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Barking up the wrong tree with Dr. Mike Paul

Proving why it's not always best for you to "follow your passion."

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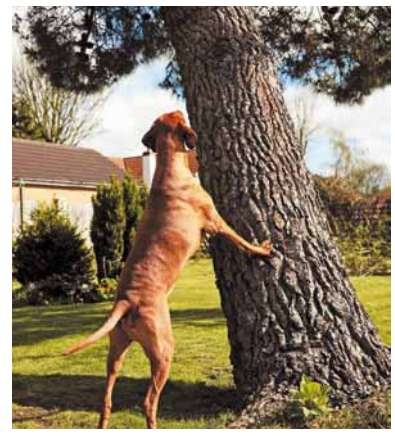

AVMA identifies 12.5% excess capacity

Many veterinarians are 'underemployed,' study finds. *By Julie Scheidegger*

The American Veterinary Medical Association (AVMA) 2013 Veterinary Workforce Report estimates an excess capacity of veterinary services at 12.5 percent. Released Tuesday, April 23, the survey, conducted by IHS Healthcare & Pharma in partnership with the State University of New York in Albany, also indicates that supply will continue to outpace demand into the foreseeable future if current conditions in the profession don't change.

Specifically, the report indicates that the supply of veterinarians in the United States in 2012 was 90,200 and that supply exceeded demand for veterinary services by about 11,250 full-time equivalent veterinarians.

However, study directors emphasize, this does not mean there is an oversupply of veterinarians, or 11,250 veterinarians too many. A true oversupply in economic terms, they say, would be reflected in a high level of unemployment, and unemployment in the veterinary profession at just 2 percent is quite low. Rather, the study reports, 12.5 percent of veterinarians' capacity to provide services is going unused.

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>>>Runners participate in the 2013 Boston Marathon before two bombs injured hundreds and killed three.

Too close to tragedy

Veterinarians who raced in Boston Marathon ask "what if?"

By Julie Scheidegger

Her husband was at the finish line to see her complete her first Boston. Blissfully unaware of what was about to happen, Phyllis Sill, DVM, of Beloit, Wis., crossed into the finishing chute and then continued on to be wrapped in a mylar blanket by volunteers. "He saw me finish the race but I didn't see him," Sill says of her husband, Brad.

It was just before 3 p.m. on April 15. Not seeing her husband, Sill went to collect her personal effects. "I was

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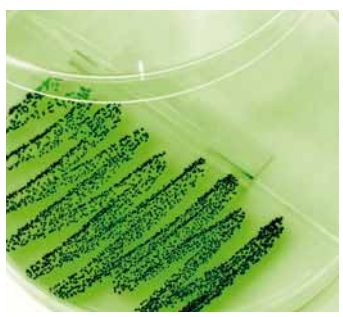
A new school that could accelerate the process

page 8



Drug-defying CRE is on the rise: Will it affect pets?

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Pet health data: VPI releases top conditions

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Product updates: In with the new for your practice

page 64

TRESADERM (thiabendazole-dexamethasone-neomycin sulfate solution) Dermatologic Solution CAUTION: Federal (U.S.A.) law restricts this drug to use by or on the order of a licensed veterinarian. DESCRIPTION: Dermatologic Solution TRESADERM® (thiabendazole-dexamethasone-neomycin sulfate solution) contains the following active ingredients per ml: 40 mg thiabendazole, 1 mg dexamethasone, 3.2 mg neomycin (from neomycin sulfate). Inactive ingredients: glycerin, propylene glycol, purified water, hypophosphorous acid, calcium hypophosphite; about 8.5% ethyl alcohol and about 0.5% benzyl alcohol. INDICATIONS: Dermatologic solution TRESADERM is indicated as an aid in the treatment of certain bacterial, mycotic, and inflammatory dermatoses and otitis externa in dogs and cats. Both acute and chronic forms of these skin disorders respond to treatment with TRESADERM. Many forms of dermatosis are caused by bacteria (chiefly *Staphylococcus aureus, Proteus vulgaris* and *Pseudomonas aeruginosa*). Moreover, these organisms often act as opportunistic or concurrent pathogens that may complicate already established mycotic skin disorders, or otoacariasis caused by *Otodectes cynotis*. The principal etiologic agents of dermatomycoses in dogs and cats are species of the genera Microsporum and Trichophyton. The efficacy of neomycin as an antibacterial agent, with activity against both gram-negative and gram-positive pathogens, is well documented. Detailed studies in various laboratories have verified the significant activity thiabendazole displays against the important dermatophytes. Dexamethasone, a synthetic adrenocorticoid steroid, inhibits the reaction of connective tissue to injury and suppresses the classic inflammatory manifestations of skin disease. The formulation for TRESADERM combines these several activities in a complementary form for control of the discomfort and direct treatment of dermatitis and otitis externa produced by the above-mentioned infectious agents. DOSAGE AND ADMINISTRATION: Prior to the administration of Dermatologic Solution TRESADERM, remove the cerumenous, purulent or foreign materials from the ear canal, as well as the crust which may be associated with dermatoses affecting other parts of the body. The design of the container nozzle safely allows partial insertion into the ear canal for ease of administration. The amount to apply and the frequency of treatment are dependent upon the severity and extent of the lesions. Five to 15 drops should be instilled in the ear twice daily. In treating dermatoses affecting other than the ear the surface of the lesions should be well moistened (2 to 4 drops per square inch) with Dermatologic Solution TRESADERM twice daily. The volume required will be dependent upon the size of the lesion. Application of TRESADERM should be limited to a period of not longer than one week. PRECAUTIONS: On rare occasions dogs may be sensitive to neomycin. In these animals, application of the drug will result in erythema of the treated area, which may last for 24 to 48 hours. Also, evidence of transient discomfort has been noted in some dogs when the drug was applied to fissured or denuded areas. The expression of pain may last 2 to 5 minutes. Application of Dermatologic Solution TRESADERM should be limited to periods not longer than one week. While systemic side effects are not likely with topically applied corticosteroids, such a possibility should be considered if use of the solution is extensive and prolonged. If signs of salt and water retention or potassium excretion are noticed (increased thirst, weakness, lethargy, oliguria, gastrointestinal disturbances or tachycardia), treatment should be discontinued and appropriate measures taken to correct the electrolyte and fluid imbalance. Store in a refrigerator 36°-46°F (2°-8°C). WARNING: For topical use in dogs and cats. Avoid contact with eyes. **Keep this and all drugs out of the reach of children.** The Material Safety Data Sheet (MSDS) contains more detailed occupational safety information. To report adverse effects in users, to obtain an MSDS, or for assistance call 1-888-637-4251. HOW SUPPLIED: Product 55871- Dermatologic Solution TRESADERM Veterinary is supplied in 7.5-ml and 15-ml dropper bottles, each in 12-bottle boxes.

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CAT FIGHT: Does **TNR** equate to **public hoarding?**

Legislation in Florida ignited tense debate over how to manage feral cat colonies. House Bill 1121 and Senate Bill 1320 both sought to define feral cats as "community" cats and stipulate that the practice of "trap-neuter-return" (TNR) doesn't constitute unlawful release of cats. The legislation was supported by pro-TNR groups, but it prompted others to call it legalized public cat hoarding. Scan the QR code or check out **dvm360.com/communitycat**.

Price tag of high-risk federal bio-defense lab rises for Kansas

President Obama requests state matching funds.

The 2014 federal budget allotted $713 million for the National Bio- and Agro-Defense Facility (NBAF) to be built on the Kansas State University campus in Manhattan, Kan. President Barack Obama requested that with that federal funding, the state of Kansas invest another $202 million. To read more about the NBAF project, log on to **dvm360.com/biolab**.

Agencies seek input on plan for oversight of antimicrobial use

Producers who once ordered drugs direct from manufacturer will now need a prescription.

The U.S. Food and Drug Administration and the U.S. Department of Agriculture are co-sponsors in a series of half-day meetings with food animal producers and veterinarians on the impact of antimicrobial resistance, specifically in areas lacking adequate veterinary services. For more, visit **dvm360.com/antimicrobial**.

Virbac recalls heartworm chewables

Six lots recalled, didn't meet standards.

Virbac Animal Health voluntarily recalled six lots of Iverhart Plus Flavored Chewables March 29. According to a letter the company sent to veterinarians and their staffs, product testing revealed that the ivermectin potency failed to meet stability specifications during the life of the product. The result is that recalled lots may not fully protect dogs in the upper third of each weight range against heartworms. Scan the QR code with your mobile device or visit **dvm360.com/virbacrecall** to read more.

9 hospitals named national trauma center network

Hospitals to pioneer improved trauma treatment outcomes.

The American College of Veterinary Emergency and Critical Care (ACVECC) has approved nine veterinary hospitals and clinics in the United States to be conditionally identified as Veterinary Trauma Centers, the first step in an effort to create a network of leading hospitals that will serve to stimulate development of trauma systems nationwide, according to a press release issued by Tufts University. Check out **dvm360.com/traumacenter** to see which teaching hospitals and specialty clinics made the cut.

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References: 1. Data on file, Merck Animal Health. **2.** LaFleur RL, Dant JC, Wasmoen TL, et al. Bacterin that induces anti-OspA and anti-OspC borreliacidal antibodies provides a high level of protection against canine Lyme disease. *Clin Vaccine Immunol.* 2009;16(2):253–259.

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WHERE DID I GO WRONG?

| Michael A. Obenski, DVM

How clients RUIN EVERYTHING

So you've crafted the perfect schedule. Too bad pet owners have to show up and wreck it.

Self-appointed practice management experts love to shovel advice in our direction—especially when it comes to scheduling appointments. Their recommendation is simple: Schedule each individual task for an appropriate number of minutes. For example, a nail clipping is allotted four minutes, an examination gets eight minutes and treatment of an illness receives 12 minutes.

This system works because all nail trims are the same, every exam goes smoothly and, of course, all illnesses can be treated with a quick dose of antibiotics. Add the fact that the telephone rarely rings, and you can see that it's almost impossible to fall behind schedule!

But suppose your morning goes something like this ...

Juan Moore is scheduled to have his dog's ears cleaned. You have generously allowed 10 minutes. Unfortunately, he asks, "While we're here, can he get his shots?" And then a few minutes later, "I hope you can do something about this rash of his. We've been to three other vets and nobody seems to be able to make him better." Finally, just as you're ready to send him out the door, he says, "We need to talk about the seizures he's been having lately."

This is a setback, but you can still catch up by giving your next client the bum's rush. However, Tom Hardcell from Armtwist Medical Supply suddenly walks in the door. Getting him out of the office costs you 20 minutes and a $600 order. But you can still get back on track if you simply shave a little time off of your lunch hour.

Oops! One of the receptionists tells you Justin Tyme is on the way over with a sick puppy. You'll have to squeeze him in just before lunch.

"Glad I caught you before lunch, Doc," he says. "Nicka here is mighty sick. Oh! And I brought along these other two pups who just need to have their rashes checked."

At this point you feel as if you're drowning, about to go down for the third Tyme (in this case). Just then, a lady comes in the front door sobbing.

"Help! My cat can't breathe." Stabilizing the dyspneic cat takes 30 more unplanned minutes.

Who needs lunch? I'll grab a candy bar between calls.

But then you get hit with a walk-in. It's Wanda Rinn, who's decided that this is a good day to get her dog examined since he's had diarrhea for three months. You hate to tell her to go away because she's already mad.

"You people have treated this condition twice and it still isn't better. I want it fixed. Now!"

Her record details the previous two so-called "treatments." The first was a phone call asking for free advice. The second was a dropped-off stool sample followed by a dose of worm medicine.

You decide to treat the dog, hurt the schedule a little more and maybe even skip the candy bar. You've been wanting to slim down anyway.

The rest of your afternoon is peppered with phone calls about urgent matters, such as your potential contribution to the firemen's picnic. Soon your daughter calls to let you know she's going to run away from home unless you tell her brother he has to share the iPad. Finally Elsa Ware calls, frantic about her dog's blood tests results. You've never seen the dog and the tests were run elsewhere. But she doesn't understand what the other veterinarian told her and wants you to explain.

Each phone call throws you further off schedule. You've stopped wondering, "Where did I go wrong?" The easier question to answer is, "Where did I go right?" Don't worry. The day will end eventually—but not before one last aggravation.

Mr. Tardy is on the phone having a tantrum because your office won't stay open just 10 minutes after closing time so he can pick up his cat. He's pulled this stunt before. In fact, your staff has nicknamed him "the late Mr. Tardy." This time you deny his request and close the office as scheduled. But it's hard to fight the urge to stay open and make his nickname come true. **dvm360**

Dr. Michael Obenski owns Allentown Clinic for Cats in Allentown, Pa.

ILLUSTRATION BY RYAN OSTRANDER

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Fast-forward for veterinary school

The University of Arizona is exploring a veterinary school that's faster with more intensity. If the plan passes, students could obtain a degree in four or five years instead of eight—and potentially halve their debt. *By Portia Stewart*

Eight years. Four hundred sixteen weeks. Two thousand, nine hundred and twenty days. That's the average time it takes a student to make the journey from high school graduate to doctor of veterinary medicine. Now imagine taking that trip in roughly half the time. Would it work?

The University of Arizona thinks so, and it's asking its state to fund an initial $250,000 study to find out. Shane Burgess, BVSc, PhD, is a veterinarian, vice provost and dean of the University of Arizona's College of Agriculture and Life Sciences. He's taken the university's plan to House and Senate committees. If the Legislature includes money for the study in this year's budget, Burgess would like to complete the economic study in time for the next legislative session.


Dr. Shane Burgess

"We're looking at a model that will decrease the cost of a degree dramatically and also be a positive economic stimulus to the state's economy. So everybody wins," Burgess says. "If the study shows our plan works and makes sound business sense, we'll pursue it, and if not, we won't."

Three factors are driving the University of Arizona's plan. The first is its concern that every veterinary student in Arizona becomes an out-of-state student. Burgess says that's the most expensive way to become a veterinarian. "The total direct costs for an Arizonan to obtain a veterinary degree are between $225,000 and $250,000 from high school to qualification," Burgess says.

A small fraction of these students receive state assistance, which means the government is sending that money out of state. Plus, the state is not generating the revenues it could be by having its own veterinary education program. "So we believe not only is this good to decrease the students' cost, but it will also be an economic driver for the state of Arizona," Burgess says.

The second factor, Burgess says, is the mismatch in the veterinary profession between salaries and the cost of education—which they plan to address by decreasing the time it takes a student to obtain a degree.

The third driver is the need to create a program that broadens veterinary students' focus to include opportunities beyond companion animal medicine, such as bioeconomy, food safety, border safety and large animal medicine, Burgess says.

Almost all the infrastructure needed for the school exists already. Burgess says the university's multimillion-dollar research program, medical school, public health school, pharmacy school and the multiple farms and ranches the university owns would easily allow the school to add a veterinary college.

"We are confident, based on other models doing this on a similar time frame that are also AVMA-accredited—and we have talked to the AVMA already—that we will be able to find a way within our system," Burgess says. "Now, we may be wrong, and if that's the case, we won't go any further. But I don't suspect we'll be wrong."

One degree at a time

The plan the University of Arizona is proposing isn't a new approach. Colleges like Massey University in


>>> Undergraduates enrolled in food safety and microbiology at the University of Arizona learn how to conduct microbial analyses on various food products.

PHOTO BY JOHN MARCHELLO/COURTESY OF THE UNIVERSITY OF ARIZONA

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[1] Greene CE, Schultz RD. Immunoprophylaxis. In: Greene, CE, ed. *Infectious Diseases of the Dog and Cat.* 3rd ed. Philadelphia: WB Saunders Co.; 2006:1069-1119.
[2] Day MJ, Schoon H-A, Magnol J-P, et al. A kinetic study of histopathological changes in the subcutis of cats injected with non-adjuvanted and adjuvanted multi-component vaccines. *Vaccine.* 2007; 25:4073-4084.
[3] Macy DW. The Potential Role and Mechanisms of FeLV Vaccine-Induced Neoplasms. *Seminars in Vet Medicine and Surgery* (Small Animal). 1995;10(4):234-237.
[4] Merial. Data on file.

