor makes the rooms easy to clean.

The treatment area features heated cages, one of Dr. Fortier's favorite splurges for her patients. And all of the equipment is given a home off the top of counters, keeping clutter to a minimum.

A designated break room gives staff members a breather from the chaos. The room includes a full kitchen, desks for technicians and a view out the back windows of the Blue Ridge Mountains.

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

Will the feds **forgive** your student loans?

A primer on the Public Service Loan Forgiveness program from the AVMA Economics team.

Editor's note: Caroline Cantner, VMD, contributed to this column. She is assistant director for student initiatives with the Association of American Veterinary Medical Colleges.

Here at the AVMA, we're often asked by association members about the federal government's Public Service Loan Forgiveness (PSLF) program as a strategy to pay student debt. This program, administered by the U.S. government, forgives the remaining debt on eligible loans for borrowers who have worked at least 10 years in public service or the nonprofit sector.

PSLF has proven to be a critical resource for veterinarians who otherwise would be unable to work in public health or other public service fields. It's a viable option for many, but there are strict rules about who qualifies. If you're wondering whether PSLF is right for you, here's what you need to know.

How to qualify

Eligibility for PSLF is based on three criteria:

1. Employment. Qualifying for PSLF isn't about the specific job you do, but rather who you do it for. Essentially, it's intended for government employees and people who work for a 501(c)3 nonprofit organization. There also are nonprofits that aren't 501(c)3 organizations that can qualify for PSLF—if their "primary purpose is to provide certain types of qualifying public services."

Aside from your employer, other employment-related details also may affect your eligibility—for example, whether you are working full or part time and if you are employed as a contractor. This is especially important for veterinarians working in academia or other sectors where their position may be funded in such a way that they are not technically classified as full-time employees.

2. Loan type. Only direct loans from the government qualify for PSLF. Private loans do not qualify. For example, direct loans that have been consolidated into private loans no longer count toward PSLF. On the other hand, consolidating a nonqualifying loan, such as a Perkins loan, into a direct government loan will allow it to qualify from the time of consolidation.

3. Payment. The final requirement for PSLF eligibility is that you have made 120 on-time payments in a qualifying repayment plan. In general, this means an income-driven repayment plan (IDR). IDRs are repayment plans based on your income and family size. They're especially useful for high-debt, low-income borrowers who are looking to make lower monthly payments than they would with a standard 10-year plan. If your debt isn't repaid at the end of the plan term—either 20 or 25 years—the IDR will forgive the remaining balance, which will be taxed as income in the year it's forgiven.

An important note is that the required 120 payments do not need to be made consecutively. They do, however, need to be scheduled. That means you can't accelerate payments, and overpaying won't help you reach forgiveness faster. In fact, extra payments will only decrease the forgiven amount.

Working to preserve PSLF

Recently, PSLF has come under scrutiny, and concerns about its potential cost continue to be discussed by Congress. Adding to the uncertainty is the low approval rate—just over 1%—on the applications processed since 2017. For people who are counting on PSLF, we know that questions about its status and approval rating can be especially stressful. Among the questions we hear are whether PSLF will be "guaranteed" for existing borrowers and whether forgiveness amounts will be capped. We don't yet have the answers, but when we do, we'll make them available at avma.org/PSLF.

If you were denied PSLF eligibility because you weren't in the correct repayment plan, you may be eligible to receive funds under a Temporary Expanded Public Service Loan Forgiveness program. Learn more at studentaid.ed.gov.

Making PSLF work for you

You can only apply for PSLF after you've made 120 qualifying payments. But if you're considering the program, there are things you can be doing now:

File an Employment Certification Form annually. This will help you (and the federal government) confirm that you meet PSLF employment criteria. Anyone interested in PSLF should file this form every year. It's the only PSLF-specific paper trail you'll have on file with the government while you're working toward forgiveness.

Recertify your IDR annually. Document every conversation you have with your loan servicer, including reference numbers or employee IDs for each call. Also, double-check any information or recommendation provided to you, and keep a spreadsheet of all your payment amounts with dates and confirmation numbers.

Be informed and be prepared. It's wise to have a backup plan in case PSLF doesn't work for you. An income-driven repayment plan—which you may already be enrolled in if you're working toward PSLF—can be a good option. Be sure to understand what this will look like if you need to use IDR—that it will affect your finances for a longer period and require saving for the added taxes that come with IDR's forgiveness.

In conclusion

IDRs and PSLF both offer debt forgiveness, but they are very different programs. PSLF is not a loan repayment plan itself. You are required to make monthly payments through your IDR while you're working toward PSLF. Here are a few more key distinctions:

PSLF

> Debt is forgiven after 120 qualifying payments, or 10 years if the payments are made consecutively.
> Forgiveness is tax-free.
> An Employer Certification Form is recommended annually.

IDR

> Debt is forgiven after 20 or 25 years, depending on the specific plan.
> Forgiveness is taxed. Borrowers would have to plan for a potentially high tax bill in the year their debt balance is forgiven.
> Recertification is required annually.

Matthew Salois, PhD, is chief economist and Veterinary Economics Division director at the AVMA.

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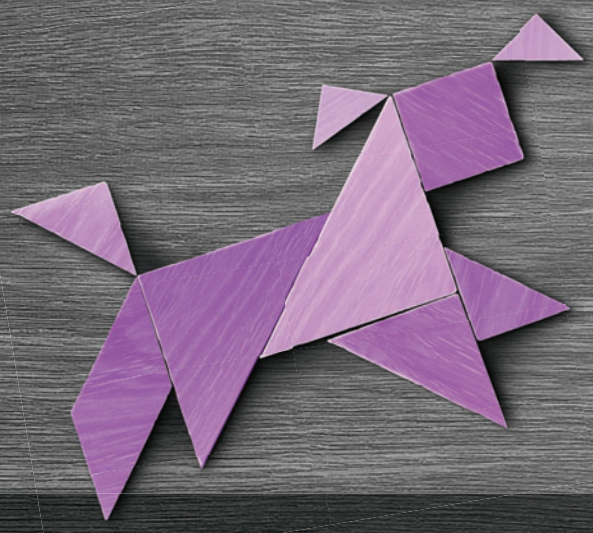

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For more information on products mentioned in this ad, please see full prescribing information on page 28-29.

Do cameras belong in a veterinary hospital?

When medications go missing in a veterinary practice, this owner opts to install a watchful eye in the form of video surveillance.

Three years ago, Dr. Jim Ray opened a veterinary clinic after working as an associate for eight years at a facility in the next town. His staff quickly grew from six to 17 in just 36 months.

That's when the trouble started. Dr. Ray's clinic administrator came to him with some troubling news: The drug inventory and controlled substances logs showed missing medications.

Dr. Ray was devastated. Police were called because some of the missing drugs were narcotics.

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An investigation showed that Dr. Ray's security protocols were practically nonexistent, and the police recommended he install a video surveillance system. After ruminating about how this would never have happened when his clinic was smaller and the staff more intimate, Dr. Ray installed cameras throughout the clinic.

The new cameras saw in light and dark and were triggered by motion, and they collected up to 30 days' footage. Dr. Ray sent a memo to all staff members informing them that surveillance was now in place. He went on to say he was sorry he had to take these steps, but circumstances dictated that they were necessary. Finally, he attempted to lighten the mood by telling team members they should feel free to make faces at the camera.

Nevertheless, several of the staff members were concerned. They told Dr. Ray they were disappointed that he felt they couldn't be trusted. In addition, one of his staff doctors advised him of a law that prohibited him from recording or listening to any audio the cameras captured. In his state, video surveillance in the workplace was legal with the permission of one party only, but audio recording was prohibited without the permission of all parties concerned. Furthermore, private areas such as restrooms and the break room were totally off limits.

Dr. Ray started to feel like his practice growth was a double-edged sword. The intimate trust and collegiality of the small clinic had been replaced by the stricter workplace rules and regulations of a "bigger company." Dr. Ray reluctantly adjusted to the changes. He wondered if he would ever be able to reestablish his small clinic feeling of intimacy now that his facility had grown larger. He knew the answer was a resounding "no."

Do you agree with Dr. Ray's choices? Have you had a similar experience? Let us know at dvm360@mmhgroup.com.

Dr. Rosenberg's response

Small veterinary practices—like other "mom and pop" businesses—are shrinking in number. There are lots of reasons for this. Progressive veterinary technology is expensive. The internet, online pharmacies, increasing healthcare costs and workers' compensation premiums have all stressed small-practice bottom lines.

In spite of all this, I agree with Dr. Ray's choice to install cameras. Safety protocols and theft deterrents assist everyone. In addition, the practice leader or leaders need to be ethical, moral and honest role models.

Coworkers are comforted when they can honestly respect practice leadership, and the collegiality that Dr. Ray had with a smaller team doesn't have to disappear with an increase in staff. Over time, morale may get even better, with informal protocols and thoughtless watercooler gossip replaced by interactions and procedures that everyone feels comfortable with.

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.

8 steps in a practice sale

With consolidators and investors snapping up practices, owners who weren't thinking of selling wonder if now's the time. Here's how the process works.

It's no secret that the veterinary profession has entered a new world of rapid corporate acquisition, and practice owners are being lured by the robust sale prices. At the same time, associates are becoming more alert to any availability of successful practices, hoping they might be able to buy one before it's scarfed up by a consolidator.

In bygone days, word that a veterinary hospital might be available for purchase spread via ads in veterinary journals or word-of-mouth: whispers among former classmates, nearby competitors and drug reps. No longer. With prices soaring, owners are considering selling when they otherwise might have waited 10 years or more to pull the ripcord. Acquisition is on everyone's radar. Here's how the process typically plays out.

1. Initial outreach gets a practice owner thinking

Today, I rarely encounter a clinic partner or owner who hasn't been contacted by somebody who wants to discuss acquisition. Sometimes these entreaties are rebuffed, but that contact can still start the owner's gears turning. Even the attention of Dr. NeverSell will be, at least momentarily, drawn to outsized offers by corporate chains.

2. The sit-down may happen in secret

Not everybody who owns a practice is actively selling. But even the "extremely unlikely but marginally possible" potential seller may think, "What have I got to lose? It might be interesting to hear what that consolidator has in mind." So there's often an initial meeting—in secret at a coffee shop in a nearby town at a late hour.

3. A 'letter of intent' locks down confidentiality

Whether the suitor is a billion-dollar corporation or a pair of guys looking to get a better return on their IRAs, the deal is generally initiated with the drafting of a "letter of intent" (LOI), a document that describes the essential terms of a potential clinic purchase. LOIs generally mandate one or both of the following: (1) nondisclosure of the details of the deal, and (2) the obligation of the seller not to entertain other offers until expiration of the LOI.

My general feeling is that LOIs should be as detailed as possible. It's much less expensive for the deal to collapse during multiple redrafts of a three-page LOI than to discover a deal-breaker the night before closing after both sides have incurred substantial legal costs.

4. Due diligence shows where the money's at

If the deal survives the LOI process, there will be a far more specific set of terms set forth in a purchase-and-sale contract between buyer and seller. Regardless of whether the contract is signed shortly after finalization of the LOI or at closing (or any time between), the buyer must take a close look at the representations of the seller.

Is the gross revenue truly what's claimed? Are there liens on the equipment? Are associates likely to leave if the practice is sold? These and other facts need to be investigated by the buyer and his or her advisors. Also, if the clinic is operated on leased premises, it's likely the seller's job to secure a commitment from his landlord to continue to lease (or sometimes to sell) the premises to the potential purchaser. Truth be told, if the seller has any doubt that the landlord will offer the purchaser terms similar to the existing lease, the seller should probably work that angle before spending time or effort negotiating an LOI.

5. The reveal must be managed well

Now the tough part: At some point, the clinic team needs to be told the hospital is being sold. The way this news is revealed can determine whether the practice sells or the buyer walks away—leaving behind a hospital whose earth has been scorched by an employer now perceived as having blindsided or sacrificed the interests of his dedicated team.

There is no easy way to manage this reveal, and there are multiple techniques for carrying it out. Essentially, it's incumbent on the seller to figure out a way to get his people (particularly associate doctors) on board before the buyer will pay the purchase price.