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New Zealand, an AVMA-accredited program where Burgess obtained his veterinary degree, offer five-year or 10-semester programs to receive a bachelor of veterinary science (BVSc) degree. Using a similar approach at the University of Arizona, students could complete undergraduate coursework in one to two years. If admitted to the College of Veterinary Medicine, they could complete their veterinary degree in three years if the program runs year-round, without a summer break.

Noble Jackson, DVM, is an associate professor of practice with the Department of Veterinary Science and Microbiology at the University of Arizona. He says the length of time it takes to obtain a veterinary degree is a national issue. A typical veterinary student spends eight years in school to get her doctorate in veterinary medicine, he says, and most of the schools are publishing statistics that show the average graduate owes $130,000 to $140,000.

"That's a tough debt load when you compare that to starting salaries in practice, in the $60,000 to $70,000 range," Jackson says. "In a way, that part of the veterinary training system is broken. The market forces out there that offer salaries for these students aren't going to immediately increase those salaries. So we've got to look at how can we get students educated in a quicker amount of time with less debt."

About 40 years ago, students didn't need to obtain a four-year undergraduate degree to be eligible for veterinary medical school, Jackson says. And internationally, they still don't. The change from veterinary school candidates obtaining two-year to four-year undergraduate degrees may have been dictated by the high level of competition among applicants for places in veterinary school, he says. Now most U.S. students go to school four-plus years before they're admitted to veterinary school, he says.

"Realistically, that's too long," Jackson says. "They don't need to have a bachelor's degree to become a veterinarian. So our plan is designed to cut that time down significantly. Our plan could get students through the classes we think are important in two years. That's going to require a pretty science-intensive undergraduate education, but if we go back 40 years in time, that's what was done."

Jackson says cutting off two years of undergraduate school will likely save the average student at least $25,000 a year, going by the cost of undergraduate education in Arizona. Plus, the Arizona plan proposes following the model of many international veterinary schools and running the program year-round, without summer breaks. While this wouldn't actually lower tuition costs, it could save students a year's worth of living expenses.

Jackson says that by cutting two years of undergraduate expenses and a year of living expenses in veterinary school, students could save anywhere from $60,000 to $70,000, which is right around half of what's quoted nationally for veterinary student debt. "By doing this, we wouldn't cut down the quality of education, we'd just cut down the time frame involved with getting that degree," Jackson says.

"By doing this, we wouldn't cut down the quality of education, we'd just cut down the time frame involved with getting that degree."

—Noble Jackson, DVM
Associate professor, University of Arizona

>>> Giovanna Martinez, a research technician in the bacteriology section of the Arizona Veterinary Diagnostic Laboratory at the University of Arizona, examines a bacterial culture plate.

In addition, this program would put graduates in the workplace sooner, which in turn could do more to improve their earning power.

"Lifetime earnings could easily go up a couple hundred thousand compared to the system we have currently in the United States," Jackson says.

Another novel element of the University of Arizona plan is that it does not include a teaching hospital. Instead, students would be distributed to private veterinary practices in the state to meet residency requirements.

"I personally think it's a very good way to educate students," Jackson says. "One, you're putting them out in the real world—not to say academia isn't the real world. But in reality, students who go through the traditional system see cases that are referred to their hospital. Whereas in the private practices, in the feed lots, they're actually seeing the common cases an average veterinarian would see."

Another advantage of the distributive model, Jackson says, is that the school could send students to areas where they see potential veterinary jobs. These might include the bio-

PHOTO BY SARA PLEVEL/COURTESY OF THE UNIVERSITY OF ARIZONA

medical industry and animal research activities. "In a university like ours with a medical school, there's a lot of research going on that veterinarians are already involved in," he says. "We have tremendous assets here on campus. We've got an actual working ranch as part of the college, we've got a feed lot here, we've got the animal research center that's already doing work with the medical school. And we're situated in a unique spot in the United States. We're sort of a sentinel for any potential foreign animal diseases that might come north to the United States. And there's a tremendous amount of agriculture that's going on currently in Mexico that crosses back and forth to the United States."

Room for more?

If the University of Arizona's plan goes through, the earliest veterinary students would be admitted would be August 2015. But by then, it might not be the only veterinary school in the state. Midwestern University, a private, not-for-profit university that focuses on healthcare education, announced plans to open a veterinary medical school in Arizona with an inaugural class of 100 students in 2014.

Kathleen Goeppinger, PhD, is the president and CEO of Midwestern University. She says the school features 19 different masters and doctorate-level health sciences programs across the nation. "We feel the true picture of healthcare includes veterinarians and the One Health concept," Goeppinger says. "There is not a veterinary school in the state of Arizona at this time. And we feel that by bringing in a class and having them look toward rotations in rural areas and other areas that are short veterinarians, we will help the population. We also think there's so much synergy in research between veterinarians and our other scientists that it's a very strong linkage."

Midwestern is committing about $120 million to build the facilities and hire faculty and an administrative team. "We spent at least two full years investigating before we made the decision to have it approved by our board of trustees," Goeppinger says. "Our driving factor was the ability to expand the healthcare team, but we also knew that the state did have a shortage."

However, Midwestern's new school has not influenced the University of Arizona's plans to investigate a college of veterinary medicine, Burgess says.

"Every state that has more than one veterinary school—and in most cases that's private and public—is benefitting from those two entities," he says. "Midwestern's plan hasn't changed anything we're thinking of doing."

A veterinary shortage?

In 2012, the National Academy of Sciences released its "Workforce Needs in Veterinary Medicine" report. The study identifies no personnel shortages in veterinary medicine. But many Arizonans disagree, citing underserved rural areas of the state.

Midwestern University points to an American Association of Veterinary Medical Colleges projection that there will be a shortage of 15,000 veterinarians over the next 20 years (a 10-year-old report many experts have questioned considering more recent research). Perhaps to confuse matters further, the U.S. Bureau of Labor Statistics (BLS) predicts 36 percent growth in the employment of veterinarians from 2010 to 2020—a much-faster-than-average growth rate for all occupations. (But again, many of those within the veterinary field have questioned the BLS's methodology and results.)

The debate doesn't end there. Research indicates that a key reason for open jobs in large animal medicine is that the jobs don't offer enough financial compensation. A 2011 report from American Association of Bovine Practitioners indicates these areas of underserved rural America exist because it's not financially feasible to make a living in these parts of the country.

"Saddling students with all this debt is unconscionable. It's not only a state problem, it's a national problem. It's just not right. And it's something we're going to have to deal with."

—Mark Killian
Arizona state Legislature

Goeppinger says that when Midwestern was exploring the idea of launching a veterinary school, she met with some of the people representing the various animal groups, including members of the cattlemen's association and state senators from rural areas, who reported they did find a shortage of veterinarians in their areas.

While Goeppinger says it's too early in the school's planning stages for her to comment on potential tuition costs and student debt loads for veterinary students, the school has explored whether it's possible to offer students incentives to serve in rural areas. And she says the university will use its established team of counselors to help with financial aid and encourage students to keep their student debt as low as possible.

"I saw the article in *The New York Times* [about veterinary student debt], and I've read a lot of position papers on this. I think that if you help manage the student's burden, it becomes a much more doable project for them to pay back their loans," Goeppinger says.

Mark Killian, a 14-year veteran of the Arizona state Legislature and a member of the Arizona Board of Regents, says the system has to change to make jobs in rural areas of the state viable. He supports the University of Arizona's plan for a veterinary school, due in large part out of concerns about biosecurity.

"My big concern, looking beyond Arizona, is that we're going to wake up with a shortage of large animal veterinarians in the next 15 years," says Killian, who is a managing partner in family ranching operations in Arizona and New Mexico. "Because of biosecurity, I think rural America is going to be in big trouble. We need to focus on trying to create as many large animal veterinarians as possible—we've got plenty of small animal veterinarians."

Jackson and Killian agree that these jobs may be more viable for new graduates if they're starting out their careers with less debt. And Burgess says one of his goals is to make it more financially feasible to be a working veterinarian. "The question of whether it's economically viable is not something I can control," he says. "But I can contribute to making it more economically viable."

Killian says a key is to drive down the cost of all college tuition. "Saddling students with all this debt is unconscionable," he says. "It's not only a state problem, it's a national problem. And it's something we're going to have to deal with. It makes no sense to me to have these young people come out of college with hundreds of thousands of dollars of indebtedness. It's just not right."

He would also like to see veterinary graduates incentivized to go into large animal medicine. Killian served in the Arizona Legislature from the early '80s to the middle '90s and recalls several states using incentives to encourage medical students to locate in rural areas after their residencies. He says these programs might be a starting point to develop similar programs in veterinary medicine.

"It would require an act of the Legislature to do that, and again it gets back to the biosecurity of our food products," he says. "People need to wake up and understand that's a very important thing and it is something we need to pursue."

Killian says he's frustrated that Americans haven't created more publically owned veterinary schools. Because of the resulting competition making it more expensive to get into veterinary school, "I think we've precluded a lot of kids in the rural areas who normally may have been able to go to veterinary school," he says. "I think we lost out on a lot of potential veterinarians." **dvm360**

Portia Stewart is a freelance writer in Lenexa, Kan.

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See more photos of Chips when she was rescued from last summer's wildfire.

California

Orphaned in wildfire, bobcat released back into the wild

'Chips' was found last summer in a wildfire in Plumas National Forest.

A bobcat found injured and orphaned as a 4-week-old kitten during the Chips wildfire last summer in Plumas National Forest in California is now a healthy 8 months old and was released back into "bobcat territory" in the Lassen-Plumas region April 19. Found by the Mad River Hand Crew Aug. 25, 2012, the kitten was named Chips after the wildfire. Having suffered second-degree burns on all four paws and with infected eyes, Chips was taken to the Lake Tahoe Care Center and then transferred to the Sierra Wildlife Rescue in Placerville, Calif., in November. A release by the Sierra Wildlife Rescue says she grew up eating, playing, wrestling and competing with her den mates, as a proper bobcat kitten should. Chips was eventually judged by experienced rehabbers to be ready to be returned to her natural habitat. She was released with a male bobcat, a den mate also found orphaned around the same time, who is about the same age.

>>> Chips, now 8 months old, was cleared for release from her temporary home at the Sierra Wildlife Rescue in Placerville, Calif. She was reintroduced to her natural habitat in the Lassen-Plumas region April 19. Left: Chips at 4 weeks.

PHOTOS COURTESY OF SIERRA WILDLIFE RESCUE; UGA COLLEGE OF VETERINARY MEDICINE

Colorado

Colorado State University's new Equine Reproduction Lab celebrated its grand opening April 26. The new 12,200-square-foot facility replaces the original main laboratory destroyed by a fire in 2011. Insurance coverage and donations funded the $5 million reconstruction of the building.

Georgia

The University of Georgia (UGA) College of Veterinary Medicine lost a professor and leader after Bruce Hollett, DVM, MS, died of cancer April 23. Hollett specialized in theriogenology and equine practice but was known also as veterinarian to the university's beloved line of bulldog mascots. The eighth bulldog in the Uga lineage was even named "Big Bad Bruce" in honor of Hollett.

An alumnus of UGA, Hollett earned his doctor of veterinary medicine in 1972, followed by a master's degree in physiology and pharmacology from Purdue University in 1975. Hollett found his way back to UGA in 1989 as an equine veterinarian and joined the College of Veterinary Medicine faculty in 1991 serving as director of continuing education for 22 years. "Dr. Hollett was admired and respected locally and nationally for his expertise in veterinary medicine," reads a release by the College of Veterinary Medicine. "A true gentleman in every sense of the word, his positive outlook, compassionate nature and friendly demeanor were enjoyed by all who knew him. We will miss our dear friend and colleague."

Dr. Bruce Hollett

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Veterinarian's sex crime costs new practice owners

New York pet hospital awarded lost profit after previous owner's conviction for soliciting sex from a minor.

An appellate division of the New York Supreme Court recently upheld a decision awarding the owners of Animal Care Hospital in Vestal, N.Y., $89,030 in lost profits after the practice's previous owner was arrested and convicted for soliciting sex over the Internet from an undercover police officer posing as a 13-year-old girl.

Animal Care Hospital's original owner, Timothy Fitzpatrick, sold the practice to Ted Sprinkle, Tom Butera and Lance Sprinkle in December 2004 for $1.7 million, including $908,000 for goodwill value, according to the court's decision. Fitzpatrick was arrested in Fairfax, Va., a few months later, in March 2005.

Because he was a well-known veterinarian in the community, the decision states, "local television news broadcast the report of plaintiff's arrest, television crews appeared in the parking lot of the Animal Care Hospital, and reporters interviewed clients as they came and went from the practice soliciting reaction from patients of the hospital to the plaintiff's arrest."

About $400,000 of the purchase was financed by Fitzpatrick through a personally guaranteed promissory note, and the new owners failed to pay him in April and May 2005. So Fitzpatrick declared them in default and accelerated the note. Animal Care made up the late payments and continued paying until April 2007, when they stopped altogether, court documents state. Fitzpatrick sued to recover the outstanding balance plus accelerated interest and legal fees.

Animal Care then entered a counterclaim, alleging that Fitzpatrick's arrest constituted a breach of the purchase agreement and seeking compensation for the resulting damages to practice profits and value. During the ensuing trial, Fitzpatrick claimed that he did not intend his conduct to harm the value of the practice and therefore he had not violated the agreement. The state Supreme Court did not agree.

"Incredulously, plaintiff attempts to distinguish his intentional conduct from the goodwill of Animal Care Hospital by arguing that his acts of soliciting a minor for sex over the Internet and then attempting to meet that minor in person were not done by him 'intentionally' in order to 'directly' impair the business," the court's decision reads. "There is no question in this court's mind that plaintiff's conduct leading to his arrest and conviction was an intentional act on his part."

The appeals court upheld this finding, stating that "such an interpretation is contrary to the plain meaning of [the purchase agreement], and Supreme Court properly determined that the conduct that led to plaintiff's arrest and conviction constituted a breach of the [agreement]."

Animal Care brought in veterinary consultant Gary Glassman, CPA, as an expert witness to calculate the practice's losses during the one-year period between Fitzpatrick's arrest and conviction. Glassman calculated a 15.8 percent decrease in profit amounting to $89,030. The appellate court upheld the New York Supreme Court decision awarding $89,030 to Animal Care for loss of profit. However, it also found that the new owners had to pay Fitzpatrick the remaining balance on the loan, albeit without accelerated interest and offset by the damages awarded.

According to Fairfax, Va., news reports, Fitzpatrick was sentenced in July 2010 to one year in jail and ordered to pay a $2,500 fine.

Find it all here. dvm360.com

More bad behavior—horses seized

More than 60 horses and up to 30 carcasses in varying states of decay were taken from Carolyn Vaughn's property. Law enforement described the property as "appalling." Read more at dvm360.com/vaughn.

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>>> Apollo College veterinary students examine a camel with impaction in Dayarampura Village in India.

Eat, pray, practice

This veterinarian's journey came full circle when he returned to India to open the first private veterinary college in his homeland. *By Ashley Barforoush*

When Srinivasan Ramanathan, DVM, had the opportunity go to the United States he could hardly believe it.

"I thought, 'Wow, I have really gone to heaven.' I could have flown there myself because I was so happy," Ramanathan says.

Like most children in Chennai, India, Ramanathan grew up with livestock nearby, and this played a significant role in why he wanted to become a veterinarian. When he was 8 years old his family's landlord owned three cows. He witnessed firsthand a veterinarian bringing new life into this world—and he was hooked.

"That was the magic moment. I thought this would be a great profession to be in, and 50 years later I still feel the same way," Ramanathan says.

He graduated from a veterinary college in Chennai, but Ramanathan felt the best training and educational opportunities were in America. So in 1978 when a humane society called Associated Humane Societies offered him an internship in Newark, N.J., he didn't hesitate. After that experience, he took all of the American licensing exams and practiced in Virginia and Florida before settling down in Pennsylvania. Before he knew it he was running three veterinary practices simultaneously.

"I'm getting choked up—America is the greatest land with the greatest opportunities," Ramanathan says.

Little did he know he'd be presented with an opportunity that would take

>>> Apollo College is the first private veterinary college not only in Rajasthan, but in the entire country of India.

dvm360.com Find it all here.

Journey to India

Srinivasan Ramanathan, DVM, welcomes all veterinarians to come share their knowledge with the students of Apollo College of Veterinary Medicine. Visit dvm360.com/apollo for more pictures and information.

PHOTOS COURTESY OF SRINIVASAN RAMANATHAN

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>>> **Left:** Srinivasan Ramanathan, DVM, is shown doing what he loves most—surgery. He's performing a tumor removal on a police officer's Labrador retriever. **Below:** Mayank Lamba, DVM, attends to an elephant with a severe abscess.

him right back to his roots. In 1997, the chief minister of Rajasthan, India, came to the United States and shared his goal of opening a veterinary college—and asked Ramanathan for help. At that time, there was only one veterinary school in Rajasthan and, like all colleges in India, it was government-owned.

"Veterinary medicine in India is in high demand, just like in America, and there's a short supply of veterinarians," Ramanathan says. "The chief minister had the vision: If the government cannot supply the need, why not go to the private sector?"

Ramanathan says his American colleagues thought he was crazy to attempt such a feat in a country with so many bureaucratic issues, social class norms and limiting constraints. However, he decided to follow the teachings of Mahatma Gandhi and accept the challenge to return to the land of his own work—he knew the invaluable role veterinarians and animals play in India's livelihood. With a population of more than one billion, India is a very large country and there are many mouths to feed, Ramanathan says.

"My mother was always encouraging us, 'Whenever you can, do something for the common good.' Then, she said, everybody will be more in harmony with each other and there won't be so much of a caste system, social status and discrimination," Ramanathan says. "So that was in me. When this opportunity came, I was quite inspired."

He joined the education initiative and became a cofounder of the Apollo College of Veterinary Medicine. It's the first private veterinary college not only in Rajasthan, but in the entire country, Ramanathan says. In 2003, the college opened in a rented building and by 2006 the school's campus was finally completed. It's a five-year veterinary medicine program that students can apply for right out of high school. The school accepts 60 students annually, but receives 400 to 450 applications every year.

"American schools emphasize the hands-on, practical application," Ramanathan says. "This was my chance to bring the American experience to make small but steady progress towards better patient care in India."

Apollo College adopted several villages nearby and students and staff visit these communities to provide veterinary care to livestock. They commonly treat a large population of working animals: camels, horses, donkeys and so on.

"If there are any serious issues or surgical problems, we bring them to the large animal hospital, but most of the problems are solved at the farmer's doorstep," Ramanathan says.

He says if an animal is suffering, the problem goes beyond love and compassion—it's losing its economic value for the owner. Recently, a villager brought in an elephant with a severe abscess.

"These are all folks who don't have much, but this elephant is part of their economic reality. There are five or six families dependant on this one animal to make a living," Ramanathan says.

Students don't do any diagnosis on the animals, but they do actively assist clinicians. In the elephant's case, they cleaned the abscess and packed it with gauze. All of these skills and experiences add up, Ramanathan says.

"They touch the patients and in many other colleges in India that is simply not the case," he says.

Ramanathan says that the Apollo College supports former Prime Minister Jawaharlal Nehru's initiative to help India take the forefront in technology. The prime minister was passionate about starting the Indian Institutes of Technology (IIT), which Ramanathan says is the flagship institute to bring India's agro-economy-based country into the technological world. IIT graduates are some of the greatest leaders in America and the rest of the world in their chosen field, he says.

"My dream was to create that in the veterinary sector," Ramanathan says. "And that's exactly what God has given me—an answer to that prayer." **dvm360**

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The Internet Vet

The Institute for Justice has taken up the cause of Dr. Ron Hines, suspended after dispensing veterinary 'advice' through his website, claiming it violates his right to free speech. *By Julie Scheidegger*

Forced to leave private practice 12 years ago, Ron Hines, DVM, PhD, decided to take to the Internet. He launched a site, 2ndchance .info, to publish articles on animal health and soon began answering specific medical questions from his readers.

Now a resident of Brownsville, Texas, Hines was recently found to be in violation of the state's veterinary practice act due to the "Ask a Vet" component of his website. The Texas Board of Veterinary Medical Examiners executed a disciplinary order March 25 to cease his veterinary correspondence and suspend his license with probation for one year.

Now, with the muscle of the Institute for Justice civil liberties law firm behind him, Hines is suing the Texas veterinary board for violating his First Amendment right to free speech.

A little friendly advice

The Texas state board calls Hines' actions practice. The Institute of Justice contends they constitute free speech. According to Hines, he's just giving friendly advice.

Institute for Justice attorney Jeff Rowes has taken Hines' case against the Texas board. He contends the veterinary practice act attempts to regulate what is nothing more than speech. "All Ron's doing is communicating with grown adults about things they wanted to hear and the First Amendment protects that," Rowes says. "It doesn't matter what you call it—does he practice, advise or anything else—he's communicating and it cannot be banned unless there's a compelling reason to do so."

The state board, however, says that while it has no problem with the sharing of general veterinary knowledge, Hines crosses the line into the practice of veterinary medicine when addressing the medical inquiries of a specific patient and breaks the law in doing so without a physical examination. "We believe the state law is very clear," says Texas Board of Veterinary Medical Examiners Executive Director Nicole Oria.

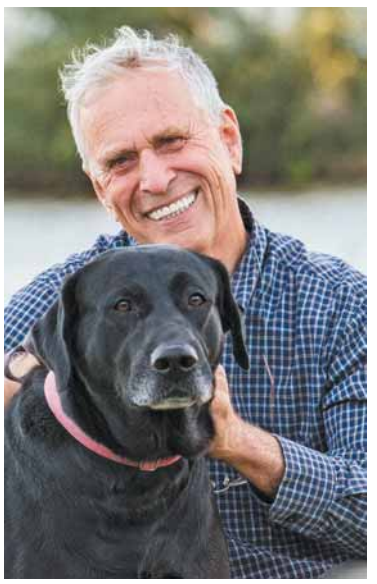
State law requires a patient-client-veterinarian relationship established by a physical exam to practice veterinary medicine. A state statute adopted in 2005 further defines that the relationship cannot be established by electronic means.

Rowes' rebuttal? The veterinary practice laws are antiquated. "Technology has obliterated traditional geographic borders," he says. "It is now possible for someone like Dr. Hines in Texas to communicate effectively and cheaply with anyone in the world. It's protected by the First Amendment and cannot be stopped by obsolete regulatory approaches. All Dr. Hines is doing is talking to another adult. It can't be arbitrarily restricted by the Texas government by calling it practice—it's speech no matter what you call it."

Hines says he's never tried to define practice; he'll leave that to his lawyer. "It's not my high card, this type of bureaucracy and legal hair-splitting," Hines says. "I'll let other people decide what the definition of practice is."

He says he's simply lived by the golden rule—he's tried to do what he thought was right. "Animals have been the center of my life. If someone asked me a question, I told them what I would do if it were my pet," he says.

Hines makes the process sound benign, even undeserving of so much attention, but for Rowes, it's huge. "His legal challenge addresses one of the most important unanswered questions in First Amendment law: When does the power of state governments to regulate occupations within their borders justify censoring personal advice?" Rowes says. The outcome could bolster or dismantle what has been a fundamental tenet of veterinary practice upheld by the American Veterinary Medical Association (AVMA) and state boards across the country and its effects could be far-reaching. "I never expected to be in federal court or to get cross-wise with the Texas board," Hines says. "But I sure did."



Ron Hines, DVM, PhD

A second chance

Forbidden to answer e-mails from his website that continue to fill his inbox, Hines, nearly 70, spends his time tending to beehives at his home. He tinkers with his 1953 MG TD. Occasionally he'll write an article for his website, but he finds it difficult to leave e-mails unanswered. "I never know if one of those e-mails is actually from the board," he says.

Still, Hines' connection to the veterinary world makes him feel useful and relevant, he says. He's had some hard times—when he was living and practicing in Florida, he faced allegations of gross medical negligence and practicing veterinary medicine under the influence of narcotics by the state board in 2003. His Florida license was lost to emergency suspension in February of 2004. His marriage fell apart and the divorce proceedings forced him to sell his animal hospital and the real estate for his animal refuge, named 2nd Chance.

Hines is permanently disabled due to a fall that crushed his spine while he worked at a primate facility with the U.S. Public Health Service in 1973. He took prescription painkillers under the care of his doctor to manage chronic pain. Despite his disability, Hines said he couldn't walk away from veterinary practice. "I enjoyed working with animals. I didn't want to stop. It wasn't easy," he says. Managing the pain kept him on his feet and working. "I probably ended up taking more than I probably should have," Hines says. "They decided I needed to go to a program to manage it."

Hines entered a rehabilitative peer assistance program and within the year forfeited his Florida license and moved to Texas to be near his mother. "That was a difficult time in Ron's life," Rowes says. "I don't think it implies that he isn't an excellent veterinarian. It's a footnote."

Hines was granted clearance to practice veterinary medicine in 2006 and activated his Texas license. He says in light of everything that happened, he stayed too long in private practice. "I probably should've gone to the Internet earlier," he says.

His mission

Hines says he's called to do veterinary work through his website. He believes he is helping people and animals and that what he does is healthy for the profession.

He says before today's techno-

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logical advances, it was necessary for veterinarians to be on site to physically examine an animal, but he now believes he can be helpful without laying hands on the pet. "Times have changed," he says. He encourages clients to send him whatever medical records and information they have, including lab reports and photos. He says he always recommends clients visit their local veterinarian.

Rowes argues that Hines is at least licensed to execute profession judgment. "People ask him a question and he does his very best within the constraints of the Internet to help," he says. "[The law says there's] no circumstance to execute that judgment without that physical examination and that's just false. A licensed veterinarian is trusted to give relevant professional advice under the circumstances. If a veterinarian can give good advice under the limitations of the Internet, that should be perfectly legal."

Those limitations are acknowledged on the site's "terms of use" page, which explains that he cannot be a reader's veterinarian. "Because he does not actually get to examine your pet, a doctor-patient-client relationship will not exist between you and Dr. Hines and it is not his intention to establish a veterinarian-client-patient relationship or engage in the practice of veterinary medicine as defined by Texas law," the disclaimer states. Hines and Rowes maintain he is not "practicing" veterinary medicine on the Internet. "I never claimed to be able to treat animals over the Internet. I don't have special powers or anything," Hines says.

But that's not good enough for the Texas board as long as he is giving advice to clients regarding a specific patient. "There are things that you couldn't possibly know without doing an exam. It is difficult often for the public or even a veterinarian when they haven't seen an animal," says Oria, the Texas state board director. "An exam is an essential part and you can't do that by electronic means."

Hines says he is simply giving his clients more information when his general articles on animal health aren't enough. Hines says he often explains what a veterinarian tells the client so they better understand it.

He says it's hard for people to accept when a veterinarian says he or she can actually do very little to help a pet when it's seriously ill. "They need someone to rely on, someone to trust, and I try to let them down gently," he says. "You wouldn't believe some of the things people write me. I try to be a pastor to them. Sometimes I tell them they're doing the right thing. People like to hear that."

He says he simply doesn't understand why this practice is illegal and hopes a younger generation of veterinarians will follow in his footsteps. Hines doesn't know how much longer he'll continue working, but he says if the court rules in his favor, he'll be back answering e-mails. "If my health holds out, as long as I have something to contribute, I'll do it," he says. dvm360

Q&A: The importance of an in-person relationship

Veterinarians who have a strong Internet presence, such as Andrew Roark, DVM, frequently encounter followers and fans who solicit veterinary advice in online forums. But Roark says that despite all the advances in technology, until pets can talk, the physical exam is still essential.

Q: How do you handle clients who seek veterinary 'advice' over the Internet?

A: E-mail, text, and social media posts are good ways to share information. They are not, however, good ways to explore issues. Too many nuances both in the clinical signs and in the communication process are left out in digital communication. This point was recently made by the American College of Physicians, so veterinarians aren't the only ones dealing with this issue.

For this reason, I have language on my public Facebook page (www.Facebook.com/DrAndyRoark) that says, essentially, "If you are concerned enough to post a question on a doctor's Facebook page, then you are concerned enough to give your local veterinarian a call." If people contact our clinic through e-mail or our Facebook page, we call them or encourage them to call us. If they contact me with specific (or even general) medical questions on my own public Facebook page, then I do not respond (unless this person is one of our clients, and then I call or encourage them to call me). In an emergency, I would instruct people to seek care immediately, but that's about it.

Q: Is the exam essential for a relationship?

A: Pets can't tell us how they're feeling or what they've done. If you can't do a physical examination on a pet with some regularity, then you don't know that pet. In human medicine, unexpected findings on routine examinations are rare. This is because people are fully capable of saying things like "My ear hurts." For that reason, a physical exam is the only way to develop a real relationship with a pet. We need to put our hands on the pet regularly and whenever illness occurs.

Q: Do you think technology will ever reach a point that renders a physical examination unnecessary?

A: There is no substitute for seeing a pet in person and laying your hands on him or her. Unless technology can make pets as intelligent as humans and give them the ability to talk, this will not change. **dvm360**

>>> Members of the Texas A&M Veterinary Emergency Team (VET) attend to animals affected by the fertilizer plant explosion in West, Texas, April 17.

Veterinarians respond to deadly explosion at Texas fertilizer facility

Local clinics, Texas A&M emergency team work to care for the animals of West, Texas. *By Julie Scheidegger*

A massive explosion at the West Fertilizer Co. in West, Texas, April 17 created a wave of destruction that ripped through the small town, leaving 15 dead and more than 200 injured in its wake. The impact was felt everywhere. Just a few miles down Interstate 35, the staff at Mid Texas Veterinary Clinic—inundated with animals injured or in need of shelter—mourned for a coworker who had lost her father, a first responder.

While residents grappled with the tragedy around them and rescue teams continued the desperate search for survivors, a full veterinary response was also engaged. The Texas A&M Veterinary Emergency Team (VET) was deployed at 3:30 a.m. Thursday, April 18.

"You got on the phone: Can you deploy, yes or no?" says Wesley Bissett, DVM, assistant professor at the College of Veterinary Medicine and Biological Sciences and VET director, of his early morning assembly. The crew consisted of five veterinarians, four veterinary technicians, four senior veterinary medical students and three support staff.

"We can provide a fairly sizable response if it becomes necessary," Bissett told *dvm360* from his cell phone less than a half-mile from the explosion site. "We've got two of our trucks deployed on this event. A field response/ambulatory truck outfit is ready to go as well." The team's mission was twofold: provide veterinary support for the six dogs working on the search and rescue mission and care for animals injured in the disaster.

Several blocks from where the fertilizer facility still smoldered, glass was out, doors were blown in, structures crippled on the ground. But right then, it was quiet. The team didn't see too many patients the day after the explosion. "Right after the event, you won't see animals," Bissett says. "As time passes they'll come out."

The quiet of Thursday morning didn't last long. "Search and rescue teams are out there identifying animal issues. We're already seeing those reports come in," Bissett told *dvm360* the next day. Some animals needed medical attention; some just needed to be processed so they could be reunited with their owners.