6. The contract is crucial to secure financing

Ordinarily, in the case of larger practice sales, a final, definitive contract is prepared (if not executed) before the actual closing of the sale. The main reason is the need to secure the money to buy the practice. A contract may be necessary before a funding source—bank, venture capitalist, the buyer's Uncle Fred—will commit to providing the funds for acquisition.

7. Contingencies cover what occurs after the sale

The LOI, the contract or both may contain preclosing contingencies—specific requirements that must be met before closing occurs. One common contingency is that staff veterinarians must all sign commitments to remain with the practice for a minimum of (x) months after the closing. Another might be a requirement that the buyer be able to negotiate an acceptable lease for the use of the clinic property (either from the seller or from the seller's landlord).

8. The closing can be anticlimactic

For anyone who's bought a home, you likely remember that closing was a nerve-wracking and exciting time. Maybe you had a table with seller and buyer present, flanked by representatives of the seller, the buyer, one or more banks, a developer, a title insurer and more.

In what may seem counterintuitive, a practice sale closing (perhaps involving 10 times the cost of a typical home) may take place with nobody getting together. If all the legal preparations have been made and all last-minute misunderstandings have been addressed, the closing may occur 100% digitally with the buyer's and seller's attorneys exchanging signatures online. In such closings all signature pages are held in escrow pending the wiring of funds from the buyer's account to the seller's.

That's how it works

Those are the relatively universal stages involved in the transformation of Dr. NeverSell into the wealthiest worker bee on staff at a veterinary practice he used to own. Clearly there are many moving parts: The order in which the steps are carried out, and the flow of information among all those affected, can make or break the outcome.

It makes good sense, before moving forward, for a seller and a buyer to realistically assess whether the deal works emotionally, financially and practically in their individual circumstances. If so, then it's game on!

Dr. Christopher J. Allen is president of Associates in Veterinary Law PC, which provides legal and consulting services to veterinarians. He can be reached via email at info@veterinarylaw.com.

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Much like baking, meaningful personal and professional growth may seem easy until you encounter those few complex steps.

The most important things are simple—but they're not easy

Meaningful personal and professional growth may come at a level that seems easy as pie. Like, so basic that surely the veterinary profession succeeds at it already. But no.

Well-being author and speaker Mike Robbins tells us that the advice we give others is often the exact advice we need ourselves. As the Sermon on the Mount admonishes, "First remove the log out of your own eye, then you can see clearly to remove the speck from your brother's eye." Sort of like, "People who live in glass houses … "

We all have the solution to our friends' problems. So, here's a thought: Maybe it's time we all listen to our own advice rather than doling it out like Halloween candy.

I don't know about you, but I struggle with seemingly universal issues. It isn't easy. Maybe that's why they're called struggles. Relationships, truthfulness, tolerance, compassion ... you get the idea. Where do you wish you could hold yourself to a higher ideal? In the quest to be your best, most amazing self, where would you want to dial up your effort just one more notch?

I think we can all grow by focusing on the simple and basic. For example:

Be honest. I know. We're all honest, right? Then why is the world so full of doubt, mistrust and accusations? The more open and honest we are with ourselves and about ourselves, the less likely we are to be arrogant, judgmental, self-righteous or defensive about our own need for love and support—and the more likely we are to be compassionate toward others.

Be compassionate. We are all doing the best we can at any moment. Having compassion is really simple, but it's not easy. Start by giving yourself a break. When we can get off our own back and forgive ourselves (not as easy as it sounds) then we are on the road to giving others that same gift.

Stop fighting for perfection. Perfection doesn't exist. So, stop asking for perfection from yourself and others. We all screw up sometimes. Recognizing and accepting that is a first step toward acceptance in yourself and others. Turn down the heat under your burner and give yourself space to be you and impact others in a positive way.

Dr. Michael 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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Let's talk cannabidiol

CBD in practice comes with many questions and legal concerns. Here's what you need to know.

By Michael Petty, DVM, CVPP, CVMA, CCRT, CAAPM

The use of cannabidiol (CBD) for medical conditions in veterinary medicine—most commonly for pain, anxiety and epilepsy—seems to be the most talked-about area of medical therapy at the moment. And it's no wonder: in a recent survey published in *Frontiers in Veterinary Science*, 29% of veterinarians reported they got a weekly inquiry about CBD from their clients. Twenty-seven percent were asked about it monthly and 7% were asked daily.

Yet the same survey showed that less than half of these veterinarians were comfortable talking to their clients about CBD products. Since then, the number of people asking about CBD products has probably grown exponentially, especially after hemp-derived CBD was removed from the Schedule I list in December 2018.

What's the big deal?

First of all—and this is important—CBD products can come from either hemp or marijuana. Although they may look alike, those CBD products derived from marijuana are still Schedule I and illegal to use. In other words, they can put your DEA license at risk. (In California, veterinarians can legally discuss marijuana, but they can't prescribe it or use it in treatment.)

Always ask for the source of the CBD (licensed hemp grower, not marijuana grower) before buying, dispensing or recommending a particular product, should you be inclined to do so. On the human side, dispensers of marijuana-derived CBD are being pursued aggressively in some states—most notably Texas, Ohio and Nebraska.

Federally, CBD oil from hemp with less than 0.3% 19-tetrahydrocannabinol (THC), the psychotropic part of marijuana (and possibly hemp as it contains small amounts), is legal. The real issue is that many states have not caught up with their own legislation regarding the use of CBD from hemp and some have been more aggressive in enforcing their laws than others.

On the human side, it's usually OK to dispense CBD as long as it's not dispensed as a drug, no medical claims are made and it's not part of a dietary supplement or added to food. Of course, in some states, CBD from marijuana is a legal human drug. To make it more confusing, on the veterinary side, animal supplements are not regulated by the FDA, so there's no prohibition on the federal level against using CBD as an animal supplement.

Taking it state by state

The following is a list provided to me by Stacey Evans, JD, an independent legal consultant who works with ElleVet (a provider of hemp products that contain CBD) and individual veterinarians. Note: When a state veterinary medical association (VMA) says CBD is illegal or cautions against its use, the association might be wrong. The issue of whether the CBD comes from hemp or marijuana has muddled the declarations of several state VMAs, as has the fact that many prefer to err on the side of caution. This list could change at any moment. Please contact your state VMA for any updates.

- California VMA cautions veterinarians against selling or administering hemp.
- Michigan VMA cautions that veterinarians face increased legal risk if there is an adverse event.
- Connecticut VMA states that it was told by the Connecticut Department of Consumer Affairs that CBD is illegal for animal use.
- Oregon VMA states that it shares with members the FDA's position that hemp products with CBD are unapproved animal drugs.
- Illinois VMA provides an AVMA memo about not making any claims that CBD can treat, cure, prevent or mitigate a medical condition or disease.
- Oklahoma VMA states that although legal, veterinarians may face increased liability when CBD is used to treat animals.

These state VMAs have no comment: Colorado, New Jersey, Kentucky, Washington, Maryland, Minnesota, Florida, Texas, Louisiana, New York and Pennsylvania.

Want to consider one more layer of legal confusion? A product that doesn't make claims or intend to treat, mitigate or cure a medical condition doesn't automatically become a drug if a client or a veterinarian administers the product to an animal to treat, mitigate or cure a medical condition. Nor is a product a drug just because it contains an ingredient, such as CBD, that's also used in another FDA-approved drug. Such a product is an animal supplement, which the FDA does not regulate.

Once each state government actually passes legislation, most if not all legal issues should be resolved. My advice is to ask your state VMA to push for CBD legislation for animals so you don't accidentally break the law during these confusing early days. And for the time being, to be safe, never ever make a claim that it can treat a medical condition or disease or use a product whose packaging makes such a claim.

Dr. Michael Petty owns Arbor Pointe Veterinary Hospital in Canton, Michigan.

Letter to *dvm360*: Some more about cannabis

In Dr. Marc Rosenberg's recent column (see box below) I was pleased to see Dr. Knox passionately and effectively defend his stance on cannabis for his veterinary patients. I was also very glad to see Dr. Rosenberg's progressive stance on the issue. As veterinarians in 2019, we need to support the need for change regarding the regulatory and legislative restraints surrounding cannabis use for veterinary (and all) patients. In order to best serve our patients, clients and the community as a whole, veterinarians need to be able to discuss and provide guidance regarding all available therapeutic options.

—Elizabeth Mironchik-Frankenberg, DVM, Founder, Veterinary Cannabis Consultants

dvm360 Find it all here.

Rosenberg on cannabis

The above letter was in response to a scenario from Dr. Mark Rosenberg. Find the original at dvm360.com/cannabisquestion.

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Get in touch
Contact us on Twitter: @dvm360, on Facebook: facebook.com/dvm360, via e-mail: dvm360@mmhgroup.com or online at dvm360.com/community.

'She seems fine,' but you see **pain**

There's a fine line to walk when talking about pets' discomfort without paining clients and, of course, yourself. *By Gina Singleton, DVM*

I saw a dog for a rabies vaccine in my clinic a while ago. When I walked into the exam room, I was smacked in the face with the smell of rot. I looked down and saw a tiny, gray, quivering poodle in a cheetah-print faux-fur sweater. One of her eyes was draining pus and her tongue was hanging out. Her owner picked her up, unfolded her legs like a picnic chair and placed her on the table.

"She gets stiff," the owner explained.

The younger, politer version of myself would gently ask if she was on any medications or being treated for any health conditions. The current version of myself isn't as mild: "Are you giving her anything for pain?"

I've found this to be an effective, time-saving phrase in my life. It might be a little blunt, but I'm done with the careful, don't-want-to-hurt-anyone's-feelings-or-god-forbid-make-a-client-upset approach to medicine. The bottom line: This poor dog was in pain and her owner was blind to it.

Her answer to my question? "No, she seems fine."

Sigh.

So, we talked about pain in animals (not my best educational session, as it was the fourth exam that day) and afterwards, she left with the trembling poodle under her arm.

The following week, she returned with Poopsie, the poodle, as well as her daughter's dog, Smoochie. She thought they both might be painful. Luckily for us, it was a morning appointment, so I had only talked about pain once that day. Poopsie and Smoochie both had a little bloodwork done and left with some meloxicam.

Hurrah! Relief of an animal suffering needless pain achieved!

As you can probably tell from my jaded tone, this whole scenario is causing me pain. There are many versions of this story:

> The fat, happy shepherd mix whose tail never stops wagging with stifles that palpate like bubble wrap. "He's fine," his owner tells me. "He still wants to eat and play."

> The active young Lab who tore her cranial cruciate ligament six months ago and whose owner couldn't afford surgery, but seemed dedicated to physical therapy and gabapentin. You can actually see the tibia sliding forward while she's gimping across the room. You naively ask, "How are the meds going?"

"Oh, I stopped giving them," her owner says. "She seems fine."

I've come to realize that many owners define "fine" as eating, drinking, peeing, pooping and moving about in some fashion—in other words, still alive. And I know that it's not helpful to be cranky about this, because I've had an excessive amount of education regarding animal health and owners haven't. I know this.

However, is it crazy of me to assume that a human can make the mental leap that limping equals pain? When is the last time you limped when some part of you didn't hurt? What creates this obstacle in the minds of otherwise intelligent people? Denial? Distraction? Just not thinking at all?

My favorite pain quote of all time: "We can't take him for walks anymore because he's too stiff, but we stopped giving him the Rimadyl 'cause he seems fine." (Another observation—somehow stiff does not equal pain.)

Educating clients about pain is tricky. If we're too gentle, clients stay firm in their belief that the pet is fine. If we're too firm, clients feel blamed or guilty and sometimes angry. You have to get it just right, and some days I don't have the patience for perfection.

So, hopefully without being a total jerk, I've become content with my question—"What are you giving for pain?"—which is really a backhanded way of saying, "Your pet is in pain."

However, if I have to be a jerk to help the poor Poopsies of the world, I guess I'm fine with that.

Gina Singleton is an associate veterinarian practicing at a small animal practice in Maine. If she had free time, she would love to make movies, travel the world and dance. For now she is devoted to being a mom, wife and vet.