"The response is organized very well and we've got animal control intercepting a number of animals," Bissett says. "Any animals that are picked up or are found come through us to get a clean bill of health before they go to the shelter." The team triaged, treated, evaluated in the field, and assisted with

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>>> The response crew consisted of five veterinarians, four veterinary technicians, four senior veterinary medical students and three support staff. One trailer in the fleet of emergency response vehicles used by the Texas A&M Veterinary Emergency Team is pictured at left.

The structural damage to homes around the blast site left many residents and pets homeless. The sound and force of the explosion also spooked many pets into hiding.

the evacuation of approximately 121 animals from Thursday to Saturday.

Jaye Meurer, whose husband, Tom Meurer, DVM, owns West Animal Clinic in the small town, says many pets went missing. "We've had several people call to say they've lost their pets," Meurer says. The structural damage to homes around the blast site left many residents and pets homeless. The sound and force of the explosion also spooked many pets into hiding.

"Certainly, that's going to be an issue," Bissett says. He says the Waco Humane Society coordinated an emergency sheltering plan. "They [the animals] will be sheltered with all intents of reuniting—to bring owners and animals back together." Photos of found animals were displayed on the organization's Facebook page (facebook.com/HumaneSocietyCentralTexas) and listed on CenTexLostPets.org to try to reunite owners with missing pets.

Acting as one integrated system with the search and rescue teams, animal control officers and the VET group all working together was critically important, Bissett says. "It allowed animal issues to be identified and dealt with almost immediately," he explained.

Fortunately, none of the animals brought to the emergency team ended up having severe injuries. The most common injuries were lacerations and abrasions, along with some dehydration.

Bissett says that amidst this disaster, it was a bright spot to see the work of the senior students deployed with the team. "I see them pitching in and carrying the torch of our profession, and that makes you really, really proud," he says. Once the team was deployed, Bissett got e-mails from students all day wanting to join up.

"We got really good support for this effort," he says. "You got lots of people standing up saying they want to help." In fact, Texas A&M includes an emergency response course in its veterinary school curriculum. "Every single student goes through a two-week period where they're immersed in emergency response," Bissett says. "We're prepared for this."

However, this disaster was different from those the team is usually deployed on. "They're not all large responses—some are very small," Bissett says. This was both. "Geographically, it's not that big of an area affected—but it was a tremendous blow. It's a lot different than a big wildlife response. It's contained but very severe."

Bissett says the community of West is dealing with a great deal, but the residents' strength and perseverance are astonishing.

Meurer and West Animal Clinic are evidence of that perseverance. "It's hard, but we're managing," Meurer says. The veterinary practice considers itself lucky; no staff members lost homes or suffered injuries in the blast.

"You know as Americans we have such an indomitable spirit," Bissett says. "While you see sadness and a little bit of shock, you see a determination to recover. It's an inspiring thing to behold." **dvm360**

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See brief summary on page 28.

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Ex-veterinarian charged with 48 counts of animal cruelty in New Mexico

Clopton ordered to pay $27,000 for care of seized dogs; evidence points to practicing without license. *By Julie Scheidegger*

A raid April 1 of a modest three-bedroom home rented by Debra Clopton in Edgewood, N.M., revealed it to be crowded with 48 dogs in unsanitary conditions. The Santa Fe County Sheriff's Office had been investigating Clopton, a veterinarian whose license has been revoked, for about a month before she was served with a warrant allowing officers to seize animals and anything that could be used to practice veterinary medicine from her home. Clopton was charged with 48 counts of misdemeanor cruelty to animals. Charges of possession of controlled substances are expected to follow pending analysis.

Major Ken Johnson of the Santa Fe County Sheriff's Office says most of the nearly 50 dogs were inside the home. "There was evidence of dog feces and canine waste throughout the house—extremely filthy," Johnson says. Officers teamed with the Doña Ana County Animal Cruelty Task Force to execute the warrant.

Members of the task force evaluated the animals and managed their safe transition to the Santa Fe Animal Shelter and Humane Society. The dogs' conditions varied from fair condition to poor, Johnson says. Three dogs had to be euthanized.

The New Mexico Board of Veterinary Medicine revoked Clopton's veterinary license June 11, 2012. Documents provided by the board show that she was notified of this pending decision in September 2011 and January 2012—both notices went unanswered. Clopton did not request a hearing or attempt to rebut the allegations against her in either case. The board cited incidents in

2009 and 2011 where Clopton failed to produce or forward patient laboratory results, failed to keep adequate medical records and failed to provide follow-up prescriptions or refills. With sufficient evidence to proceed without a hearing, the board revoked Clopton's license to practice veterinary medicine.

However, Johnson says investigators found evidence of veterinary practice at Clopton's Edgewood home, including veterinary records, receipts and billing information. Euthanasia solution was also found in her possession. Without an active veterinary license Clopton also had no valid registration with the U.S. Drug Enforcement Adminstration.

Prior to the raid on Clopton's home, reports indicated she was practicing veterinary medicine without a license. This prompted the board to file a petition for preliminary and permanent injunction against Clopton in March. The request reads in part that "without an injunction … [Clopton's] illegal conduct will continue." It requests the law hold Clopton in contempt and impose a fine or jail sentence should she fail to comply with the terms of the injunction. It also asks for "any additional relief to which the board may be justly entitled."

Santa Fe County also took to the courts to hold Clopton responsible for the financial burden of boarding the animals, requesting in district court that Clopton pay for the animals' care at Santa Fe Animal Shelter. "The fees that are amassing are $20 a day per animal. It roughly comes out to $900 a day," Johnson says. The court ruled in favor of the county, ordering Clopton to pay $27,000 or relinquish ownership by May 15.

If Clopton relinquishes ownership, the 48 animals will be considered abandoned property and available to adopt. As of May 9, four dogs have had litters upping the shelter population by two dozen. A district judge ruled ownership of the new puppies to the Santa Fe Animal Shelter and Humane Society. They will be available for adoption soon.

Clopton is out on bond. **dvm360**

>>> The Santa Fe Animal Shelter keeps the public updated on the 48 dogs that were seized from ex-veterinarian Debra Clopton's home on its Facebook page. "We hope [Clopton] will do the right thing and relinquish them to us now so we can work with them and find them great homes," Major Ken Johnson says.

The shelter is anxious to resolve the situation, because the "Edgewood 48" will soon be more. "Five dogs are confirmed pregnant so that means in three weeks the 48 will be plus around 30," an April 24 Facebook post reads. "If we get custody of the dogs we will be looking seriously for foster homes for these moms and pups but for now we can do nothing but support them the best we know how."

PHOTOS COURTESY OF THE SANTA FE ANIMAL SHELTER AND HUMANE SOCIETY

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[1]Data on file.

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Studies call neutering of pets into question

Research highlights sterilization downside, spurs discussion in veterinary community.

By Heather Biele, DVM

For many veterinarians, recommending spaying and neutering comes so easily it hardly merits a second thought. But recent studies out of the University of California Davis and the University of Georgia have challenged that autopilot approach.

In February, researchers at UC Davis published a study in the online journal *PLOS ONE* that observed the effect of spaying and neutering on the development of certain cancers and joint diseases in golden retrievers. The medical records of 759 client-owned intact and neutered female and male dogs between the ages of 1 and 8 were examined for the diagnosis of hip dysplasia, cranial cruciate ligament tear, lymphosarcoma, hemangiosarcoma and mast cell tumor. The dogs were classified as intact, early-neutered (before 12 months old) and late-neutered (at or after 12 months old).

All five diseases were found to be significantly higher in the neutered population. One of the most dramatic findings was that 10 percent of early-neutered male dogs were diagnosed with hip dysplasia, twice the percentage seen in intact males. Early neutering was also associated with an a greater incidence of cranial cruciate ligament tear and lymphosarcoma in male dogs and cranial cruciate ligament tear in females. There was also a greater occurrence of mast cell tumor and hemangiosarcoma in late-neutered compared with intact females.

Comparatively, the study out of the University of Georgia, also published in *PLOS ONE*, looked at a sample of more than 40,000 canine death records to determine the effect sterilization may have on both lifespan and cause of death, while controlling for the effects of age. The results showed that while sterilization increased the lifespan of dogs, it also increased the risk of death from cancer or autoimmune diseases. However, researchers recognized that a direct link between sterilization and the study outcomes could not be made, as a number of unknown factors, including the age at which the animal was sterilized, potentially added bias to the results.

Neuter or not?

Given the results of these studies, some veterinarians are wondering if they should alter their message promoting spaying and neutering of dogs and cats. Karen Overall, VMD, PhD, DACVB, a well-known author and speaker on behavioral medicine, was immediately concerned upon seeing the results of the UC Davis study. "Now everybody is going to stop neutering their dogs," she thought.

But after reviewing the study results and consulting with colleagues about it, Overall isn't wavering in recommending spaying and neutering to pet owners. She will, however, continue to emphasize the importance of treating each pet as an individual case.

"If an animal is going to go out and get into fights because it's intact, that case requires intervention. That animal is going to roam and fight and get hit by a car. We've done that animal no favors by not neutering it," she says. "On the other hand, if that animal doesn't display any of those behaviors, then we should go through the relative risks and medical concerns of not neutering with the owner."

Jessica Vogelsang, DVM, a veterinary blogger and contributing author for a number of publications, also pored over the study results and came to a similar conclusion—each case should be considered individually. Vogelsang notes in her blog, pawcurious.com, that while many intelligent, educated pet owners will make an informed decision whether or not to neuter, there are pet owners who make less informed if not poor decisions about pet care. If an owner isn't interested in basic preventive care and training, she's concerned that this person won't be responsible with an intact pet. For those owners, her recommendation to spay or neuter the pet is a given.

Stay on task

Although Overall's and Vogelsang's approaches to spaying and neutering won't be affected by the results of the UC Davis study, Overall is concerned that the study outcomes may leave many veterinarians on unsteady ground with regard to their recommendations. "What worries me is that veterinarians aren't going to have good answers for pet owners and clients," she says. "I'm worried this study is going to take a lot of energy out of the conversation that we've worked so hard to deliver."

Concerns aside, Overall stresses that veterinarians should focus on each animal individually and take quality of life, safety and public responsibility into account as they evaluate and make recommendations. With this mindset, they really can't go wrong. **dvm360**

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AVMA reports excess capacity

> Continued from page 1

Present for a telephone press conference to discuss the report were Michael Dicks, PhD, director of the AVMA Veterinary Economics Division; Link Welborn, DVM, chairman of the AVMA Workforce Advisory Group; and Douglas Aspros, DVM, AVMA president. The bottom line? The AVMA is working to develop strategies to address economic problems and increase demand for veterinary services. The recently established Veterinary Economics Division of the AVMA is tasked with that mission.

The AVMA hopes the profession will better understand itself economically by sourcing more and previously lacking data in order to combat problems such as excess capacity. The new Veterinary Workforce Simulation Model is designed to aid in that. "As we come up with strategies to reduce the excess capacity in the industry, this model will be able to tell us if we are succeeding or not," Aspros says. The model is an AVMA-owned, proprietary software program that will gather information pertaining to the supply and demand for veterinarians and veterinary services, as well as overall veterinary economics.

The AVMA hopes to gain statistics on those entering and exiting the U.S. veterinary workforce, find information on why female veterinarians are earning less, and even determine how much excess capacity is good for the profession. "We don't know what the optimal level of excess capacity is," Aspros says. Lowering the excess capacity of the average veterinarian could become a negative if a client called for an appointment and couldn't be seen right away.

The group assembled for the press conference says that despite the questions that remain and the gaps in data, the problem is excess capacity, not an overabundance of veterinarians in the workforce. "It's more complicated than saying there are too many or too few veterinarians—it's not that simple," Wellborn says.

They contend it is weak demand, not an overabundance of supply that is the problem. "I don't think you want to say we have too many veterinarians. It's a matter of veterinarians not running their practice at full capacity," Dicks says. "Incomes are falling and veterinarians don't feel like they're working full time."

The AVMA hopes that identifying factors that precipitate excess capacity will become clearer as data is analyzed over time with the Veterinary Workforce Simulation Model. Aspros says the one thing that is clear from the snapshot the study provided of the profession is that "without anything changing, the situation will get worse."

The study estimates the future supply of full-time veterinarians under the status quo will rise from 90,200 in 2012 to 108,900 by 2030. This takes into account the projected annual growth rate of new entrants into the profession at 2 percent—up to 4 percent when factoring in international entrants.

"While there's no question that the profession has challenges today, we don't want to scare off the best and the brightest," Dicks says regarding the study and the present state of the profession on current or prospective veterinary students. In contrast, he says, unemployment for veterinarians is quite low.

"As a profession we need to respond to those [challenges], but we shouldn't take it as the sky is falling—it's not," Aspros says.

He says the positive from this study is that while most agree the profession is facing a lot of negatives, it is willing to provide data to address problems. "We are in this together," Aspros says. "This is a pretty diverse profession. The concern that I have as a small animal practitioner is not necessarily happening in a vacuum. There is just concern about where we're going and that's a good thing, a necessary thing."

To view the 2013 AVMA Workforce Study, go to avma.org. **dvm360**

Too close to tragedy

> Continued from page 1

making my way over to the bus and I heard the first explosion," Sill says.

Since it was Patriots Day, she thought the noise was part of the festivities. "Most of us thought it was a cannon going off," Sill says. "And then another went off. We saw the smoke go up in the sky."

Dave Stevenson, DVM, of Abingdon, Md., finished about 10 minutes slower than he had hoped. "I was recovering from an injury. I hadn't run in three months," he says. Still, he finished the marathon—his 36th—with a time of 3:14:00. It had been a great day.

"I was on the shuttle back to the hotel," he says. "The driver said it just came through that something happened at the finish line. We didn't know what was going on. You think, 'I was just running there an hour ago,'" he says. "Everything was fine."

"I was making my way over to the bus and I heard the first explosion."
—Phyllis Sill, DVM

The news didn't get to Texas veterinarian Ward Conover, DVM, until he and his family turned on the television in their hotel room. Two bombs had exploded near the finish line. Nearly 300 people were injured; three—Krystle Campbell, Lingzi Lu and Martin Richard—were killed.

Like Stevenson, Conover finished about an hour ahead of the bombings. When he reached the finish line he looked around for his family, expecting to see his wife, Dianne, his children, Erica, Garrett and Kaleb, his niece and his sister-in-law smiling and cheering in the same location that later became a crime scene. "I looked right there in that area," Conover says.

Instead they opted to rejoin him in the family meeting area, and they lingered to enjoy the day before re-

See page 34

“I WAS MORTIFIED.”

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Too close to tragedy

> Continued from page 32

Dr. Dale Ottosen

turning to the hotel. "We left a few minutes before the bombs went off," he says.

Dale Ottosen, DVM, of Auburn, N.Y., had just made it into the finishing chute, conquering his third Boston Marathon. "I had a horrible race and finished an hour slower than I expected," Ottosen says. He was approximately 150 feet away when the first bomb detonated.

"I was standing there feeling sorry for myself and then there were people bleeding and dying on the sidewalk," Ottosen says. "Suddenly a silly foot race doesn't matter."

It was a scene of panic and tension as family and friends tried to find each other. It took Ottosen 45 minutes to find his increasingly worried family. They finally reunited in the family meeting area, everyone unhurt.

In the meantime, Sill was still searching for her husband. "I got my phone and got my gear, turned my phone on and saw that he had tried to call," she says. She clung to one thought: *Everything must be OK.*

Before long, no one could make or receive cell phone calls. "It was getting later and later," Sill says. She had no idea where Brad was or how to find him—or if he was hurt. "I was starting to get really nervous."

>>>Dr. Dave Stevenson before the start of the race.

Sill isn't sure how much time she spent searching, but it felt like an eternity. Finally, overcome with helplessness and exhaustion, she collapsed to the ground. She lay under a sign in the family meeting area, powerless to cope with the horrifying reality around her.

And that's where he found her. "I felt him grab me and pull me off the ground," she says.

>>> Dr. Ward Conover, shown here with his family, finished the marathon and left the area before the bombs went off.

Brad had seen the bomb go off right before his eyes. "He had just been there," Sill says, still choking back emotion. "Just minutes before, he moved to the other side of the street." Brad saw a woman he now believes to be Krystle Campbell thrown into the air by the blast.

He ran from the scene in search of his wife. They hadn't named a place to meet after the race. As he fought his way through the crowd, he was glad the wall of people shielded him from the sight of carnage from the blast. He tried to call his wife again. No answer.

He found a volunteer who took him to a computer to verify that she had in fact made it through the finishing chute. Cell phones were useless. Since they had no predetermined meeting spot, the volunteer told Brad to go to the family meeting area.

"He brought him over to the family area and that's where he found me," Sill says. Tears overwhelm her still at the memory—not of seeing her husband but feeling him grab her and pull her up from the ground where she waited. "I didn't know where else to go," she told him. They held each other and cried.

The big city of Boston suddenly felt small. Streets were blocked off. Security was everywhere. People were asked to stay in their homes, their hotels. All Stevenson could do was watch the news from his hotel room. "You kind of felt helpless just watching, not knowing what to do," he says. "I wish I could've been there to help people out. Not being able to get back to that area, it was hard."

Sill and her husband walked for blocks past cordoned-off streets trying to get to back to their hotel, all the while trying to get a call out to let family know they were safe. Their three children had been following her progress throughout the marathon at school with the AT&T Athlete Alert mobile app. They knew she had finished near the time of the bombing. "It was terrifying for them," Sill says. After 40 minutes of not knowing, a call went through to her brother-in-law, relieving their family's worst fears. Sill says they thanked God their family had not come with them.

"Very few runners were hurt," Conover says, "but their family members and friends were because they were there to watch them."

While the physical injuries sustained by the blast victims were severe, the guilt experienced by runners who brought family and friends along is also terrible. "Emotional scars go deep," Conover says. "That's where a lot of my prayers have been."

In the days after the race, Stevenson found it hard to keep his mind from going back to Boston. "You wonder why you weren't directly affected by it and others were," he says. "What determined why you were lucky and others weren't so lucky? You look back and wonder 'what if?' It's hard to think about. You start getting emotional and angry about it."

Ottosen has dealt with similar emotions. "The hardest part was one minute you're struggling up the street—people cheering you on—and then literally three minutes later some of them are badly injured," he says. "You feel angry, you feel sad, but in the end it makes you determined to go back next year. That's the best thing I can do."

Conover and Stevenson agree. They want to run the Boston next year. "These kinds of things are going to be in our world, but it can't deter us from doing the things that fulfill us in our life, whether it's running or walking your cat," Ottosen says.

Sill doesn't know if she'll return. She prequalified for next year's marathon, but she's undecided. "You don't want to be overrun by fear," she says, but right now, the "what-if"s linger.

"It could've been so easy to run a 4:10 instead of a 3:53," Sill says. She could have slowed down, to let her pace slip. But she knew her children were tracking her. Safe at school, they followed her every step. "They knew I wanted to come in before 3:55," she says. "That's extremely motivating."

When the plane touched down in Wisconsin less than 24 hours after she crossed the finish line, Sill broke down. "That's when I lost it. That's when it all sunk in," she says. All that had happened—how close they had been. How important the decision to leave their kids at home had become. Home and safe, she cried. "It was a perfect day just turned into a nightmare—it really was." **dvm360**

PHOTOS COURTESY OF DRS. DALE OTTOSEN, WARD CONOVER AND DAVE STEVENSON

Canine Cushing's Case Files:
THE INS AND OUTS OF DETECTION AND TREATMENT

Case file: YOUR VETERINARY TEAM'S ROLE IN TREATING AND MONITORING DOGS WITH HYPERADRENOCORTICISM

Veterinary team members are instrumental in communicating with your clients — during visits, on the phone, and through email and social media. Well-trained technicians and other team members can help reinforce veterinarians' messages to clients about signs of illness in pets, the advantages of early disease recognition and treatment, and the importance of follow-up care. Team members should understand hyperadrenocorticism, a common endocrine disease in middle-aged to older dogs, so they are comfortable communicating with clients who have pets that are affected.

The previous Canine Cushing's Case Files article reviewed what team members should know about canine hyperadrenocorticism (HAC, also known as Cushing's syndrome) to help veterinarians identify potential Cushing's patients. It also reviewed the diagnostic procedures that are needed to reach a diagnosis of HAC and the team's role in helping to explain the tests to clients. This article focuses on what team members should know about HAC to help veterinarians successfully treat and monitor dogs with this disease.

Your team supports treatment

Once canine HAC has been diagnosed, team members can reinforce the veterinarian's messages to clients about the importance of treatment. If left untreated, the clinical signs will progress, and HAC increases a dog's risk of developing serious problems such as chronic infections of the urinary tract, skin, and ears; diabetes; thromboembolic events; proteinuria; and hypertension. The treatment goal is to maintain a good quality of life by alleviating clinical signs and secondary medical conditions.

Teach your team about treatment options for canine HAC. VETORYL® CAPSULES (trilostane) are the only FDA-approved treatment for both pituitary-dependent hyperadrenocorticism (PDH) and adrenal-dependent hyperadrenocorticism (ADH) in dogs. The active ingredient

in VETORYL Capsules — trilostane — blocks an enzyme in the cortisol production pathway, which decreases cortisol in the body and reduces clinical signs. VETORYL Capsules are clinically effective in treating dogs with PDH and ADH; the drug does not, however, affect tumor growth.

Your team members can also share success stories with clients about other patients with HAC that have been treated at your practice. Clients like to know what to expect from treatment and appreciate hearing about other pets that are being successfully managed.

Your team supports monitoring

If patient management is to be successful, your team should reinforce your instructions to clients about VETORYL Capsules administration and the follow-up visits needed to assess their dogs' responses. Team members can reinforce the veterinarian's message that HAC is a disease that is managed rather than cured, and that dogs with HAC are treated for life and need to be monitored regularly.

Team members should also reiterate that occasionally a dog's dose of VETORYL Capsules might need to be increased, decreased, or temporarily discontinued to ensure effective treatment without side effects of hypocortisolemia. The need for such dose adjustments can only be determined through regular rechecks that include a physical examination and blood tests. Pet owners must understand these points to achieve successful treatment outcomes.

Before treatment begins, team members can suggest that either the pet owner or the clinic obtain pretreatment photos. Because a treated dog's physical improvements may take a few weeks to months to see, photos can help document response to treatment. And with an owner's consent, the photos may be used to show other clients when the team is sharing successful treatment stories.

Day 1 of treatment

Team members should reiterate the veterinarian's instructions to clients about how to give VETORYL Capsules. The drug is given once a day in the morning, and it should always be given with food to enhance drug absorption. The team should also be sure the client understands what changes to watch for in the pet at home.

Because VETORYL Capsules act by decreasing cortisol in the body, a patient may exhibit signs of hypocortisolemia, or too little cortisol, so team members must also reinforce the veterinarian's instructions to clients about what to watch for at home. Signs of hypocortisolemia include vomiting, diarrhea, lethargy/collapse, and loss of appetite.

Before the client leaves the clinic, a team member should schedule a recheck examination for 10 to 14 days after beginning VETORYL Capsules treatment. Team members can reinforce the veterinarian's instructions that each recheck visit will include a history, a physical examination, electrolyte concentration measurements, and an adrenocorticotropic hormone (ACTH) stimulation test.

Day 2 or 3

Two or three days after starting treatment, a team member should call the client to follow up and ask specific questions. Good questions to ask include:

- "Do you have any difficulty giving the medication?"

- "Are you giving the drug with food?"
- "Has the dog vomited or had any diarrhea?"
- "Have you noticed any changes in your dog's appetite?"
- "Have there been any changes in the dog's activity level?"
- "Do you have any questions for me or for the doctor?"

Team members should immediately report any improvement or worsening in clinical signs to the veterinarian and document the discussion in the dog's medical record.

Day 9 to 13

The day before the first recheck appointment, a team member should call the client with a reminder that VETORYL Capsules should always be given with food, even on the day of testing. Furthermore, the client should be told that timing of the ACTH stimulation test is important; the test needs to be done four to six hours after the dog is given VETORYL Capsules in the morning because maximum cortisol suppression occurs during that time. Thus, the team member should stress that the pet needs to be in the hospital and ready for blood testing at the appropriate time.

VETORYL® Capsules (trilostane) are the only FDA-approved drug indicated for the treatment of pituitary-dependent and adrenal-dependent hyperadrenocorticism (PDH and ADH) in dogs. Trilostane, the active ingredient, blocks hormone production in the adrenal cortex by competitive enzyme inhibition and is clinically effective in treating dogs with PDH and ADH; however, it does not affect tumor growth.

- The use of VETORYL Capsules is contraindicated in dogs that have demonstrated hypersensitivity to trilostane.
- Do not use VETORYL Capsules in animals with primary hepatic disease or renal insufficiency.
- Do not use in pregnant dogs. Studies conducted with trilostane in laboratory animals have shown teratogenic effects and early pregnancy loss.
- The most common adverse reactions reported are poor/reduced appetite, vomiting, lethargy/dullness, and weakness.
- Occasionally, more serious reactions, including severe depression, hemorrhagic diarrhea, collapse, hypoadrenocortical crisis or adrenal necrosis/rupture may occur, and may result in death.

Day 10 to 14

The 10- to 14-day recheck visit includes a history, physical examination, reevaluation of the dog's electrolyte concentrations, and an ACTH stimulation test. Before each ACTH stimulation test is performed, team members should confirm that the owner gave the VETORYL Capsules to the dog that morning, with food. If the owner did not do this, the recheck should be rescheduled. Team members can ask clients to complete a "VETORYL Capsules Monitoring Form" (*see boxed text "Readymade Tools for Training Your Team and Educating Clients"*) when clients present or drop off their dogs at the clinic for rechecks.

Each recheck visit allows team members and the veterinarian to talk with owners about how the pet is doing at home. Within two to four weeks of the start of treatment, the owners should begin seeing improvements in their dogs' clinical signs — increased energy levels, more normal water and food intake, and fewer accidents in the house or less frequent requests to go outside. Improvements in a dog's coat and skin will take three to nine months.

Team members can again help reinforce the veterinarian's message that a dog with HAC requires long-term treatment and routine monitoring. A need for a dosage change can only be determined by the veterinarian performing regularly scheduled physical examinations and diagnostic tests, along with a clear understanding of the clinical picture of how the dog is doing at home. Therefore, your team will be important partners with clients to ensure the dog is monitored carefully.

Before the client leaves, a team member should again schedule a recheck examination for the appropriate time — either 10 to 14 days after any VETORYL Capsules dosage change, or if the VETORYL Capsules dose is not changed, the recheck is scheduled for 30 days after beginning VETORYL Capsules.

Your veterinary team can help remind owners of the required follow-up visits by creating a recheck calendar. They can also schedule periodic phone calls to the client to see how the dog is doing at home. Furthermore, everyone on your team needs to emphasize that the pet should return immediately to the practice any time the dog becomes ill or if signs of HAC recur.

Four weeks and beyond

Once an optimum dose of VETORYL Capsules has been reached, dogs need to be reevaluated at regularly scheduled recheck visits at 30 days, 90 days, and every three months thereafter, OR 10 to 14 days after any change in the dose of VETORYL Capsules.

The day before each recheck appointment, team members should call clients to remind them that VETORYL Capsules should always be given with food, even on the day of testing, and that the ACTH stimulation test needs to be done four to six hours after the dog is given VETORYL Capsules.

Listening to clients is a key component of successful VETORYL Capsules treatment. Technicians and receptionists have prime opportunities to help veterinarians assess the health of pets receiving VETORYL Capsules. Team members are the veterinarian's frontline eyes and ears, and at each recheck visit, a team member should specifically ask clients

- "Do you feel like your dog's previous clinical signs are well-controlled?"
- "Has your dog exhibited any new signs or conditions that concern you?"

Team members should report the answers to the veterinarian and should know that any signs such as vomiting, diarrhea, lethargy, or anorexia must be investigated.

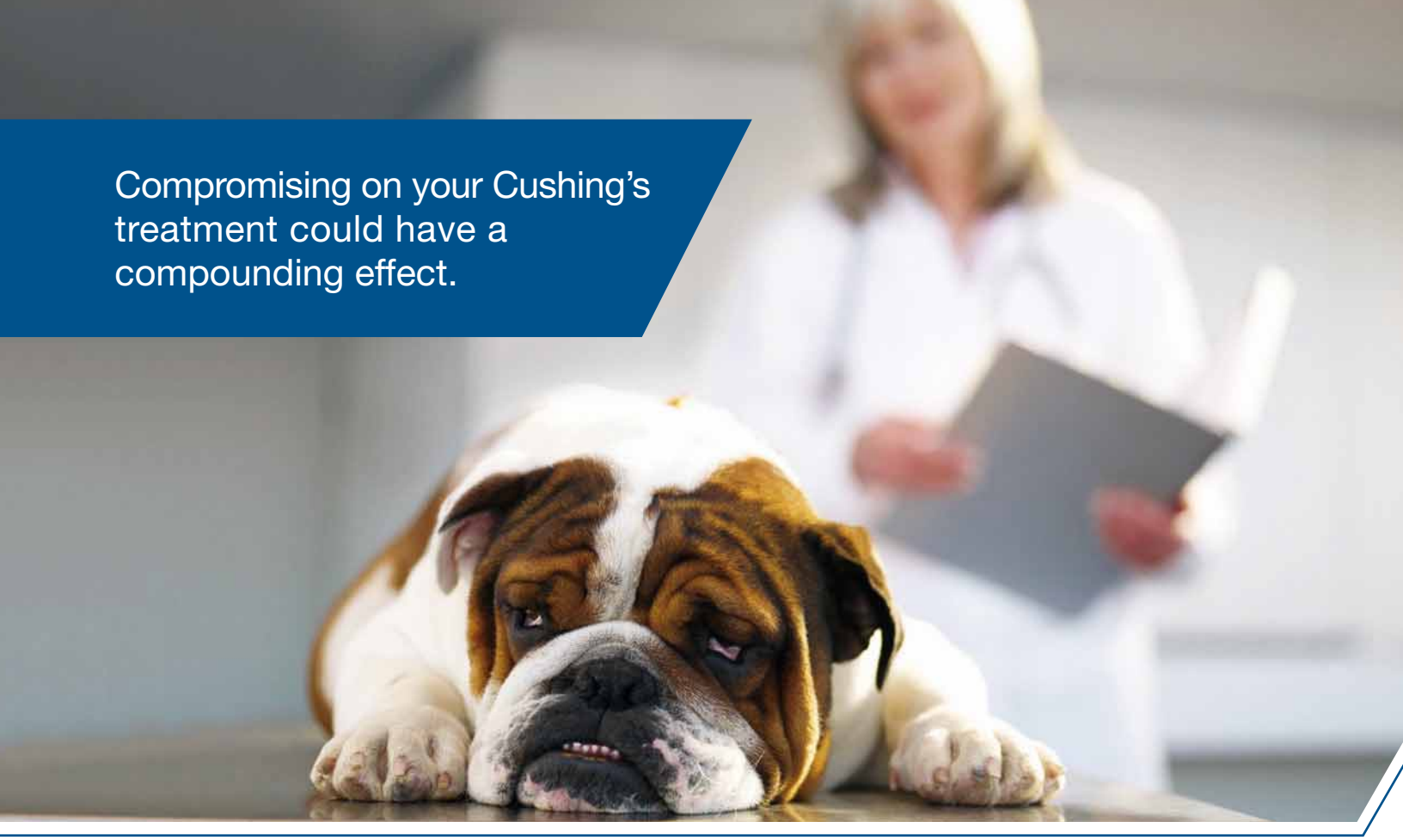
Educate, empower, and motivate clients

Keeping owners educated, empowered, and motivated will help make treatment and monitoring of dogs with HAC more rewarding and support long-term success. Hyperadrenocorticism is a complex disease process, but successful management is possible with the help of a dedicated veterinary team.