KANG SUNGHEE/STOCK.ADOBE.COM

Canine otitis externa: A common problem to test anyone's problem-solving skills

Itchy, smelly, irritated ears are one of the most common complaints that drive dogs to veterinary clinics, and ear disease is always among the top two reasons for pet insurance claims. So, what's the best way to uncover all of the factors that underlie a case of otitis externa? And what are best practices for helping treat these miserable dogs?

By Andrew Rosenberg, DVM, DACVD

No case of canine otitis externa is simple because it should be assumed that there are multiple causes and factors present. For your treatment to be successful, all the causes and factors must be addressed, not just some of them. Adopting the PSPP system—identifying and managing all the primary and secondary causes and predisposing and perpetuating factors[1] in dogs with otitis—supports an optimal treatment outcome.

PSPP: A system for recognizing all the factors in otitis externa

Primary causes of otitis externa directly damage or inflame the ear canal and typically lead to secondary infections. Identifying and managing primary causes prevents recurrence of otitis externa. Common primary causes of otitis externa include allergy (atopic dermatitis, cutaneous adverse food reaction, flea allergy dermatitis), autoimmune or immune-mediated disease (especially pemphigus foliaceus), foreign bodies, ceruminous gland disorders, endocrine diseases, epithelialization diseases, and parasites (*Otodectes, Demodex*).

Secondary causes of otitis externa do not create disease in a normal ear; however, they cause disease in ears affected by a primary cause or predisposing factor. Secondary causes are usually easy to eliminate, but unless the underlying primary causes are identified and treated, the secondary causes will return. Secondary causes include bacteria (cocci and rods), yeast (*Malassezia* and *Candida*), fungi, and medication reactions. The most common and important bacterial causes of otitis externa include *Staphylococcus, Enterococcus, Streptococcus and Pseudomonas* species; *Proteus mirabilis;* and *Escherichia coli*.

Perpetuating factors are changes in the anatomy and physiology of the external ear canal in response to otitis externa. These changes occur most commonly in chronic otitis externa cases. Perpetuating factors do not cause otitis externa initially, but they allow development of secondary infections and can prevent resolution of otitis externa. If perpetuating factors are left untreated, they can result in the majority of clinical signs seen in chronic cases. Perpetuating factors include epithelial changes (altered/failure of ear cleaning mechanism), ear canal changes (proliferative changes to the ear canal or tragal folds, stenosis, edema), a ruptured tympanic membrane leading to otitis media, glandular changes (dilated or blocked ceruminous glands, inflamed ceruminous glands, hyperplasia), mineralization due to chronic inflammation, or otitis media.

Predisposing factors are present before ear disease develops. They alone do not cause otitis, but they can predispose a dog to the development and persistence of otitis externa. Predisposing factors include abnormal conformation of the ear canal (sometimes breed-specific changes: excessive hair in canals, stenotic canals as seen in Chinese Shar-Pei dogs, pendulous pinnae), excessive moisture after swimming, or obstructive ear disease (polyps, neoplasia).

Your best diagnostic approach

When approaching ear disease, be systematic and strive to identify the primary cause or causes. Work up and rule out all possible primary causes. A good patient history and thorough physical and otoscopic examinations are important in identifying primary causes. Also look for secondary causes through cytologic examination and, when warranted, bacterial culture. Concurrently, address and manage all predisposing and perpetuating factors.

Cytology is the crucial diagnostic tool in cases of otitis externa. In my opinion, ear cytology should be performed in all otitis cases. Cytology allows you to evaluate the cellular makeup of the otic discharge, including microorganisms and inflammatory cells. It is inexpensive and can guide your treatment decisions. It can also help identify underlying causes or indicate a need for additional diagnostic tests. For example, if no inflammatory cells are present, the patient may be immunosuppressed (e.g., has hyperadrenocorticism), or if neoplastic cells are seen, aural neoplasia may be present.

Opinions differ on the diagnostic value of bacterial culture of ear swab samples because there may be different strains of the same bacterial species in an infected ear. Thus, the strain identified on a bacterial culture report may not be the only strain. In addition, susceptibility breakpoints on antimicrobial sensitivity profiles are based on in vivo serum antibiotic concentrations. However, topical medications

provide much higher antibiotic concentrations at the affected site and often overpower bacterial resistance mechanisms. I recommend obtaining an ear swab sample for bacterial culture if 1) cytologic examination reveals rods or a mixed bacterial population, 2) otitis clinical signs do not improve after two or three weeks of treatment, or 3) you suspect otitis media. The culture results can be used to guide treatment and choose systemic antibiotics when warranted for middle ear disease or severe proliferative otitis.[2-5]

Your best treatment approach

Commercial ear cleansers provide numerous benefits in the treatment of otitis externa. These cleansers help break up organic debris and biofilms, help normalize epithelial turnover, decrease inflammation, and remove bacteria and yeast. Using commercial cleansers can hasten resolution of ear disease.

Many combination topical antimicrobial/antifungal/corticosteroid products are marketed to treat otitis externa, and reviewing each one is beyond the scope of this article. Choose an appropriate medication based on its spectrum of antimicrobial efficacy and the results of a cytologic examination. Be cautious, because many products contain an aminoglycoside, which has been implicated in ototoxicity reactions. Also be aware that polymyxin is readily deactivated by organic or purulent debris. Adequately clean the ear canal before using any product that contains polymyxins. Topical ear medications are typically used for two to four weeks, once or twice daily, depending on the ingredients. I recommend rechecking the patient and performing cytology before discontinuing a medication.

Newer products such as Claro® (florfenicol, terbinafine, mometasone furoate) Otic Solution from Bayer and Osurnia® (florfenicol, terbinafine, betamethasone acetate) from Elanco are available to treat otitis externa. Both contain florfenicol, terbinafine, and a glucocorticoid. Claro® contains a higher concentration of both florfenicol and terbinafine. Claro® also contains mometasone, which is considered a soft corticosteroid; while it has potent local activity, it is not readily absorbed and does not typically cause systemic effects. Both products are indicated for the treatment of otitis externa in dogs affected with susceptible strains of *Staphylococcus pseudintermedius* and *Malassezia pachydermatis*. Claro® is a liquid-based product with a 30-day duration of effect, whereas Osurnia® is a gel-based product labeled for initial administration followed by repeat administration in seven days. These long-acting products are superior to lanolin-based compounded products because they do not form concretions, they are administered by the veterinarian, and they are FDA-approved. Both products are good choices for uncomplicated otitis externa, especially for owners who may have medication compliance challenges and for aggressive dogs that are difficult to medicate. They should not be used for gram-negative rod bacterial infections, especially *Pseudomonas* species, as florfenicol has a poor spectrum of activity against those bacteria.

Schedule recheck examinations after application of these long-acting products to ensure improvement in clinical signs or resolution of otitis. If clinical signs are improved but the infection is not completely resolved (as noted cytologically), administer additional doses as labeled until complete resolution occurs. If there is not improvement and cocci or *Malassezia* are identified on cytology, consider submitting a sample for bacterial culture.

Compounded "leave-in" otic preparations that are not FDA-approved are also available. These typically have a lanolin base and contain enrofloxacin, ketoconazole, and triamcinolone. I have seen complications such as medication concretions that accumulate in the middle ear, so I do not recommend routine use of compounded products, especially if you do not know whether the patient's tympanic membrane is intact.

The takeaways

When treating dogs with otitis externa, identify and treat all primary and secondary causes of the ear disease. The secondary causes should be treated based on results of cytologic examination. Claro® is indicated in cases in which cytology shows cocci or yeast, not when large rods are identified.

Also address perpetuating and predisposing factors (in dogs with altered self-cleaning mechanism, excessive debris, stenotic or narrowed canals, excessive moisture in ears from swimming) through frequent ear cleaning that's timed appropriately so as not to reduce efficacy of any primary topical treatment, administration of systemic corticosteroids (in dogs with edematous or proliferative canals), or removal of growths (in dogs with obstructive ear disease). In severe cases, you may need to refer the patient to a veterinary dermatologist for video otoscopy and deep ear flush or advanced otic surgeries.

When managing a case of otitis externa, use the PSPP system to help identify all potential primary and secondary causes, and perpetuating and predisposing factors. Only when all causes and factors are addressed will management of chronic otitis externa be rewarding for both you and your patients. Recheck all patients before discontinuing therapy. A treatment such as Claro® can help you avoid pitfalls of otitis externa therapy such as poor owner compliance and difficulty medicating ears.

Andrew Rosenberg, DVM, DACVD

After earning his DVM degree from Cornell University, Dr. Rosenberg completed a three-year dermatology residency and achieved diplomate status with the American College of Veterinary Dermatology. He is the practice owner of Animal Dermatology & Allergy Specialists, with two locations in Riverdale, NJ, and Westchester County, NY. Dr. Rosenberg is an active member of the ACVD and currently serves as chairman of the Education Committee. He received the ACVD Research Award for his work in cyclosporine-associated gingival overgrowth. Dr. Rosenberg has written for multiple publications, has appeared on television shows, and lectures nationally and internationally. He has a strong interest in both allergies and autoimmune skin diseases. When not at the clinic, he donates his time to treat skin conditions of animals in zoos and wildlife centers.

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Footnotes

CAUTION: Federal (U.S.A.) law restricts Claro® to use by or on the order of a licensed veterinarian. CONTRAINDICATIONS: Claro® should not be used in dogs known or suspected to be allergic to Claro or any of its ingredients.

CLARO®

(florfenicol, terbinafine, mometasone furoate)
Otic Solution

Antibacterial, antifungal, and anti-inflammatory
For Otic Use in Dogs Only

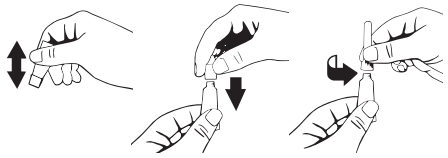
CAUTION: Federal (U.S.A.) law restricts this drug to use by or on the order of a licensed veterinarian.

DESCRIPTION:
CLARO® contains 16.6 mg/mL florfenicol, 14.8 mg/mL terbinafine (equivalent to 16.6 mg/mL terbinafine hydrochloride) and 2.2 mg/mL mometasone furoate. Inactive ingredients include purified water, propylene carbonate, propylene glycol, ethyl alcohol, and polyethylene glycol.

INDICATIONS:
CLARO® is indicated for the treatment of otitis externa in dogs associated with susceptible strains of yeast (*Malassezia pachydermatis*) and bacteria (*Staphylococcus pseudintermedius*).

DOSAGE AND ADMINISTRATION:
Shake before use.
CLARO® should be administered by veterinary personnel.
Administer one dose (1 dropperette) per affected ear. The duration of effect should last 30 days.

1. Clean and dry the external ear canal before administering the product.
2. Verify the tympanic membrane is intact prior to administration.
3. Remove single dose dropperette from the package.
4. While holding the dropperette in an upright position, remove the cap from the dropperette.
5. Turn the cap over and push the other end of the cap onto the tip of the dropperette.
6. Twist the cap to break the seal and then remove cap from the dropperette.
7. Screw the applicator nozzle onto the dropperette.



8. Insert the tapered tip of the dropperette into the affected external ear canal and squeeze to instill the entire contents (1 ml) into the affected ear.

9. Gently massage the base of the ear to allow distribution of the solution.
10. Repeat with other ear as prescribed.

Cleaning the ear after dosing may affect product effectiveness.

CONTRAINDICATIONS:
Do not use in dogs with known tympanic membrane perforation (see **PRECAUTIONS**).
CLARO® is contraindicated in dogs with known or suspected hypersensitivity to florfenicol, terbinafine hydrochloride, or mometasone furoate.

WARNINGS:
Human Warnings: Not for use in humans. Keep this and all drugs out of reach of children. In case of accidental ingestion by humans, contact a physician immediately. In case of accidental skin contact, wash area thoroughly with water. Avoid contact with eyes. Humans with known hypersensitivity to florfenicol, terbinafine hydrochloride, or mometasone furoate should not handle this product.