Readymade Tools for Training Your Team and Educating Clients

There is no need to reinvent the wheel when it comes to training your team about canine hyperadrenocorticism. Help is just a few clicks or a call away.

- Dechra Veterinary Products Team Learning Center — **www.dechrace.com**
- Team Meeting in a Box: "Coping with Cushing's syndrome," free materials for four 15-minute team training sessions — available at **www.dechrace.com**
- Information about VETORYL® Capsules (trilostane) and canine hyperadrenocorticism — **www.dechra-us.com**
- Dechra Veterinary Technical Services Team — toll-free phone number: 866-933-2472.
- Dechra Veterinary Products client educational materials, including a Cushing's syndrome client brochure and a VETORYL Capsules Monitoring Form — contact your Dechra representative, fill out the "Contact Us" form at **www.dechra-us.com**, or call Dechra at 866-933-2472.



Compromising on your Cushing's treatment could have a compounding effect.

VETORYL® CAPSULES (trilostane) are the only FDA veterinary-approved treatment for pituitary-dependent and adrenal-dependent hyperadrenocorticism. So when you choose Vetoryl Capsules, you can be confident knowing you're not taking unnecessary risks with the health of your patients or your practice.

	Vetoryl Capsules (trilostane)	Compounded trilostane
FDA approved for veterinary use	YES	NO
Proven safety and efficacy in dogs	YES	NO
Consistent strength, purity, and quality in every dose	YES	NO
Veterinary technical support, adverse event reporting	YES	NO
Legal liability to clinic	NO	**YES**

Vetoryl Capsules are available in doses for all sizes of dogs. Contact your veterinary distributor to order today or visit Dechra-US.com to learn more.

"Trilostane content of compounded capsules may vary from the prescribed strength, and dissolution characteristics may not match those of the licensed product. The use of compounded trilostane products may therefore negatively impact the management of dogs with hyperadrenocorticism."[1]

[1]*Pharmaceutical Evaluation of Compounded Trilostane Products (Cook, et al, JAAHA 48:4, Jul/Aug 2012)*

VETORYL® Capsules
(trilostane)

As with all drugs, side effects may occur. In field studies, the most common side effects reported were poor/reduced appetite, vomiting, lethargy, diarrhea, and weakness. Occasionally, more serious side effects, including severe depression, hemorrhagic diarrhea, collapse, hypoadrenocortical crisis, or adrenal necrosis/rupture may occur, and may result in death. VETORYL Capsules are not for use in dogs with primary hepatic or renal disease, or in pregnant dogs. Refer to the prescribing information for complete details or visit www.Dechra-US.com. 01AD-VET47904-1112

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Presented by Audrey K. Cook, BVM&S, MRCVS, DACVIM, DECVIM, and David S. Bruyette, DVM, DACVIM

Cushing's disease: Inside and out
Rhonda Schulman DVM, DACVIM, and John Angus, DVM, DACVD

Diagnosing and treating feline hyperthyroidism
Presented by Andrew J. Rosenfeld, DVM, DABVP

Then get your whole team on the same page, by visiting the **Team Meeting In A Box** section at **www.dechrace.com**

Coping with Cushing's syndrome
Pets with Cushing's syndrome suffer from a chronic illness that will be managed throughout the pet's life, not cured. This Team Meeting In A Box will help you deliver a successful team-wide approach.

Stop getting burned by ear infections
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Speaker: Michael Lappin, DVM, PhD, DACVIM

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Topic: The Medical Management of Canine Cushing's Syndrome
Speaker: Cathy Just, DVM
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Speaker: Andy Fox, DVM
1.5 CE Credits
To RSVP and for more info:
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>>> Results of a recent study suggest that in dogs with hyperadrenocorticism, it would be difficult to diagnose clinically overt pancreatitis by using cPLI testing since many dogs without clinical signs have positive results as well.

Do concurrent diseases affect pancreatitis testing results?

A look at research into this important question that can impact your diagnostic apporach.

By Anthony P. Carr, Dr. med. vet., DACVIM

Two studies investigating risk factors for pancreatitis have documented an association between the presence of hyperadrenocorticism and the development of pancreatitis. One study was a retrospective case series of 101 dogs with the diagnosis of pancreatitis (37 of these were confirmed via laparotomy or necropsy) based on clinical signs and supporting laboratory findings (elevated amylase and lipase activities).[1]

This study showed that many dogs had coexisting diseases. Hyperadrenocorticism was also diagnosed in 12 of the dogs. The study population was composed mainly of older dogs, as the median age was 9 years. This would, of course, make hyperadrenocorticism more common, as it is mainly seen in geriatric patients. Since this study did not have a control group for disease, it is difficult to interpret this result, though it would suggest that hyperadrenocorticism was prevalent more than one would expect.

A necropsy study looked at risk factors for fatal pancreatitis in dogs.[2] This study also included a control group of dogs that had suffered trauma. Risk factors for developing pancreatitis included obesity, diabetes mellitus, hyperadrenocorticism, hypothyroidism, prior gastrointestinal disease and epilepsy.

New research brings new insight

A research abstract presented at the 2012 ACVIM Forum in New Or-

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leans further suggests a link between pancreatic disease and hyperadrenocorticism.[3] Researchers from the University of Tennessee and Texas A&M University compared healthy dogs (n=20, Group 1), dogs with signs of hyperadrenocorticism but normal ACTH stimulation test results (n=12, Group 2) and dogs with hyperadrenocorticism (n=20, Group 3). Dogs were excluded from the study if they had signs that would suggest pancreatitis. The concentration of canine pancreatic lipase immunoreactivity (cPLI) in these dogs was determined by using the Spec cPL Test (IDEXX) and SNAP cPL Test (IDEXX) assay.

In healthy dogs, only one out of 20 had a positive SNAP cPL test result (high positive result). In Group 2, three of the 12 dogs had positive test results (one low positive, two high positive), and in dogs with hyperadrenocorticism, 11 of 20 had positive results, with nine having a high positive result.

Results were similar with the SPEC cPL Test. The one healthy dog had a cPLI concentration of 200 to 400 µg/L. From Group 2, one dog had a cPLI concentration of 200 to 400 µg/L, and one had a cPLI concentration of 400 µg/L. In the dogs with hyperadrenocorticism, five had results 200 to 400 µg/L, and seven had a cPLI concentration of 400 µg/L (the abstract lists the measurement unit as mg/L, but the concentration is µg/L for this assay). These differences were statistically significant.

Deciphering the results

The results of this study would suggest that these dogs had pancreatitis, as concentrations of 400 µg/L are considered diagnostic for pancreatitis. But all the dogs that had positive results in this study did not have clinical signs of pancreatitis, of course, since this was an exclusionary criterion for the study.

This study results suggest that in dogs with hyperadrenocorticism, it would be difficult to diagnose clinically overt pancreatitis by using cPLI testing since many dogs without clinical signs have positive results as well. It is not known if the dogs with hyperadrenocorticism that had positive results had pancreatic disease since it would require biopsies of the pancreas to be certain. Also, inflammation with pancreatitis can be quite localized, so a single biopsy would not be adequate to rule out pancreatitis. Doing so would require sectioning of the entire pancreas to definitively exclude pancreatitis.

Previous studies using necropsy have suggested that there are few false positive cPLI results when using the cutoff of 400 µg/L. Specificity of 90 to 100 percent has been documented.[4-6] In some of these studies, though, the 95 percent confidence intervals were quite wide, so the true specificity may be lower. Wide confidence intervals are commonly seen in studies in which few cases were evaluated.

There are other scenarios in which cPLI concentration can be elevated without convincing clinical evidence of pancreatitis. Hypertriglyceridemia in miniature schnauzers has been associated with elevated cPLI concentrations.[7] Unfortunately no clinical information was available to determine if the dogs had consistent clinical signs. In another study in healthy dogs (25 overweight, 10 obese), animals that had markedly elevated postprandial triglyceride concentrations (> 442 mg/L) were 16.7 percent more likely than other dogs to have a cPLI concentration > 400 µg/L.[8] None of these dogs had signs of pancreatitis, and over a four-year followup, none developed signs of pancreatitis.

The takeaway

There has always been a quest to develop a great pancreatitis test. In a way, cPLI assays do offer this in that specificity does appear to be very high. Necropsy studies have shown that when an elevated cPLI concentration is found, the patient probably does have pancreatitis.

However, what I am after clinically is not whether a dog has pancreatitis. What I want is a test that, when positive, tells me that the clinical signs I am seeing in that dog are attributable to pancreatitis. The cPLI test cannot make this cause-and-effect determination. This is evidenced by both some dogs with hyperadrenocorticism and some dogs with elevated postprandial triglyceride concentrations being shown to have marked cPLI concentration elevations without any clinical signs of pancreatitis.

This means, in my opinion, that if you have a patient with appropriate clinical signs and an elevated cPLI concentration, you cannot get complacent and assume that pancreatitis is the main clinical problem—another issue, such as hyperadrenocorticism, may be the real culprit behind the elevated cPLI concentration. **dvm360**

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Anthony Carr, Dr. med. vet., DACVIM, is a professor of small animal clinical sciences at Western College of Veterinary Medicine in Saskatoon, Canada.

WHAT TO *do* WITH *that bite*

An overview on how to address malocclusion and other orthodontic problems in pets.

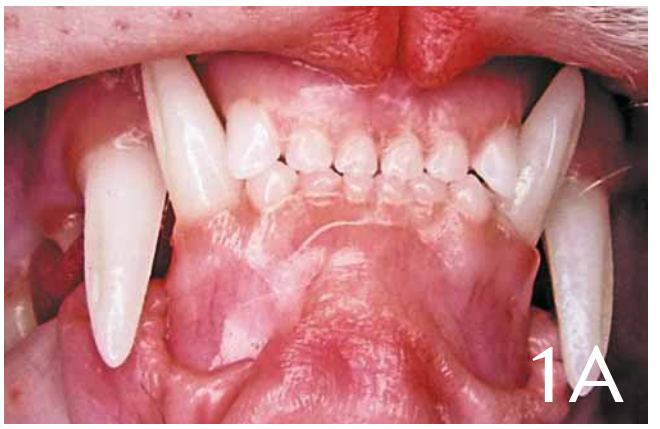
By Jan Bellows, DVM, DAVDC, DABVP

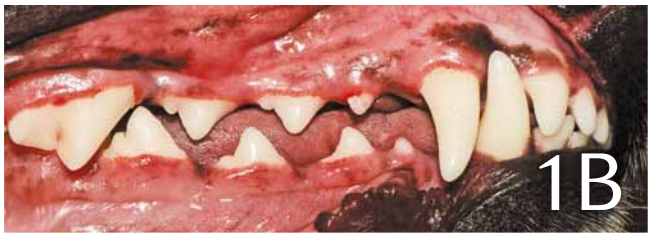
Orthodontic care in cats and dogs doesn't have to be confusing. Just familiarize yourself with 1) the four basic presentations—the pet has a normal or abnormal bite that is functional or not; and 2) the three treatment options, as outlined below. (See Table 1 for the forms of malocclusion seen in pets, p. M4.)

Normal and functional

A normal (for the breed and face type) functional mouth accommodates 30 teeth in cats and 42 teeth in dogs without impingment of the gingiva or interference with other teeth (Photos 1A and 1B, p M4). Typical holders of such mouths include the domestic shorthaired cat, beagle, poodle, and Labrador retriever.

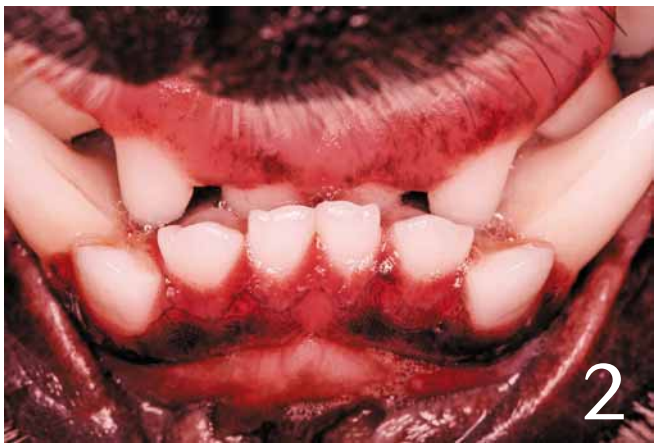
GETTY IMAGES/IMAGE SOURCE





Normal and nonfunctional

The English bulldog, pug, Boston terrier, Shih Tzu and other brachycephalic breed standards call for a mandibular mesioclusion (underbite) in which the maxillary incisors are located caudal to their mandibular counterparts. In some cases, the teeth in these breeds coexist without issue. In other cases, interference and gingival impingement occur (Photo 2).



>>>Photo 1A: Normal rostral mandibular and maxillary occlusion in a cat.
>>>Photo 1B: Normal incisors, canines and premolar occlusion in a dog.
>>>Photo 2: Normal but nonfunctional maxillary canines in a bulldog causing gingival penetration and interference with the rostral mandibles.
>>>Photo 3A: A functional left mandibular canine malpositioned caudal to the maxillary canine in a dog.
>>>Photo 3B: A functional supernumerary mandibular premolar in a cat.

Table 1: Forms of malocclusion in pets as defined by the American Veterinary Dental College

Skeletal malocclusions

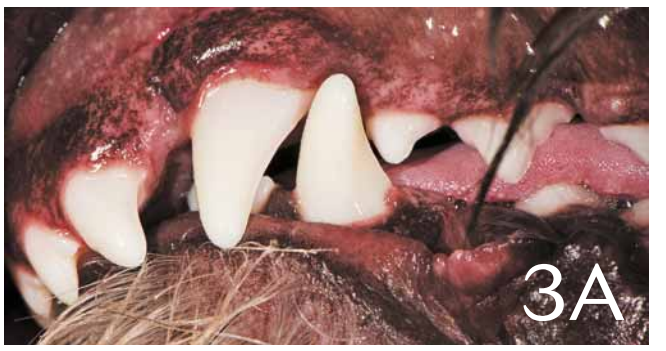
- **Mandibular distoclusion (class 2 malocclusion):** An abnormal rostral-caudal relationship between the dental arches in which the mandibular arch occludes caudal to its normal position relative to the maxillary arch.
- **Mandibular mesioclusion (class 3 malocclusion):** An abnormal rostral-caudal relationship between the dental arches in which the mandibular arch occludes rostral to its normal position relative to the maxillary arch.

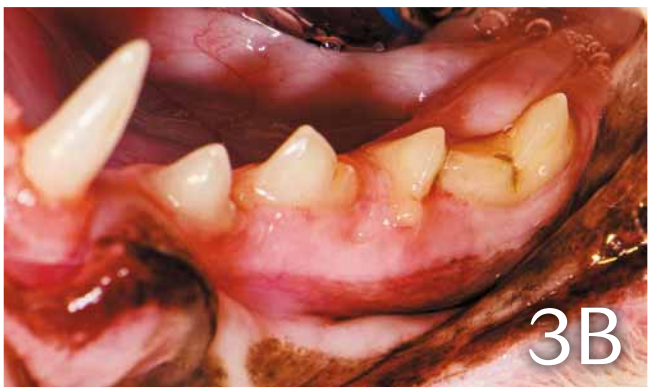
Dental malocclusions

- **Distoversion:** A tooth that is in its anatomically correct position in the dental arch but abnormally angled in a distal direction.
- **Mesioversion:** A tooth that is in its anatomically correct position in the dental arch but abnormally angled in a mesial direction.
- **Labioversion:** An incisor or a canine tooth that is in its anatomically correct position in the dental arch but abnormally angled in a labial direction.
- **Linguoversion:** A tooth that is in its anatomically correct position in the dental arch but abnormally angled in a lingual direction.
- **Crossbite:** A malocclusion in which a mandibular tooth or teeth have a more buccal or labial position than the antagonist maxillary tooth. It can be classified as rostral or caudal.

Abnormal and functional

At times, teeth erupt in positions that are not normal for the breed and face type but do not cause harm to the patient (Photos 3A and 3B).





PHOTOS COURTESY OF DR. JAN BELLOWS

Creatinine Creep: Your Key to Early Diagnosis of Chronic Renal Insufficiency

Authors:
W. Lee Barteaux, BS, DVM, MRCVS
Peter Kintzer, DVM, DACVIM

One in three cats and one in five dogs will develop renal disease within their lifetime, making chronic kidney disease (CKD) one of the most common diseases in veterinary medicine.[1] It is well established that diagnosing CKD in its earliest stage results in a significantly increased lifespan and improved quality of life for both dogs and cats. The International Renal Interest Society (IRIS) has well-established guidelines to help veterinarians diagnose renal disease in our patients as early as possible.* Unfortunately, CKD is commonly diagnosed in patients with later stages of the disorder, when they are much less likely to respond to treatment and carry a poor-to-guarded prognosis. Moreover, the majority of pet owners are unaware that early renal disease is often subclinical. In a recent report by Banfield Pet Hospital, for example, 55% of clients surveyed did not realize that their cat could have CKD without appearing ill.[2]

Establish a baseline in healthy patients

Given its high prevalence, CKD can be used as a powerful example with our clients to clearly reinforce the value of preventive care visits and blood tests for early diagnosis. Preventive care laboratory tests should include a complete blood count (CBC), full chemistry panel, complete urinalysis and the appropriate infectious-disease screening. Performing such tests on healthy patients during preventive care visits allows clinicians to establish "baseline" laboratory values that, in turn, establish individual reference interval limits (reference ranges). Even subtle deviations from established baseline laboratory values can alert clinicians to early disease prior to any detectable clinical signs.

Trend to highlight "abnormal" results for individuals

Creatinine values, in particular, when used correctly, are a very powerful tool to aid in the earliest possible diagnosis of CKD. IRIS guidelines base the initial staging of CKD "on fasting plasma creatinine assessed on at least two occasions in the stable patient." Cases are then substaged, based on persistent proteinuria as quantified through a urine protein/creatinine ratio (UPC) and blood pressure. A small increase in the creatinine value, for example, though well within reference interval limits (normal range) is often the first indicator of early renal disease.

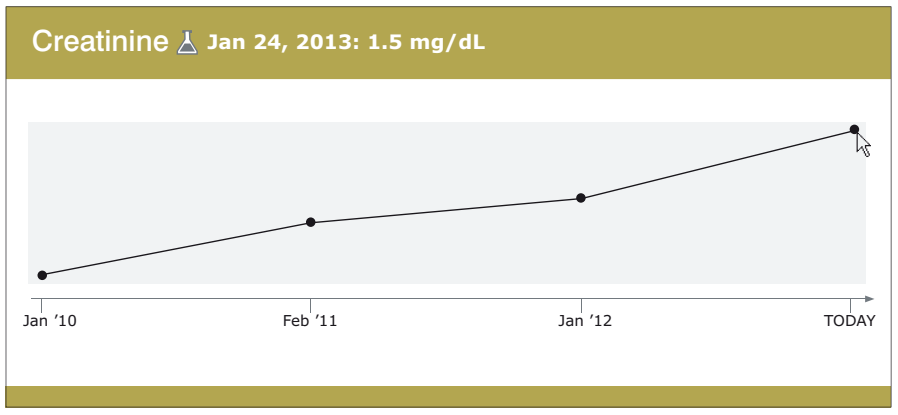
Consider a dog that has had baseline creatinine values at 0.7–0.9 mg/dL (reference interval of 0.5–1.8 mg/dL) over several years, but his current results indicate a creatinine value of 1.7 mg/dL. The current urine specific gravity is 1.024, and the rest of the urinalysis is unremarkable. Would you suspect CKD based on this information? All these creatinine values are within reference interval limits. However, if hydration status of the patient is normal during this visit, this most recent creatinine value would be considered a significant increase from baseline values. This should alert the clinician to possible developing CKD and warrant further diagnostic tests and close monitoring for disease progression. If this same dog, however, had no trended laboratory values to compare with this most recent creatinine value, this result could easily be interpreted as normal, delaying diagnosis and allowing the disease to progress without appropriate treatment or monitoring.

Nothing signals glomerular filtration rate (GFR) reduction better than a gradual, insidious increase in creatinine, or "creatinine creep." In other words, creatinine values are remarkably stable, meaning they don't bounce around in healthy, hydrated animals. Hence the advantage of establishing individual reference interval limits as well as focusing on trends in sequential values to help identify disease early. Furthermore, serial creatinine results vary considerably among different healthy pets, especially dogs of normal hydration status. According to IRIS, "Plasma creatinine concentrations apply to average-size dogs—those of extreme size may vary."

> Creatinine values, in particular, when used correctly, are a very powerful tool to aid in the earliest possible diagnosis of CKD.

Educate early and often for increased compliance

So how do we, as veterinarians, educate our clients about CKD, other diseases and the importance of early diagnosis, treatment and monitoring? The answer lies in preventive care visits and associated laboratory screening tests. The first few visits for a puppy or kitten (vaccinations through spay/neuter) represent important opportunities to bond pet owners to the practice through education about the importance of regular veterinary visits and preventive care screening tests. Recently, AAHA and the AVMA have partnered to provide practices with the first Canine and Feline Preventive Healthcare Guidelines, offering a new resource for improving patient care.



The creatinine-kidney connection

"Normal" creatinine results vary between patients, but they are remarkably stable for individuals. Therefore, incremental increases in creatinine can indicate early renal disease, even if the values are still within reference interval limits or "normal range." Nothing signals glomerular filtration rate (GFR) reduction better than "creatinine creep."

*The International Renal Interest Society (IRIS) Guidelines can be viewed at iris-kidney.com.

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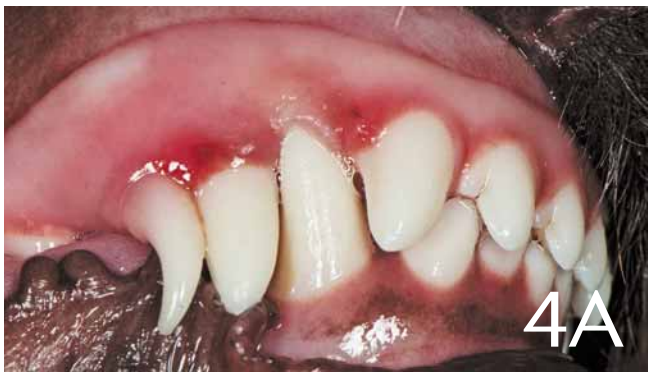
IDEXX LABORATORIES



Abnormal and nonfunctional

Teeth are considered nonfunctional when they cause trauma to adjacent or opposing teeth or gingiva. Therapy decisions are based on the ultimate goal to decrease or eliminate dental trauma. Options include crown reduction and restoration, movement of teeth with elastics and orthodontic buttons or appliances, or teeth extraction.

Treatment options

Once the diagnosis is made there are three fundamental treatment options.

Move the offending or affected teeth

Cementing an acrylic, composite or cast metal telescoping incline plane on the maxillary canines moves the mandibular canine teeth buccally (Photos 4A and 4B) in cases of lingually displaced mandibular canines. Over time (weeks), gradual lateral pressure moves the canines to functional positions (Photo 4C).

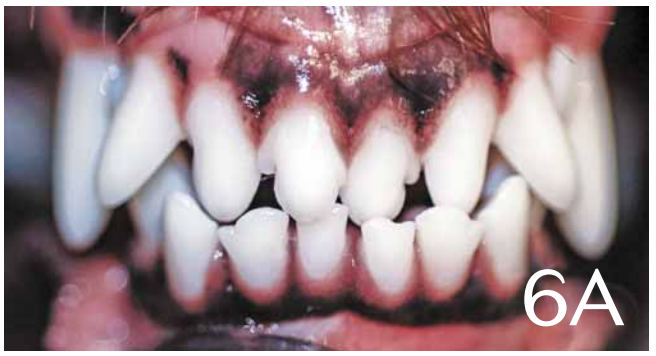
Tooth movement with elastics and buttons involves anchor and target teeth. Anchor teeth with greater surface area are chosen to provide higher resistance to movement compared with target teeth. Ideally, the anchor tooth remains stable, allowing target tooth movement. Healthy anchor teeth and periodontal support are critical to successful target tooth movement (Photos 5A-5C, 6A and 6B, p. M7).

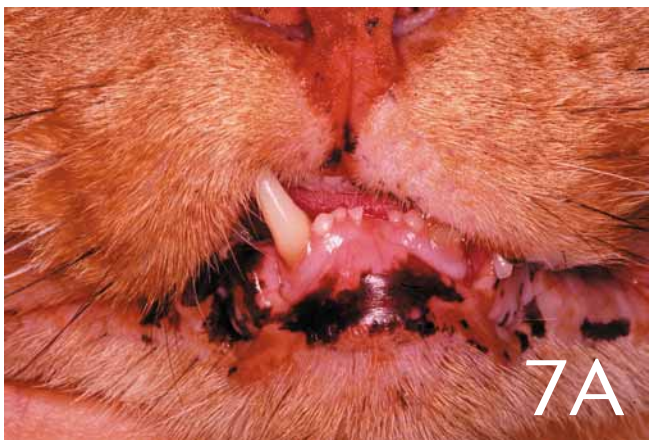
Read the fine print: Although tooth movement may appear to be easy and straightforward, it should only be undertaken by those who have a deep understanding behind the science as well as procedures of orthodontic practice. Choosing the right client and patient is critical in successful outcomes. Referral to a board-certified veterinary dentist should be considered in these cases.

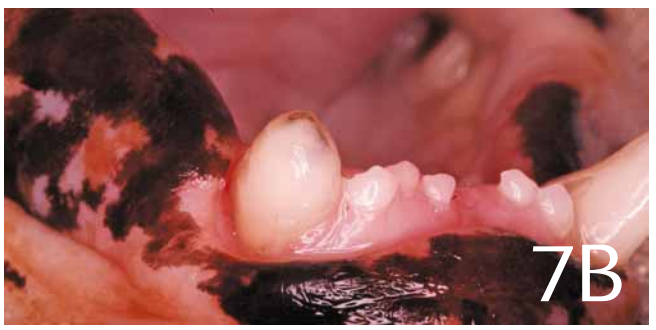
Partially remove the offending teeth

Gingival impingement from dental malposition can be treated with crown reduction, vital pulp therapy and

>>>Photo 4A: A right mandibular canine linguoversion traumatizing the maxilla and a retained deciduous canine.
>>>Photo 4B: An incline plane was used to redirect the canine linguoversion.
>>>Photo 4C: Functional occlusion after orthodontic care.
>>>Photo 5A: Multiple malpositioned teeth in a cat.
>>>Photo 5B: Orthodontic buttons and elastics were used to move the maxillary canine caudally.
>>>Photo 5C: Functional occlusion restored after orthodontic application.







>>>Photo 6A: A rostral cross bite with abnormal incisor contact in a dog
>>>Photo 6B: The rostral cross bite corrected with orthodontic care.
>>>Photo 7A: A right mandibular canine malposition causing lip trauma in a cat.
>>>Photo 7B: The right mandibular canine after crown reduction and restoration.
>>>Photo 7C: Lip trauma eliminated.

restoration of the offending tooth or teeth (Photos 7A-7C and 8A-8D, p. M8). Advantages of crown reduction are decreased therapy time and less aftercare compared with tooth movement procedures.

The treatment is completed within one or two visits (when the tooth is restored with a laboratory-prepared crown, the patient needs to be anesthetized twice). Yearly follow-up radiographs are necessary. Disadvantages of crown reduction and restoration include exposure of the pulp and potential restoration leakage.

Completely remove the offending teeth

Extraction of the offending or impinged-upon teeth is performed to allow a functional bite (Photos 9A-9C, 10A and 10B, p. M8). The advantages of extraction compared with orthodontic movement include less total treatment time, less expense and fewer anesthetic procedures to accomplish therapy. **dvm360**

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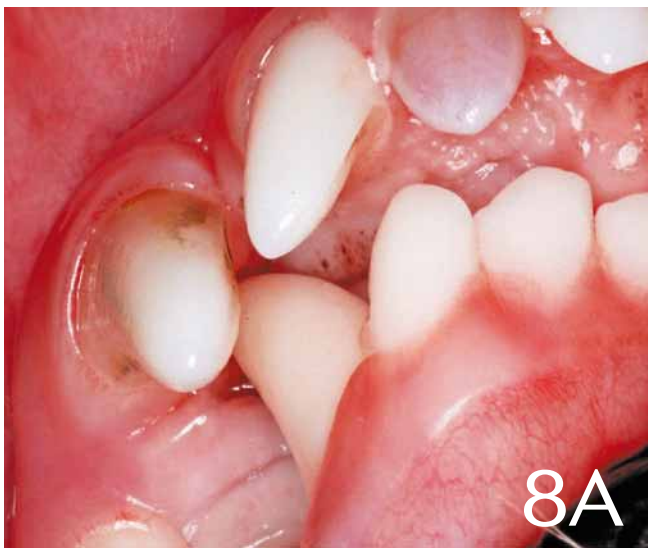
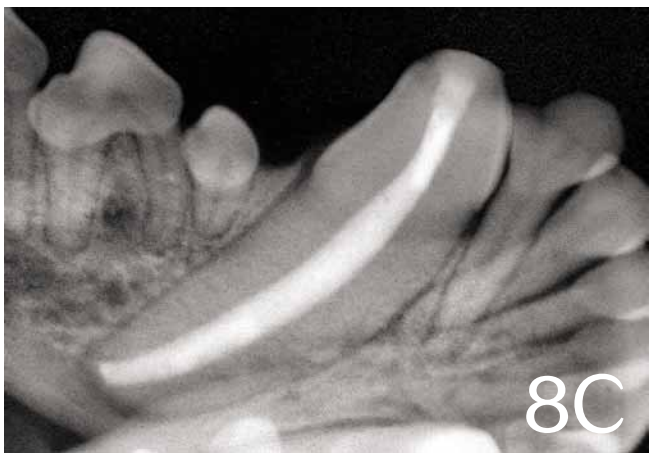
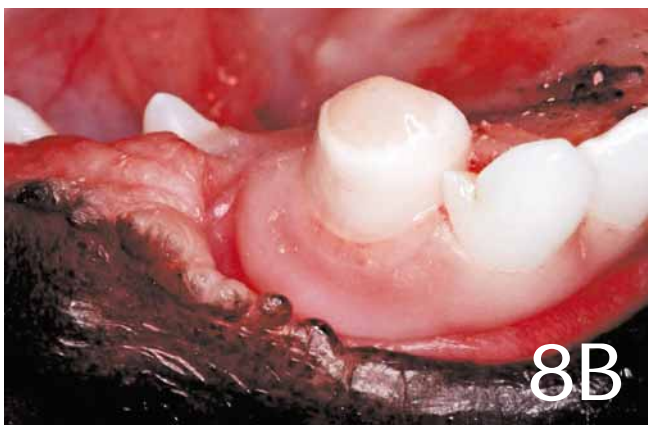
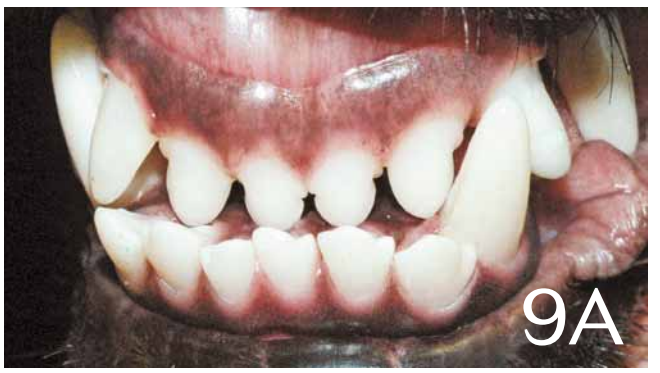
>>>Photo 8A: A right mandibular canine penetrating into the maxilla in a dog and a discolored right maxillary second incisor.
>>>Photo 8B: Crown reduction and restoration of the right mandibular canine and root canal therapy of the right maxillary second incisor was performed.
>>>Photo 8C: An intraoral radiograph taken after root canal therapy was performed.
>>>Photo 8D: The impingement was rectified.