PRECAUTIONS:
Do not administer orally.
The use of CLARO® in dogs with perforated tympanic membranes has not been evaluated. The integrity of the tympanic membrane should be confirmed before administering the product. Reevaluate the dog if hearing loss or signs of vestibular dysfunction are observed during treatment. Use of topical otic corticosteroids has been associated with adrenocortical suppression and iatrogenic hyperadrenocorticism in dogs (see **ANIMAL SAFETY**).
Use with caution in dogs with impaired hepatic function (see **ANIMAL SAFETY**).
The safe use of CLARO® in dogs used for breeding purposes, during pregnancy, or in lactating bitches has not been evaluated.

ADVERSE REACTIONS:
In a field study conducted in the United States (see **EFFECTIVENESS**), there were no directly attributable adverse reactions in 146 dogs administered CLARO®.
To report suspected adverse drug events and/or obtain a copy of the Safety Data Sheet (SDS) or for technical assistance, contact Bayer HealthCare at 1-800-422-9874.
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.

PHARMACOLOGY:
CLARO® Otic Solution is a fixed combination of three active substances: florfenicol (antibacterial), terbinafine (antifungal), and mometasone furoate (steroidal anti-inflammatory). Florfenicol is a bacteriostatic antibiotic which acts by inhibiting protein synthesis. Terbinafine is an antifungal which selectively inhibits the early synthesis of ergosterol. Mometasone furoate is a glucocorticosteroid with anti-inflammatory activity.

MICROBIOLOGY:
The compatibility and additive effect of each of the components in CLARO® solution was demonstrated in a component effectiveness and non-interference study. An *in vitro* study of organisms collected from clinical cases of otitis externa in dogs enrolled in the clinical effectiveness study determined that florfenicol and terbinafine hydrochloride inhibit the growth of bacteria and yeast commonly associated with otitis externa in dogs. No consistent synergistic or antagonistic effect of the two antimicrobials was demonstrated. The addition of mometasone furoate to the combination did not impair antimicrobial activity to any clinically significant extent.
In a field study (see **EFFECTIVENESS**), at least 10 isolates from successfully treated cases were obtained for *S. pseudintermedius* and *M. pachydermatis*.

EFFECTIVENESS:
In a well-controlled, double-masked field study, CLARO® was evaluated against a vehicle control in 221 dogs with otitis externa. One hundred and forty six dogs were treated with CLARO® and 75 dogs were treated with the vehicle control. All dogs were evaluated for safety. Treatment (1 mL) was administered once on Day 0 to the affected ear(s). Prior to treatment, the ear(s) was cleaned with saline. The dogs were evaluated on Days 0, 7, 14, and 30. Blood work and urinalysis were obtained on Day 0 pre-treatment and Day 30 at study completion. Four clinical signs associated with otitis externa were evaluated: erythema, exudate, swelling, and ulceration. Success was based on clinical improvement at Day 30. Of the 183 dogs included in the effectiveness evaluation, 72.5% of dogs administered CLARO® solution were successfully treated, compared to 11.1% of the dogs in the vehicle-control group (p=0.0001).

ANIMAL SAFETY:
In a target animal safety study, CLARO® was administered aurally to 12-week-old Beagle puppies (4 dogs/sex/group) at 0X, 1X, 3X, and 5X the recommended dose once every 2 weeks for a total dosing period of 28 days (3 times the treatment duration). No clinically relevant treatment-related findings were noted in hearing tests, body weight, weight gain, or food consumption. CLARO® administration was associated with post-treatment ear wetness or clear aural exudate, increased absolute neutrophil count, decreased absolute lymphocyte and eosinophil counts, suppression of the adrenal cortical response to ACTH-stimulation, decreased adrenal weight and atrophy of the adrenal cortex, increased liver weight with hepatocellular enlargement/cytoplasmic change, and decreased thymus weight. Other potentially treatment-related effects included mild changes to AST, total protein, inorganic phosphorus, creatinine, and calcium.

STORAGE INFORMATION:
Store between 20°C – 25°C (68°F – 77°F), excursions are permitted 15°C – 30°C (59°F – 86°F).

HOW SUPPLIED:
CLARO® solution is supplied in a single-use dropperette in a blister. Each dropperette contains one 1 mL dose.
CLARO® is available in cartons of two, ten, or twenty dropperettes.

Manufactured for
Bayer HealthCare LLC, Animal Health Division
P.O. Box 390 Shawnee Mission, Kansas 66201 USA.

NADA 141-440, Approved by FDA

LV1802

Bayer

CLARO®
(florfenicol, terbinafine, mometasone furoate)
Otic Solution

BAYER

READY. AIM. CLARO®

Fight canine otitis externa with one big dose of love. Claro® (florfenicol, terbinafine, mometasone furoate) Otic Solution is the only FDA-approved, single-dose treatment administered by you with guaranteed compliance and no at-home treatments.

SPREAD THE LOVE IN YOUR CLINIC.

USE CLARO® FOR YOUR MOST COMMON OTITIS CASES.

BayerDVM.com/Claro

Claro® is indicated for the treatment of otitis externa in dogs associated with susceptible strains of yeast (*Malassezia pachydermatis*) and bacteria (*Staphylococcus pseudintermedius*).

CAUTION: Federal (U.S.A.) law restricts this drug to use by or on the order of a licensed veterinarian. CONTRAINDICATIONS: Do not use in dogs with known tympanic membrane perforation. CLARO® is contraindicated in dogs with known or suspected hypersensitivity to florfenicol, terbinafine hydrochloride, or mometasone furoate.

MEDICINE | Infectious disease

Fun with feline flu: Can **cats** get **influenza?**

The short answer is 'yes,' and the long answer is 'sort of' and 'it depends.' What does that mean for you? *By Jenifer Chatfield, DVM, DACZM*

While influenza has been around since the 1500s,[1] the virus caught the public's attention in a new way recently when the pandemic of 2009 emerged (H1N1, anyone?). Prior to "swine '09," bird flu was the big fear, giving us all a legitimate reason to look askance at seagulls and grackles, but interest seemed to fizzle after several years.

Avian influenza is certainly still a threat, as we saw with the 2014-2015 highly pathogenic avian influenza (HPAI) outbreak that spread from the Pacific Northwest all the way to Iowa—still the largest foreign animal disease outbreak in the history of the United States. Moreover, a handful of people still die every year of avian influenza infections in Asia.[2]

And up until 2004, a coughing dog only meant an annoying bout with kennel cough was likely. These days that cough could be a sign of anything from Bordetella to influenza to the catchall canine infectious respiratory disease complex.

Cats and influenza

But what about cats? Can they get influenza? The short answer is "yes."[3,4] The long answer is "sort of" and "it depends."

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While there isn't a specific "feline influenza" adapted for maintenance in feline populations, influenza in cats has been documented.[3,4] For example, some domestic cats and their more glamorous cousins (i.e. cheetahs) were confirmed infected with the H1N1 strain in 2009.[5]

The cheetahs were thought to have been infected by an animal park staff member who had flulike symptoms for a couple of days before going home sick. This person had come into contact with the cheetahs' food and environment but had not had direct contact with the cats themselves. Soon after, the cheetahs began exhibiting mild respiratory signs, including nasal and ocular discharge and lethargy—your basic influenza-like signs.

The infected domestic cats had also come into contact with infected humans and displayed similar nonspecific respiratory signs. While all four of the infected big cats survived, a handful of the domestic cats died. It does bear mentioning here that ferrets were also confirmed to be infected by the 2009 H1N1 strain during the outbreak.[6] Ferrets are feline-adjacent, aren't they?

Not only were the cats able to transmit the flu to the humans, cat-to-cat transmission was also confirmed. This was a whole new ballgame.

Influenza in domestic animal species was monitored much more closely after the 2009 H1N1 pandemic. As canine influenza continued to spread across the United States, many pet owners began opting for vaccination to prevent illness in their dogs. And yet, despite being experimentally infected with the canine H3N8,[7] cats were still not really addressed in either public messaging or by veterinarians at large.

Then a second novel canine influenza strain that had been circulating in Asia was identified in the United States: canine H3N2. The strain is more virulent in dogs and more easily transmitted among them than the original canine influenza, H3N8. Vaccines were quickly developed and implemented in areas experiencing outbreaks. But again, cats weren't really a part of the conversation.

A whole new ballgame

Once cat-to-cat transmission of H3N2 was confirmed, however (albeit in a shelter environment), people started to wonder about cats and influenza more vocally.[8] Then, a veterinarian working in a shelter (again, read: unnatural population density) in the Northeast was infected with an avian influenza virus, H7N2, and it turned out the cats in the shelter were the source. Not only were the cats able to transmit the flu to the humans, cat-to-cat transmission was also confirmed. This was a whole new ballgame.

While the "H" and the "N" may vary, the fundamental concept that cats are susceptible to influenza and that transmission between cats and other animals (including people) is possible remains constant. There is one vaccine currently labeled for use in cats to prevent them from becoming infected with canine H3N2.[9] Another vaccine has recently been shown to be efficacious against H3N2 in cats, though it's not labeled for use in the species. As the development of cross-protective immunity among similar strains of influenza is possible,[10] the vaccine may be able to mitigate illness derived from other influenza strains.

It's important to note that vaccination recommendations should be made using a risk-based assessment rather than relying on blanket statements (e.g. "All cats should be vaccinated"). Understanding the mechanisms of transmission of infectious diseases combined with a patient's and owner's lifestyle are key to an accurate recommendation.

Is it time to fret about feline flu?

Do veterinarians need to practice saying "feline flu" five times fast without spitting? In my opinion, not yet. As far as we know, felids don't yet have an influenza that is endemic or maintained among cats. However, given how adaptable influenza is and how mobile humans continue to be, it seems inevitable that a feline influenza strain will appear in the future. That said, if I could predict the future, I would currently be in Las Vegas diversifying my income.

Bottom line, I implore all practitioners to talk to their clients about the real threat of influenza to people and their animals and to make appropriate risk assessments based on what we know—namely, that influenza is easily transmitted, that it sheds prior to the onset of clinical signs and that it can be prevented or the course of disease mitigated through vaccination.

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Dr. Jenifer Chatfield is staff veterinarian at 4J Conservation Center in Pasco, Florida, as well as an instructor for federal disaster management courses and a regional commander for the National Disaster Medicine System Team. She has also chaired the Florida Veterinary Medical Association's One Health Committee and co-chaired its Disaster Response Committee.

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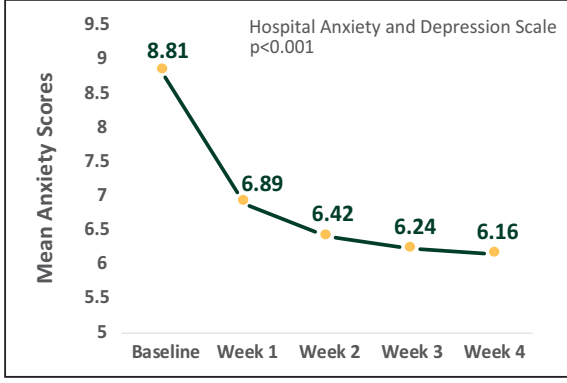

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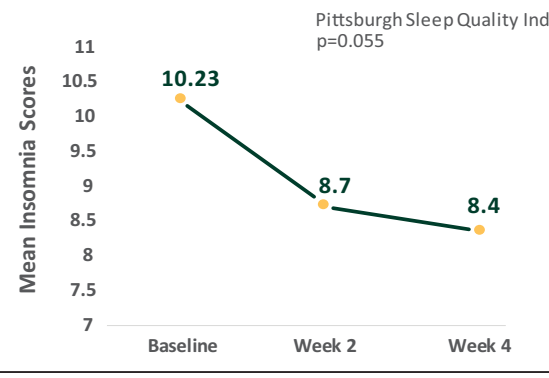

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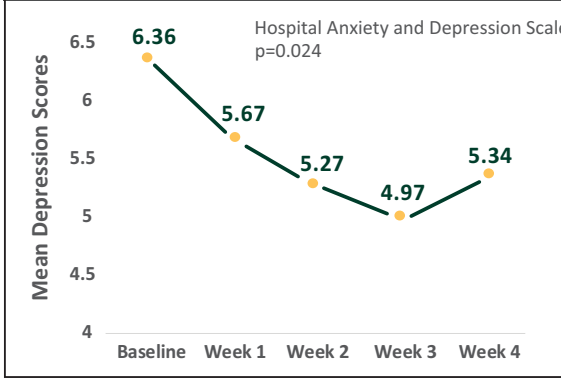

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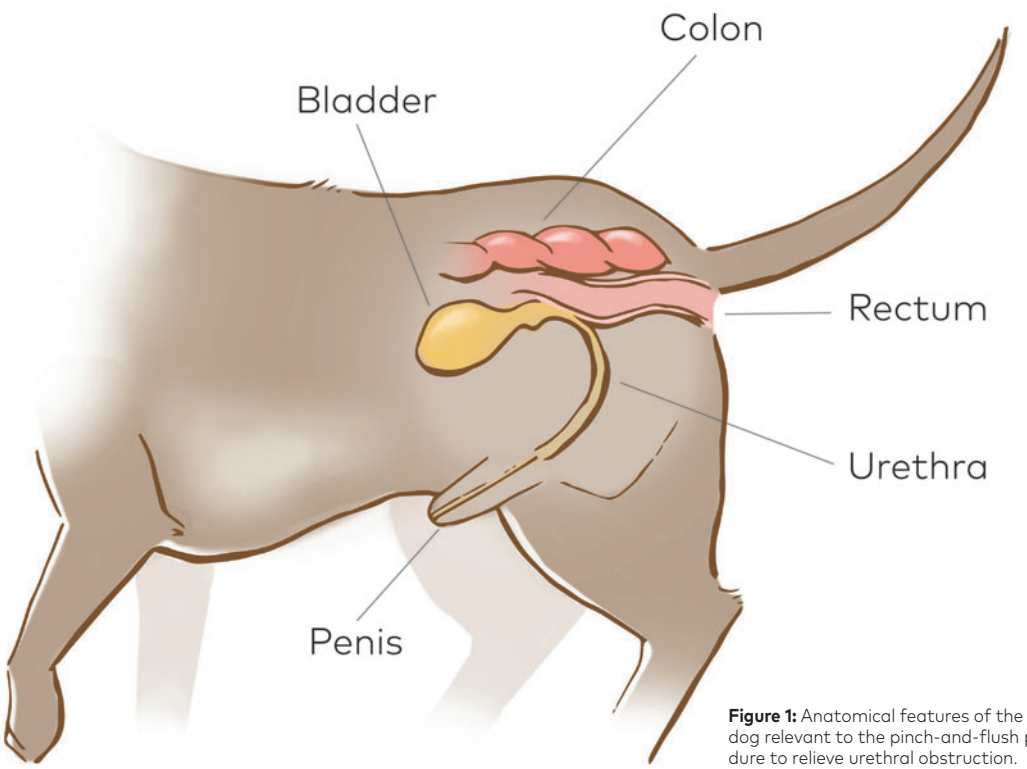

Figure 1: Anatomical features of the male dog relevant to the pinch-and-flush procedure to relieve urethral obstruction.

Pinch and flush:

Relieving urethral obstructions in male dogs

By pinching the penis and flushing the urethra—plus a few more steps—you can relieve painful obstructions and avoid complicated surgical procedures. *By Andrew Jackson, DVM, DACVS,*

Urethral obstructions in male dogs are common in veterinary practice. These obstructions can be difficult to relieve, and many patients are referred to emergency/specialty hospitals still obstructed. It doesn't have to be this way! With a few precise but straightforward steps, general practitioners can relieve most urethral obstructions with minimal fuss to the patient.

Background and diagnostic steps

Canine urethral obstruction is almost always due to urolithiasis. In most cases, the objective of treatment is to relieve the obstruction via retropulsion and extract the urolith via cystotomy. Urethrotomy can result in urine leakage into soft tissues, stricture, persistent hemorrhage and infection, both perioperatively and long-term, and should therefore be avoided. Scrotal urethrostomy, while more invasive than most patients need, may be appropriate in certain breeds (such as Dalmatians) or in dogs with multiple obstructions. It may also be a better long-term solution in cases of multiple urethral blockages.

Still, almost all urethral obstructions can be relieved and converted to a cystotomy procedure if appropriate treatment is provided. When a dog presents with urethral obstruction, the veterinary team should immediately be aware that this is a painful condition. It's important to consider pain relief medications right away and understand that general anesthesia will be completed to relieve the obstruction. Also, every urethral obstruction should be treated as an emergency because it can lead to urinary bladder rupture.

First, conduct a thorough physical examination, obtain a complete blood count with serum chemistry profile and urinalysis with culture, and take a set of radiographs. When you perform lateral abdominal radiography, be sure to capture the entire rear end of the dog so you can evaluate the entire

ILLUSTRATIONS BY NICHOLETTE HAIGLER

urethra. In addition, take lateral radiographs with normal limb positioning and also with rear limbs pulled forward to help visualize the perineal urethra.

Also note that these dogs can be azotemic and will need appropriate therapy. In addition, hypercalcemia may be present, which will typically require further diagnostic tests, such as a parathyroid panel.

The pinch-and-flush procedure

General anesthesia with intubation, although it might not seem necessary, is always recommended because it eases passage of the obstruction and relieves discomfort. When the dog is asleep and relaxed and the airway is protected, you should be able to relieve the obstruction more easily. Give a premedication of a narcotic and sedative (e.g. hydromorphone and acepromazine) before inducing anesthesia.

Now the dog is ready for retropulsion of urethral stones. Remember that the premise of this procedure is to flush the stones into the bladder, not to push the stones into the bladder with the catheter. I recommend that three people be involved when available: one person is on the catheter, one person is flushing and one person is rectally occluding the urethra. See Figure 1 (page M4) for a review of canine anatomy relevant to this procedure.

Here are the procedure steps:

1. Select an appropriately sized red rubber catheter and a 60- or 30-ml catheter-tip syringe depending on the size of the dog. Prefill the syringes with sterile saline or a 50-50 mix of saline and sterile lubricant mixed vigorously.

2. Place the catheter at the level of the obstruction or just distal to it, adhering strictly to sterile technique.

3. Have a gloved assistant place a finger rectally and compress the urethra onto the floor of the pelvis (Figures 2A-2C).

4. Attach the saline-filled syringe to the red rubber catheter. Lube can be added to the saline for additional viscosity if needed.

5. Pinch the tip of the penis to make sure the urethra is distending while flushing 5 to 10 ml saline into the distal urethra via the catheter.

6. With the urethra distended with saline, double-check that the assistant is detecting pressure rectally while still compressing the urethra. The urethra will be taut and distended distally to the rectal compression.

7. As a timed procedure—for example, on the count of three—release the rectal urethral compression and flush the saline with pressure at the exact same moment (Figure 3). Most obstructions will be relieved with one or two attempts.

8. Confirm retropulsion of the stones with radiographs.

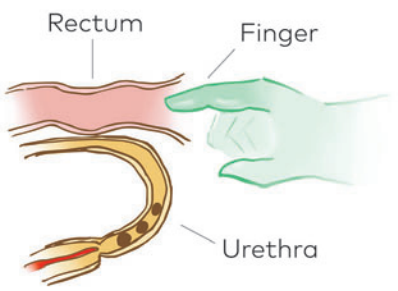

Figure 2A: With a red rubber catheter placed in the urethra, a gloved assistant places a gloved finger in the dog's rectum.

Figure 2B: The assistant presses his or her finger downward (ventrally) to occlude the urethra.

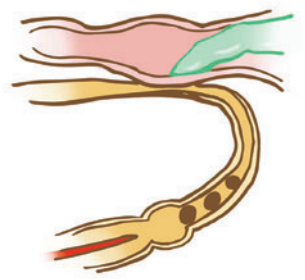

Figure 2C: From the rectum, the assistant compresses the urethra onto the floor of the pelvis. Another team member pinches the distal urethra at the tip of the penis to help distend the urethra while 5 to 10 ml saline is flushed into the catheter.

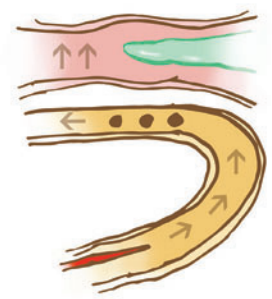

Figure 3: At the exact same moment, the assistant releases the compression and the doctor flushes saline upward into the urethra. The retropulsion pushes the obstruction back into the bladder, where it can be relieved with cystotomy.

If the blockage doesn't budge

If this procedure doesn't work and you can't pass a catheter, check the urinary bladder. If the bladder is distended, relieve the pressure by manual expression or cystocentesis. Then create a 50-50 mix of saline and sterile lubricant mixed vigorously to increase the viscosity of the flush. The increased viscosity of this solution helps to increase the resistance and help with retropulsion.

If the obstruction is still not relieved, the next option to try is epidural anesthesia. Typically, placing a preservative-free morphine epidural is enough to help in this situation; bupivacaine can potentially be added for increased muscle relaxation. Repeat retropulsion as needed to relieve the obstruction.

This procedure should relieve almost all obstructions. If the obstruction is not addressed with retropulsion, you may need to perform a urethrotomy or urethrostomy. If the dog needs to be referred, perform a temporary cystocentesis first.

Conclusion

In surgery, avoiding complications is highly desirable. Cystotomy is associated with far fewer complications than urethrotomy or urethrostomy. Retropulsion of urethral calculi causing urethral obstruction accomplishes this goal and is a highly successful procedure when completed correctly. Relieving the obstruction with minimal inflammation and irritation means fewer attempts at catheterization. If you follow these steps to "pinch and flush," you should successfully relieve the obstruction with only a few attempts.

Dr. Andrew Jackson graduated from the University of Prince Edward Island's Atlantic Veterinary College, then completed an internship in Sacramento and surgical residency in Detroit. Dr. Jackson has been practicing at BluePearl Veterinary Partners in Minnesota for the last nine years. He has extensive experience in emergency, soft tissue and orthopedic surgery. He loves living in Minnesota—even in the winter.

Surgery STAT is a collaborative column between the American College of Veterinary Surgeons (ACVS) and dvm360 *magazine. To locate a diplomate, visit ACVS's online directory, which includes practice setting, species emphasis and research interests, at acvs.org.*

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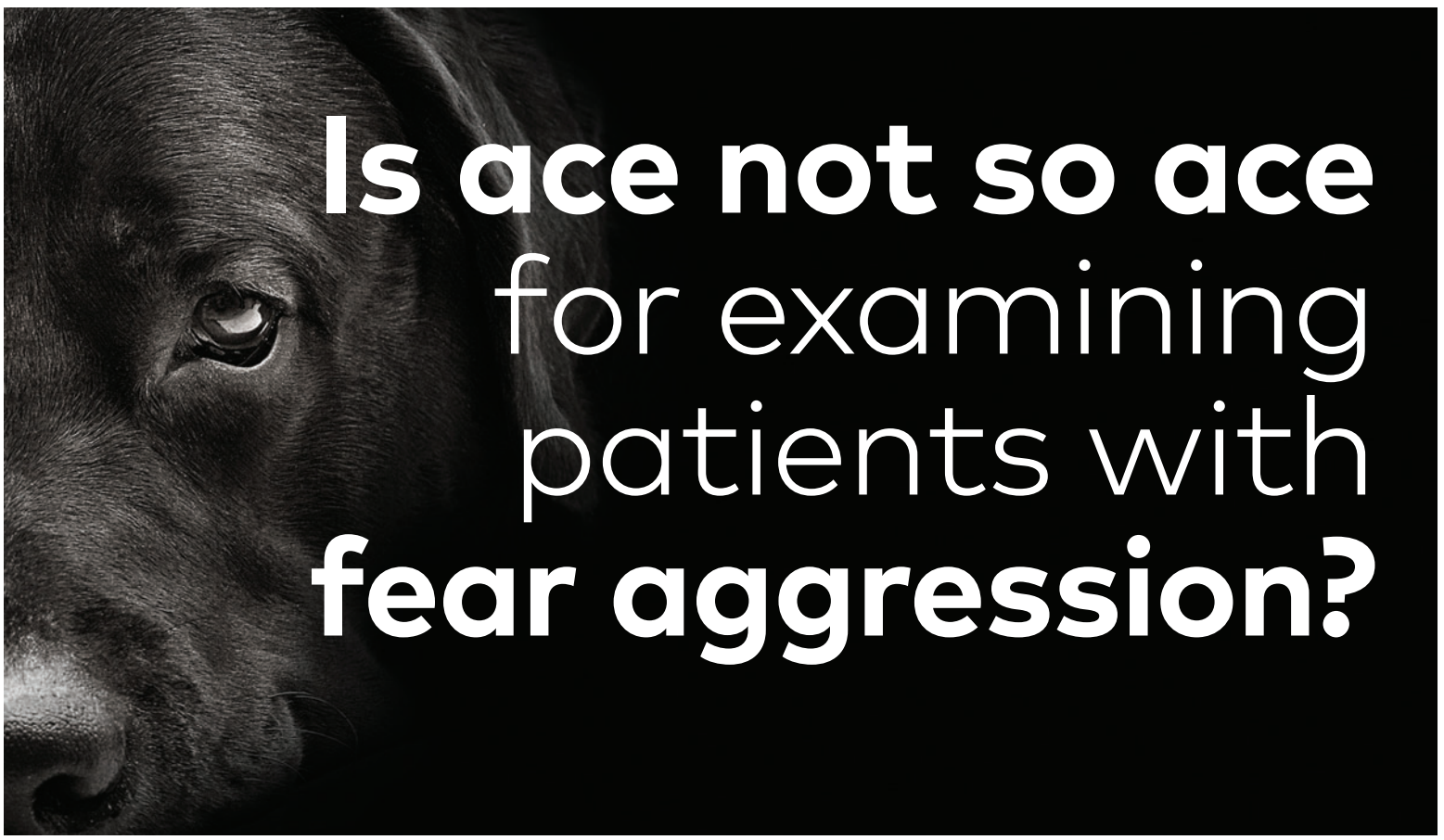

Is ace not so ace for examining patients with fear aggression?

While acepromazine may make patients more tractable in the clinic, it's likely doing nothing to reduce their anxiety. *By Julia Albright, MA, DVM, DACVB*

Question: Why shouldn't acepromazine be a go-to sedative to help manage fear aggression in dogs during physical examinations? Which medications are good alternatives to consider?

Answer: Psychopharmacology can be a confusing and overwhelming subject in veterinary medicine, in large part due to the wide individual variation in observable effects and the overlap in clinical applications. Another factor is the current paradigm shift from drugs that simply produce behavioral suppression and decreased motor activity to those that have antianxiety properties as well.

Acepromazine is an antipsychotic, a class of drugs originally used to treat psychoses such as schizophrenia in humans by blocking the action of dopamine, a catecholamine neurotransmitter. More specifically, acepromazine is a low-potency phenothiazine neuroleptic drug and, like most of the older antipsychotics used in veterinary medicine (including haloperidol and fluphenazine as well as acepromazine), it blocks all the dopamine pathways responsible for cognition, motivation and motor coordination. Acepromazine affects other physiologic systems as well and can cause cardiovascular, motor and endocrine side effects.

Though acepromazine is generally safe and can ease handling by blunting behavioral responses, it has fallen out of favor, especially as an oral monotherapy, due to numerous reports of sedation without acceptable reduction in signs of fear or anxiety.

So, to answer the specific question about the use of acepromazine to manage fear-related aggression, acepromazine may make the animal more tractable for handling, but it's unlikely to be addressing the underlying fear. Other medications such as benzodiazepines, gabapentin, the atypical antidepressant trazodone, and norepinephrine release blockers like dexmedetomidine are more likely to create emotional calmness (again, primarily based on body language assessment) with or without sedation.

My clients and consulting general practitioners are looking for the silver bullet to help make visits go more smoothly. Unfortunately, fast-acting situational oral drugs can have variable effects due to several factors. Most of these drugs have reduced bioavailability compared to other administration routes due to the hepatic first pass effect. In addition, many of our patients are experiencing an extreme level of distress during the average clinic visit, and single administration of most of these medications is simply not effective in the face of such acute physiologic arousal.

In my practice, once we've identified a fearful patient, I have the clients conduct a trial of two to three medications at home—usually some combination of those discussed above. We monitor for gastrointestinal or agitation side effects and adjust doses until we reach the desired clinic effect with few to no side effects. Acepromazine may be one of the medications we use in the cocktail, but that is rare these days.

For most of my aggressive patients, the goal of client-administered pre-visit medications is to produce enough sedation and relaxation to allow the team to administer a low-stress intramuscular injection of additional medications for a more thorough physical exam or other procedures. However, occasionally we feel the patient is comfortable enough to continue our visit with just the oral medications.

Either way, when the patient is calm in the veterinary clinic—and not just still—the team can do what it needs to do to optimize physical health without harming emotional well-being. And everyone feels better about that.

Dr. Julia Albright is assistant professor of veterinary behavior and PetSafe Chair of Small Animal Behavioral Research at the University of Tennessee's College of Veterinary Medicine.

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Do we *really* know what we **think we know** about feline CKD?

One study lays out all the elements of this common condition in cats. *By Hilal Dogan, BVSc, CCTP*

Chronic kidney disease (CKD) is the most common metabolic disease of domesticated cats presented to veterinarians for evaluation. A recent journal article evaluates our current knowledge of feline CKD, discussing pathogenesis, initiation factors and progression factors.[1] The study involved a retrospective evaluation of scientific data available from both human and veterinary medicine.

How common is CKD?

Two consistent trends on the prevalence of CKD in cats have been identified: (1) The prevalence of CKD increases with advancing age from 5 to 6 years onward, and (2) overall prevalence of CKD in cats increased from 0.04% in the 1980s to 0.2% in the 1990s to 1% in the 2000s. It's unknown whether this increase reflects greater awareness and enhanced diagnostic acumen, an increase in median age in cat populations or a true increase in prevalence.

Pathologic findings

Most geriatric cats with CKD don't have histologic evidence of primary glomerular disease. Instead they have tubulointerstitial lesions with only mild secondary lesions within glomeruli.

Grossly, kidneys are decreased in size with surface pitting. Histologically, renal lesions are multifocal to segmental and include interstitial mononuclear cell inflammation, tubular degeneration and atrophy, interstitial fibrosis, mineralization of Bowman's capsule and tubular basement membranes, interstitial lipid, and glomerulosclerosis. The inflammatory infiltrate typically consists of lymphocytes, which may be mixed with plasma cells and macrophages; they are typically present in the interstitium surrounding atrophic tubules.

Pathogenesis

Chronic primary renal diseases found to cause CKD in cats include:

- Amyloidosis
- Juvenile renal dysplasia or glomerular disease
- Lymphoma
- Chronic feeding of unbalanced diets
- Polycystic kidney disease
- Bacterial pyelonephritis
- Nephro- and ureterolithiasis
- Chronic infection of feline immunodeficiency virus, feline leukemia virus or feline infectious peritonitis
- Immune complex glomerulonephritis
- Acute kidney injury (AKI).

With the exception of AKI, most of these known primary renal diseases affect only specific breeds or produce histological changes inconsistent with the pathological changes of CKD. Thus, most cats with CKD lack an apparent inciting cause. It seems more likely that a combination of intrinsic (animal) factors, environmental factors and repeated intermittent AKI act in concert as initiating or causative factors.

Initiating factors

Factors associated with the onset of CKD include:

- **Aging.** An abundance of evidence supports a link, perhaps causal, between aging and feline CKD. Aging itself does not initiate CKD, but it's plausible that age-associated changes enhance susceptibility to CKD development. These may include diseases that are more common in older cats, such as hyperthyroidism, dental disease, systemic hypertension and inflammatory bowel disease (IBD).
- **Hyperthyroidism.** Convincing evidence is lacking, as most cats with CKD do not have overt hyperthyroidism. Consequences of hyperperfusion and direct effects of thyroid hormone on feline tubular cells are also not well understood.
- **Periodontal disease.** This is a complex, possibly bidirectional relationship, but there is more evidence in people and dogs than in cats.
- **Systemic hypertension.** While this condition is common in cats with CKD, it's not clear if it precedes or is coincident with CKD initiation.
- **IBD.** This is an interesting but unsubstantiated hypothesis. People with IBD may exhibit tubular dysfunction.

Other initiating factors include ischemia and other AKI. There is evidence that AKI, specifically ischemic, initiates changes that mimic CKD in cats, consistent with the suggestion that maladaptive repair mechanisms following an AKI can lead to CKD.

Husbandry factors discussed in conjunction with CKD include:

- Ad lib feeding or high-protein diets—there's a lack of supportive evidence.
- Food additives such as ethoxyquin or genetically modified plants also lack real evidence.
- Glyphosate, an herbicide, has some evidence of toxic renal effects, but the authors are unaware of studies in cats.
- Routine vaccinations have been hypothesized to be an initiating factor, but further studies are needed.
- Chronic stress due to confinement, cofeeding, litterbox sharing and living with other animals might lead to chronic overactivation of the hypothalamic-pituitary-adrenal (HPA) axis.
- Renal hypoxia could be an initiation factor—potential causes are stress, aging, ischemia as a result of tubular hypermetabolism, anemia, transient systemic hypotension, systemic overactivity or activation of the renin-angiotensin-aldosterone system (RAAS), and subclinical exposure to compounds with effects on renal vasculature (NSAIDs or melamine).

Progression factors

It's assumed that CKD is an inherently progressive disease, but this is difficult to demonstrate in lab models. Several factors have been associated with progression of feline CKD:

- Phosphorus intake
- Proteinuria
- Anemia
- Systemic hypertension
- Intraglomerular hypertension
- Activation of the RAAS
- Sodium intake
- Tubular hypoxia
- Interstitial fibrosis.

Take-home points

This was an interesting review of an incredibly common disease with many moving parts. It's important to be reminded that cats are different from dogs and people and that the disease affects tubules in cats versus glomerulus in dogs and humans. Also, it's important to remember that CKD is not just one or two insults to the kidney; it's a combination of factors that form a cascade—almost like a domino effect.

Reference

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Dr. Hilal Dogan practices in Denver, Colorado. She is the founder of the Veterinary Confessionals Project.

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Banfield develops **telehealth** service

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Jane Lynch has signed on to speak for the new on-demand platform. *By Brendan Howard*

Banfield has introduced a telehealth service, Vet Chat, to the smartphone app designed for pet owners on their wellness plans. What's more, actress Jane Lynch has signed on to help warn people about the dangers of seeking advice about their pets' health from the internet.

"Vet Chat gives Banfield Optimum Wellness Plan clients on-demand access to a veterinarian, through the Banfield app, for immediate guidance," reads the new service's FAQ.

The website goes on to explain exactly what the veterinarians on the service can and will do (it's less than what other telemedicine apps operating under established veterinarian-client-patient relationships do): "Vet Chat doctors do not have access to pet medical records and do not treat, diagnose, prognose or prescribe/refill. They limit their interactions to general advice and recommending one of these next steps: refer to Banfield for an in-person visit, watch and wait, general information and refer to emergency."

That makes Vet Chat similar to other telemedicine triage services available to private practitioners, like GuardianVets, but unlike Anipanion, Petzam, TeleTails and TeleVet, which let practices directly manage cases virtually.

Jane Lynch, a dog-owning celebrity who supports pet causes, is helping Banfield raise awareness of the dangers of turning to the internet with pet health issues instead of seeking counsel from a veterinarian.

"As the proud owner of three rescue pups, I am all too familiar with the sounds of a dog vomiting at 3 in the morning—and the comfort and peace of mind that comes with having a veterinary team I can count on," says Lynch in a Banfield press release.

Banfield's app is not a way not to circumvent veterinary visits, the company says, but a method to counter bad pet health advice online and help folks figure out if they need to come in.

Comparison chart: Pet identification microchips

A few of the big pet microchip companies provided dvm360 with details about their current products. Curious if there's any reason to switch your choice? Check 'em out! *By Brendan Howard*

Some veterinary practices implant very few microchips and leave it all to rescue groups and animal shelters. Other hospitals use the, as a part of their packages for new adoptions, puppies and kittens. Whichever way your hospital swings, here are a few details on players in the market to compare ...

Veterinary microchips for pets

AKC Reunite

Website	akcreunite.com
Price to veterinarian	Varies according to number of chips or whether they're bundled with a scanner
Price to register chip	Free registration and updates; other chips: $17.50
Designated code	956
Additional services	24/7/365 call center; calls, emails, texts and/or snail mail to contact lost pet owners; broadcasts lost pet info to Reuniters Network

BuddyID Minichip

Website	buddyid.com
Price to veterinarian	Free with registration
Price to register chip	One-time $24.95
Designated code	933
Additional services	Lifetime warranty; nationwide search alerts; mobile app; text alerts; direct-to-owner lost pet recovery

HomeAgain

Website	Merck Animal Health
Price to veterinarian	Free with registration
Price to register chip	$19.99 lifetime registration (includes lifetime profile updates)
Designated code	985
Additional services	Enhanced pet recovery; emergency medical hotline

PetLink

Website	petlink.com
Price to veterinarian	$15.50
Price to register chip	Free registration for chips sold to veternarians
Designated code	981
Additional services	24/7/365 U.S.-based call center; lost-pet posters for print; library of resources; lunch-and-learn training for veterinary clients available.

SmartTag

Website	IDtag.com
Price to veterinarian	Data $8.50, Mini Data $9
Price to register chip	Free
Designated code	987
Additional services	24/7/365 call center; lost pet broadcast alerts; metal ID tag; smaller-gauge Mini Data chips; temperature-reading chips

Source: Companies self-reported

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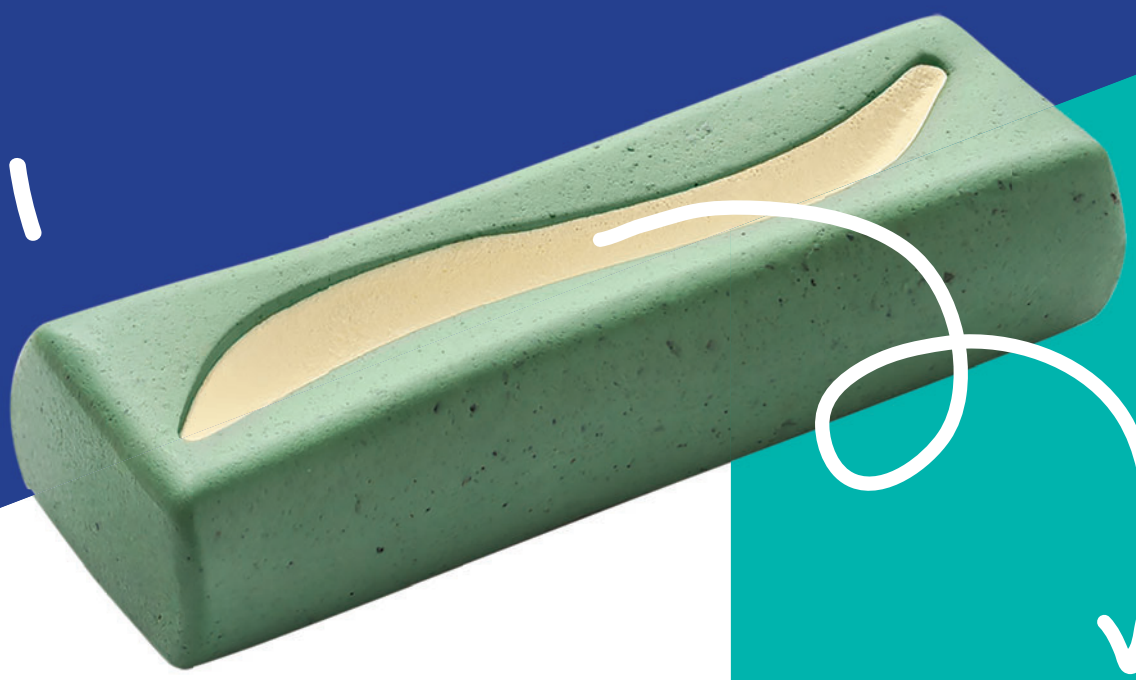

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2. The scrubbing action of the chew works in parallel with the delmopinol to effectively remove plaque and calculus

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[1] Data on file.
[2] Data on file.
[3] Data on file.

Boehringer Ingelheim

A better-educated clientele is crucial to quicker diagnoses and treatment, a mission shown off by the British Horse Society's work on colic.

COURTESY OF BRITISH HORSE SOCIETY

When to REACT: **Colic** in **horses**

Check out this British-developed acronym you can use to educate your equine clients on signs of colic in a horse. It could just lead to a better-informed, faster-responding and quicker-calling clientele. *By Ericka Cherry, Jennifer Vossman, RVT, CMP*

YAKOV/STOCK.ADOBE.COM

Not all horses with colic present telltale signs of the disease (pawing the ground, kicking at the belly and rolling) but more subtle signs that can often be attributed to another issue. Colic can be more complicated than veterinary clients think, according to Sarah Freeman, BVetMed, PhD, DECVS, FHEA, FRCVS, who presented a session to veterinarians on better colic education for horse owners at the West Indies Veterinary Conference hosted by Ross University School of Veterinary Medicine last year. Dr. Freeman worked in collaboration with the British Horse Society and a group she leads—the Nottingham Equine Colic Project.

This evidence-based equine health initiative helps horse owners recognize colic in their horses earlier, so they can contact their veterinarians sooner. According to the British Horse Society's website, one in 10 colic cases may be critical and up to 80% of these critical cases can result in death or euthanasia.

REACT is an acronym-centered marketing effort to reduce the instance of critical cases by highlighting the early signs of the disease. Videos, handouts and educational material shares jargon-free language on colic signs like this:

Restless or agitated
> Attempts to lie down
> Repeatedly rolling
> Unexplained sweating
> Box-walking or circling

Eating less or droppings reduced
> Eating less or nothing
> Passing less or no droppings
> Changes in the consistency of droppings

Abdominal pain
> Flank watching
> Pawing
> Kicking at belly

Clinical changes
> Increased heart rate
> Reduced or absent gut sounds
> Changes in the color of gums
> Rapid breathing rate
> Skin abrasions over eyes

Tired or lethargic
> Lying down more
> Lowered head position
> Dull and depressed

Get more on colic and other conditions
Dig deeper into the British Horse Society's website on the topic, and you'll find resources including:

- "REACT Now to Beat Colic," a free video for horse owners
- "REACT to Colic," a longer version of the video
- More than a dozen PDF handouts related to colic, including "Recognizing the signs of colic," "Emergency decision making" and "Waiting for the vet to arrive." See a sample on the opposing page of one of the handouts.

With these resources literally at horse owners' fingertips, the chances of them catching colic sooner and quickly contacting veterinarians for solutions is better than ever. Find them all at **dvm360.com/react**.

The dental dozen: **12 products** that improve oral health

Here are some of my favorite products that are making it easier for clients and veterinary practices to improve the oral health and well-being of cats and dogs. *By Jan Bellows, DVM, DAVDC, DABVP, FAVD*

More and more veterinary clients are realizing the importance of pet dental health, and the industry is responding with products that offer more effective home care and enable veterinarians to perform dental procedures more accurately and efficiently. From dental chews to surgical instruments to anesthesia monitors, here are some of the latest and greatest dental products to have hit the market.

1. Digital sensor

New from Dentalaire is a sensor boot for the Dentalaire intraoral digital sensor. This boot helps place the sensor in the mouth more easily and provides added protection against bite trauma.

2. Mouth prop

Also from Dentalaire is an autoclavable mouth prop, available in small, medium and large sizes.

3. Dental chew

Working with a boarded veterinary nutritionist and a boarded dentist, Pets Best Life has introduced a new dental chew. Yummy Combs has a patented six-sided honeycomb shape to get between close teeth and aid oral hygiene.

4. Dental chew

New from Virbac, C.E.T. Veggiedent Fr3sh Tartar Control Chews for Dogs have earned the Veterinary Oral Health Council Seal of Acceptance. These vegetable-based chews offer the added benefit of decreasing oral malodor. They contain no animal proteins and are available in four sizes.

ALL PHOTOS COURTESY OF DR. JAN BELLOWS.

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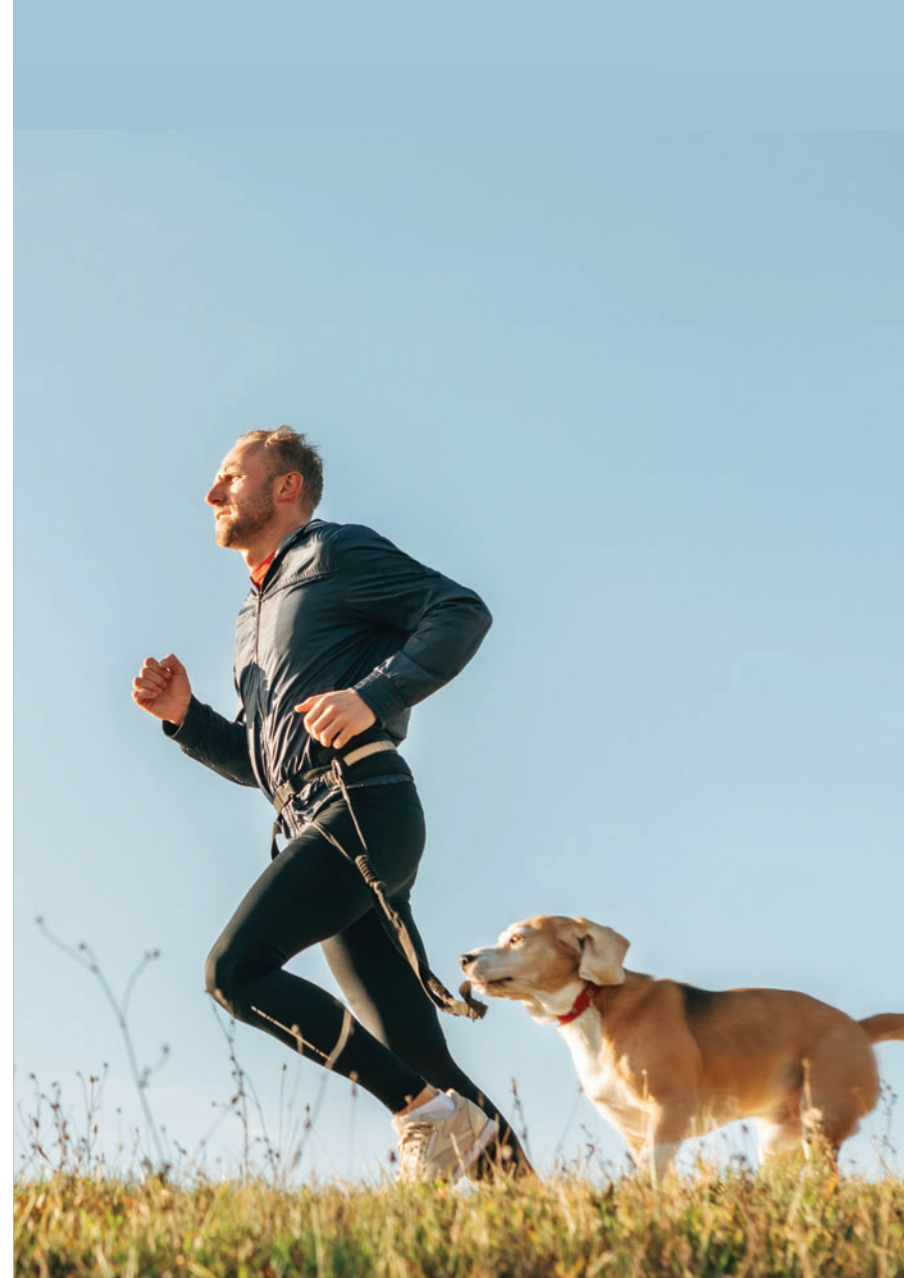


5. Warming blanket

Hot Dog warming blankets now offer a dual-port controller that allows for warming two patients at the same time using a single controller. Safe, effective, durable and reusable, these warming blankets are clinically proven to be more effective than competitive products.

6. Hot air warmer

Bair Hugger Warming Unit Model 675 from 3M incorporates updated software that accurately reflects the temperature at the end of the hose and displays on the LCD screen. The product is compatible with all Bair Hugger blanket styles.

7. Digital sensor

Midmark has introduced the first and only veterinary-specific, bite-resistant intraoral digital sensor with patented sensor housing to provide clear, crisp images that resist bite damage four times as well as the company's standard sensor. Midmark also provides free unlimited technical support and software upgrades for the life of the sensor.

8. Capnograph

Rad-97 with NomoLine Capnography from Masimo features an integrated sidestream gas analyzer for capnography, meeting continuous pulse carbon dioxide–oximetry and capnography needs in a single device with numeric, trend and waveform viewing options as well as fractional concentration of inspired carbon dioxide and respiration rate.

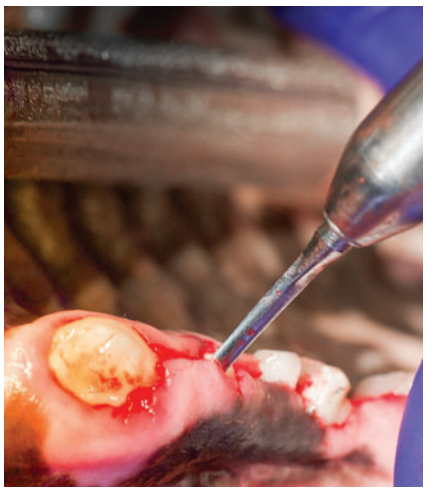
9. Endodontic motor

X-Smart IQ from Dentsply Sirona is a cordless endodontic motor controlled by a free Apple iOS IQ app. The monitor offers ease of use, virtually unbreakable NiTi rotary files tailor-made for dogs and cats, and the automatic reverse feature when a file binds. X-Smart IQ is a complete solution when shaping a root canal before cleaning and filling.

10. Physiologic monitor

Digicare's LifeWindow One is a multiparameter portable physiologic monitor engineered for veterinary anesthesia. Compact and user-friendly, LifeWindow offers optional Wi-Fi connectivity to allow users to connect to the product's iPad app for full control of the monitor, waveform display, printing and saving waveforms and patient records.

11. Periotome



Vet-Tome from iM3 is an automated periotome with foot pedal operation that facilitates precise tooth extraction with minimal or no alveolar bone loss and less trauma. The mechanical action and thin flexible blade allow easy insertion into the periodontal ligament space and alveolus coupled with the side-to-side movement by the operator cutting the ligament. The Vet-Tome decreases hand fatigue and speeds extraction time.

12. Catheter delivery system

Coltene's upgraded catheter delivery system delivers GuttaFlow to the apex of the cleaned root canal and can be cut to customize the length.

products

Find it all here

dvm360

Get updates online @
dvm360.com/products

Medical Illumination International

Air purification unit

Medical Illumination recently announced that it has completed its acquisition of the Vidashield product line from American Green Technology, including the UV24 Air Purification System. Built in the casing of a standard-size overhead light fixture (fluorescent or LED), the UV24 unit provides fast, continuous air purification that reduces bacteria, viruses and fungi in treated air without taking up floor or counter space. It also reduces the settling of airborne pathogens onto surfaces while reducing odors caused by bacteria and fungi. A single UV24 air purification unit can treat a volume of air equivalent to a room measuring 10 by 10 by 8 feet four times per hour.

For fastest response visit medillum.com

Vetoquinol USA

Generic chewable NSAID

Flexprofen is a generic, beef-flavored chewable tablet that contains carprofen, a widely used, clinically proven nonsteroidal anti-inflammatory drug (NSAID) for dogs. The product is comparable to the leading brand name carprofen chewables that address symptoms of pain and inflammation typically associated with osteoarthritis. Flexprofen can also be used to treat dogs with postoperative pain resulting from soft-tissue and orthopedic surgeries. Flexprofen is available in 25-, 75- and 100-mg sizes in 180-count bottles.

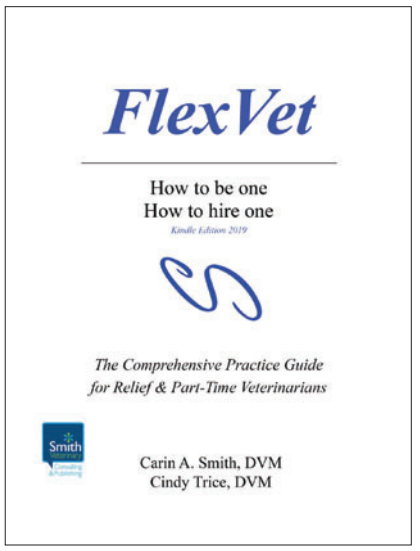
For fastest response visit vetoquinolusa.com/flexprofen

Smith Veterinary Consulting and Publishing

Book for relief, part-time work

The fifth edition of *FlexVet: How to Be One, How to Hire One*, by Carin Smith, DVM, and Cindy Trice, DVM, is a practical guide for relief and part-time veterinarians. The book covers a wide range of resources to help practices as well as part-time and relief veterinarians navigate the business intricacies of flexible work. The 2019 edition includes updates on taxes, insurance and online resources. Other topics include choosing the right type of veterinarian for your practice, business plans, budgeting, marketing, social media and sample contracts and letters.

For fastest response visit smithvet.com



Solutions Vetceterra

Pet body bag

Euthabag is a practical solution for transportation, cremation and burial of euthanized pets that is respectful to both animal and caregiver. Euthabag features pleats on each side that create handles for easy transport. The waterproof fabric prevents leakage, is resistant to nails and tears, and expands to adjust to the animal's size. Animal identification information can be easily added with a pen or marker on the attached label, or an ID sticker may be added as a shipping tag. Available in five sizes, from extra-small, for pocket pets, to extra-large, for pets up to 190 lbs.

For fastest response visit euthabag.com

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August 21-23
HospitalDesign360 Conference
(800) 255-6864, ext. 6
fetchdvm360.com/hd

August 23-26
Fetch dvm360
in Kansas City
(800) 255-6864, ext. 6
fetchdvm360.com/kc

December 12-15
Fetch dvm360
in San Diego
(800) 255-6864, ext. 6
fetchdvm360.com/sd

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Here are the CE opportunities coming in the next few months

July 19-21
Pet Loss Professionals Alliance College
Memphis, TN
(800) 645-7700
myPLPA.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
AVMA Convention
Washington, DC
avma.org/events

August 3-4
Clinical Advantage—Technician's Workshop
Baltimore, MD
animaldentaltraining.com

August 7-9
Updates in Dentistry and Emergency Critical Care
Mont Tremblant, QC
(888) 488-3882
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August 9
How to Reduce Workplace Stress Through Communication & Leadership Skills
Rosemont, IL
(608) 265-5206
apps.vetmed.wisc.edu/cereg/

August 11-14
South Dakota VMA Annual Meeting
Sioux Falls, SD
(605) 688-6649
sdvetmed.org

August 11-14
Sun N Fun Veterinary Conference
Myrtle Beach, FL
(252) 422-0943
vetmeetings.com

August 15-18
13th Keystone Veterinary Conference
Hershey, PA
(888) 550-7862
pavma.org

August 21-23
HospitalDesign360 Conference
Kansas City, MO
(800) 255-6864, ext. 6
fetchdvm360.com/hd

August 21-24
Uncharted Veterinary Conference: Staff Drama
Kansas City, MO
unchartedvet.com

August 23-26
Fetch dvm360 in Kansas City
Kansas City, MO
(800) 255-6864, ext. 6
fetchdvm360.com

September 6-7
Sports Horse Medicine & Orthopedics
Snohomish, WA
(844) 870-6097

September 8-10
Pet Loss & Grief Companioning Certification Course
Boston, MA
(317) 966-0096
twoheartspetlosscenter.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
acvssurgerysummit.org

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His one weakness

I got a lot of great qualities from Joe Benny Brock, but I'm glad one small fear of his didn't get passed on in the genes.

Joe Benny Brock. Most everyone called him Joe Benny, but I called him "Daddy."

He was a big man, 6 feet, 4 inches tall and about 250 pounds. But his size is not what defined him—it was his smile. When he truly smiled, his face changed completely. It was like his forehead got longer and his hairline moved back and away from his eyes. I have never seen a more amazing smile in my life. I loved that man, he took care of me, and I was his pride and joy.

We were a lot alike in many ways, but there are some things I got from my momma, and the "doctor" gene obviously came from her. Want to know how I know this? Well, here's the story.

When I was about 5 years old, we were at some occasion that brought about 60 family members to a farmhouse in the middle of nowhere. There was one batch of kids about my age I'd never seen. We were all out in the yard playing when a big German shepherd-looking dog came wandering onto the scene, seemingly full of bad intent.

Joe Benny was in the yard, and when he saw the animal and read its body language, he started rounding us all up and heading into the house. But instead of heading inside one little girl wouldn't listen. She ran toward that rascal, and it bit a chunk out of her shoulder. Joe Benny was screaming and making noise at the top of his lungs, trying to scare off the dog and slow the little girl down, but it didn't work. The damage was done, and now the child needed a trip to the doctor.

Looking back on it now, I'm not sure why they took me along, but they did. The girl was bleeding and crying, sitting in the back seat of a Dodge station wagon with her parents, while I sat in my momma's lap in the passenger seat and my daddy drove. (We didn't know what a car seat was back then.)

We wound up at an old-timey doctor's office that smelled like alcohol and sick people. They took us all into the treatment room, and we waited awhile for the doctor. I remember seeing all that blood and I still her hear her crying like it was yesterday.

The room we were in was green—man, it was green. It had green asbestos tiles on the floor, the walls were a lighter shade of green, and even the old heater thing next to the wall was painted green. There were two chairs along one wall and one of those hard doctor beds with a piece of white paper pulled down over it in the center of the room. The girl's father was in one chair, while I was in my momma's lap on the other. The girl's mother was standing next to the doctor table, consoling her daughter with a nurse, and Joe Benny was perched in the window seat next to her looking a bit pale.

The doctor finally arrived and assessed the bite wound. He explained some things in grown-up talk to the parents and then told the nurse to prepare things to sew up the wound. I looked over and saw Joe Benny rub his face and noticed a bit of sweat forming on that forehead that expressed so much of his emotion.

The next few minutes were amazing to me, and I still remember them vividly 50 years later. First of all, looking back, how in the world was it all right for a little kid to be in the room to watch an arm sewing? Next, why did we take her to a doctor's office instead of an emergency room? And then, why was Joe Benny sitting so far away from the action?

There was a lot of screaming and crying as the doctor injected a local anesthetic before he sanitized and sutured. Then the sewing started. The crying and screaming had stopped, and I was enthralled as I watched the needle moving. It was just like my grandmother's sewing when she was making quilts in the den. I couldn't believe they did the same thing to skin.

Then about halfway through the sewing, I heard a thud behind me. My daddy was bent in two over the room's green heater. His hands were lying limp on the floor, and his feet weren't even touching the ground. It was like he'd suddenly fallen asleep, like a little kid in his high chair.

My momma screeched and put me on the floor as she scrambled across the room to assist him. The nurse left the doctor's side to check on him. I crawled back up into the chair and watched with great anticipation to find out why everyone was so concerned that my daddy had fallen asleep.

It was several years later that I finally laughed about this. And I still laugh. In fact, I'm cracking up as I write this. My dad, all 6-foot-4 of him, couldn't stand the sight of blood. He passed out in a doctor's office, draped over an old-timey heater like laundry on a West Texas clothesline. He never did admit it, though. He always claimed it was because he hadn't eaten all day and was low on glucose.

I hope and pray that I got that man's sense of humor, compassion, wonderful smile and amazing intelligence, but I'm so glad I didn't get his weak stomach for sewing up tissue. I miss you, Joe Benny.

My momma reminded me of this story on the phone recently. We laughed and laughed and then laughed some more. Thank you, momma. Made my day.

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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