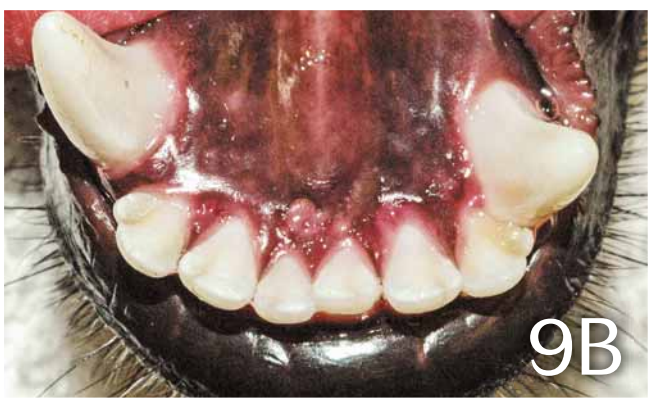


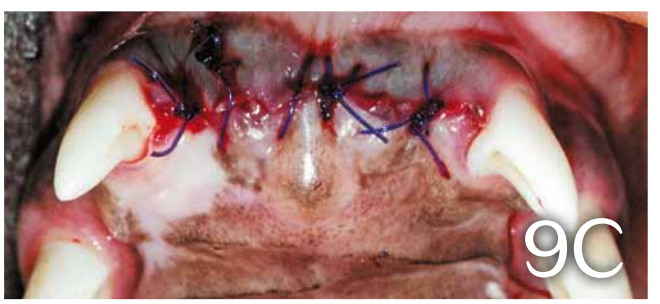


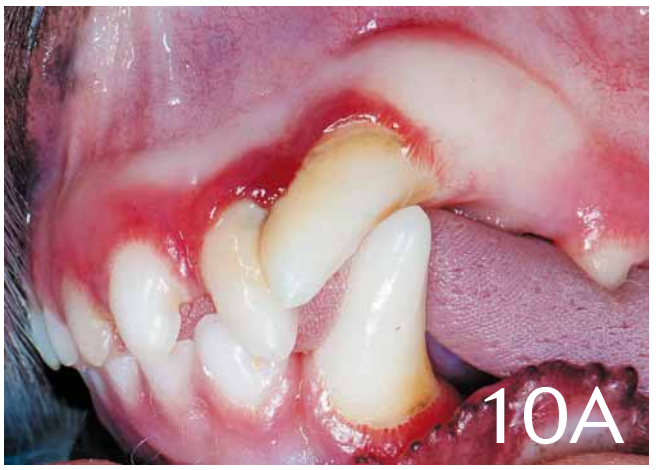


>>>Photo 9A: Mandibular mesioclusion in a dog.
>>>Photo 9B: The mandibular gingival impingement.
>>>Photo 9C: The right and left first and second maxillary incisors were extracted to alleviate the impingement.
>>>Photo 10A: Maxillary canine mesioversion in a dog.
>>>Photo 10B: The appearance after maxillary canine extraction.









THE TROUBLE WITH *Friesians*

With a recent spike in popularity—and more than 100 years of tight inbreeding—these horses are developing serious breed-specific conditions. *By Kenneth L. Marcella, DVM*

>>> With their distinctive look, Friesian horses have increasingly been favorites of Hollywood and also popular with horse owners. But inbreeding has led to many abnormalities equine practitioners should be on the lookout for.

GETTY IMAGES / ERIC ISSELTE

With its jet-black coat, powerful frame and signature high-stepping gait, the Friesian horse has become increasingly popular over the past 20 years. A Friesian named Othello played the prominent role of the stallion Goliath in the 1985 film *Ladyhawke*. Friesians have increasingly been favorites of Hollywood with roles in *Conan the Barbarian*, *Eragon*, *The Mask of Zorro*, *Alexander*, *The Chronicles of Narnia*, *Clash of the Titans* and *The Hunger Games*. This familiarity and growing popularity mean that practitioners are likely to see even more Friesian horses in their practices.

A purebred population leads to problems

The Friesian breed originated in the Netherlands and is thought to have come from primitive forest horses native to that land. Many experts think that during the 16th and 17th centuries, some Andalusian blood was added to the developing Friesian breed, although little direct documentation of that exists. These horses were strong and heavy enough to carry a knight in armor but were more graceful and athletic than heavier draft breeds of that time.

Despite centuries of breed development, the Friesian studbook wasn't started until 1879. But this particular type of horse has been purebred since that time. For well over 100 years, Friesians have been tightly inbred.

With their recent popularity leading to greater demand and increased breeding with restricted bloodlines,

Friesian horses are facing some significant problems that all practitioners should be familiar with. A number of suspected genetic disorders affect the Friesian horse. Identifying these problems early will aid clinicians in prompt, accurate treatment and, equally importantly, will possibly help remove these animals from breeding programs. This may be the single best step toward eliminating these problems from the breed.

Roughly 7 percent of the Netherlands' horse population is Friesians. So it's no surprise that from 1995 to 2003, 7 percent of the caseload at Utrecht University's College of Veterinary Medicine in the Netherlands and Ghent University's College of Veterinary Medicine in Belgium was composed of Friesian horses.[1] What was surprising, however, was that veterinarians at these two schools began to notice a high incidence of certain clinical problems among Friesian horses—much higher than the 7 percent population should predict. Researchers from these institutions have subsequently joined with a number of private clinics in these countries and are now trying to document problems in Friesians and educate veterinarians worldwide about these conditions.

Dwarfism

One of the best-known disorders in the Friesian breed is dwarfism. The condition manifests with growth retardation mainly in the limbs, which are 25 percent shorter than normal. A Friesian dwarf is about 50 percent smaller than an age-matched normal Friesian foal.[1] This condition is easily observed because of the larger head, broad chest and disproportionately long back with short limbs.

Hyperflexion of the fetlocks and narrow, long-toed hooves are also seen in these animals. Tendon and ligament laxity varies greatly between dwarf Friesians and normal ponies, with dwarfs showing excessive looseness to these structures and, often, resultant load failure. Normal Friesians have tendon and ligament stretch properties in between those of dwarfs and normal ponies.[2] Some researchers think the Friesians' increased laxity is what creates their characteristic high-stepping, dancing gait. Many of the problems currently being investigated in the Friesian breed also stem from abnormalities in ligaments, or, more specifically, from a systemic collagen-linked disorder. It would be ironic if the condition that allowed the Friesian breed to exhibit its signature movement were also shown to be behind many of the devastating problems that threaten this breed.

The Friesian registry is no longer allowed to breed dwarves, and hopefully this problem will eventually disappear. But because this condition was tolerated and dwarves were still used as broodmares until relatively recently, dwarfism is likely to remain a part of the breed's genetics for some time.

Hydrocephalus

Hydrocephalus is a relatively uncommon disorder in horses, but in Friesians it is seen at an estimated rate of 2.5 foals per 1,000 births.[1] Some researchers think the higher incidence of hydrocephalus in this breed is caused by a deformation of the jugular foramen. If this collagen-based structure fails to develop properly, a chain of events begins that may lead to fatal hydrocephalus. A nonfunctional jugular foramen could lead to internal jugular vein compression. This could disturb cerebral spinal fluid and enhance its accumulation, resulting in hydrocephalus.[1] In an article documenting Friesian clinical issues, Siebren Boerma, DVM, of the Equine Clinic Garijp in the Netherlands and colleagues discuss both dwarfism and hydrocephalus and attempt to connect them genetically.[1]

Megaesophagus

One of the most serious clinical problems seen in the Friesian breed is megaesophagus. This problem is directly related to the suspected collagen abnormality seen in this breed.[1] Megaesophagus is a chronic dilation of the esophagus, accompanied by a lack of normal muscle tone and contractile ability in the esophageal wall. It can be seen in all animals but is usually found at a very low rate in the general horse population.

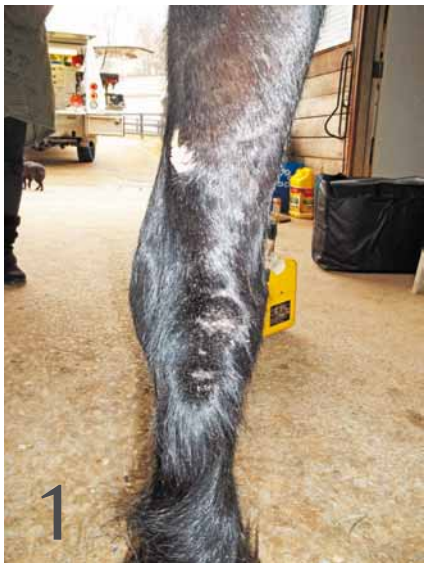
In a study conducted between 2002 and 2007 by Boerma along with Marianne Sloet van Oldruitenborgh-Oosterbaan, DVM, PhD, DECEIM, of Utrecht University's Department of Equine Sciences, 45 cases of megaesophagus were recorded.[3] These cases were seen at either the Equine Clinic Garijp or Utrecht University. Of these 45 cases, 41 were Friesians, and the lead researchers noted a familial predisposition among affected horses, strongly suggesting that this condition may be hereditary.

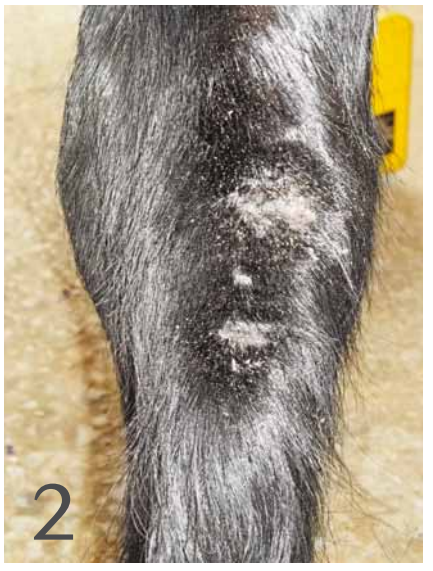
Horses with megaesophagus show a variety of progressive clinical signs, including loss of appetite, salivation, muscle wasting, mild colic and esophageal obstruction or choke. Radiography with contrast material or direct visualization via endoscopy can identify the swollen, semifunctional esophagus and confirm the diagnosis. Chronic megaesophagus often leads to aspiration pneumonia, which can be expensive to treat and may ultimately lead to fatal complications in the horse. These horses can occasionally be managed, and some do well. But the far better method of dealing with megaesophagus in Friesian horses is to identify animals affected with this condition and remove them and related family members from any future consideration as breeding animals.

Compromised immunity

Friesian horses are thought to have weakened immune systems, so many problems that affect other horse breeds only marginally tend to be worse in this breed. For example, the incidence of retained placenta is nearly 54 percent in Friesian horses compared with only 2 to 10 percent in the general equine population.[1]

Insect bite hypersensitivity (excessive skin response to the bite from various seasonal insects, predominantly no-see-ems, or *Culicoides* species[4]) occurs in 18 percent of Friesian horses, as reported in one study.[1] This hypersensitivity is an intense pruritic response commonly leading to hair loss (often extensive) and skin damage of the mane, tail, head and ventral abdomen (Photos 1 and 2). In many individuals, this skin damage is severe enough to render the horse unusable for prolonged periods (weeks to months) during the summer fly season. Comparatively, insect bite hypersensitivity occurred in only 8 percent of the Shetland pony population studied in the Netherlands.[1] It is now thought that this Friesian condition is a familial disease with a polygenetic background. Affected animals can be treated with traditional methods, including medicated baths and topicals, insect control and repellant, cortico-





>>> Photos 1 and 2: The caudal aspect of the left forelimb of a Friesian mare showing an area of poor hair growth, scabs and irritated skin. This area of caudal alopecia and roughened skin is located slightly higher than in most Friesians but shows the typical dry, flaky, rough appearance seen in these horses. Allergic reaction and insect bite hypersensitivity are two of the main causes of these lesions.

steroids and allergy desensitization, antihistamines and anti-inflammatory drugs. Friesians with this condition will often show a response to treatment, but recurrence is likely.

Verrucous pastern dermatopathy

This condition is also overrepresented in the Friesian breed as well as several other draught horse breeds. This chronic dermatitis develops into thick, nodular, ulcerated skin on the caudal side of the pasterns. The long hair or feathering found in this location is thought to accumulate moisture and debris, which may have some role in the development of skin irritation. This condition has also been called *chronic progressive lymphedema*, *grapes*, *greasy heel* and *granulomatous pastern dermatitis*. These lesions are often frustratingly unresponsive to treatment. And although genetics is suspected of playing a role with this skin condition in the Friesian, it hasn't been proven.[1]

Aortic artery rupture

Aortic rupture is an important and unique problem in the Friesian horse that again relates to a disorder in collagen tissue.[1] Just about all equine aortic ruptures in non-Friesian breeds occur at the connection between the aorta and the heart in an area called the aortic root. Rupture of the main blood vessel in the body at this level leads to rapid filling of the pericardial sac and cardiac tapenade as the blood-filled sac around the heart does not allow the heart to expand and beat. This condition leads to acute heart failure and death. Most horses suffering aortic rupture are either found dead with little to no sign of struggle or discomfort before death or are stable one moment and die very rapidly once the aorta ruptures.

In Friesians, however, the site of aortic rupture is at the aortic arch near the ligamentum arteriosum. Because the rupture occurs here in a more forgiving location in the heart, a number of scenarios can potentially develop that are unique to the Friesian horse. Also, because aortic ruptures in Friesian horses only appear to occur in this unique location, a genetic or, at the very least, breed-specific condition is considered likely.

If the aortic rupture is large, within seconds, the chest cavity is pumped full of blood, and the horse dies acutely. This is rare in Friesians. More often the tear may be smaller, so the blood leaks into the tissue surrounding the aorta, forming a perivascular pressure cuff. This pressure stops the bleeding, and these horses can remain stable for long periods. Because the heart must still pump blood through an aorta that is under pressure from the tissue swelling around it, an increased heart beat results even at rest. These horses often show poor performance, high heart rate and bounding pulses, intermittent lameness and swelling through the chest and ventral abdomen. Eventually the pressure cuff will not hold and the aorta will rupture completely, leading to death.

In some Friesians the rupture creates an aortopulmonary fistula, or an artificial connection between the damaged aorta and the pulmonary blood vessels. In this scenario, the lungs slowly begin to receive a larger than normal volume of blood. This can create a problem, as horses can go weeks to months before the lungs can no longer handle the increased blood flow from the aorta. Affected horses will develop a dry, hacking cough; poor performance; swelling of the chest and legs; fluctuating fever; pale mucous membranes; recurrent colic and intermittent lameness. Catherine Delesalle, DVM, PhD, DECEIM, of Ghent University urges that "because Friesian horses show suspicious clinical signs sometimes weeks to months before fatal rupture, these 'predictive signs' need to be put in the spotlight for the Friesian horse owners."[5,6] Clinicians can also benefit by considering these signs and these breed-specific problems when dealing with Friesian horses.

The average age of horses with aortic rupture is 4 years old, so keep in mind that many of these horses will have been bred before developing this problem. Increased awareness and better, earlier diagnosis might be the best way to remove these horses from breeding consideration and the best way to eliminate these important conditions from the breed. **dvm360**

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Immune system development *in foals*

In Part 1 of this series, an equine research team explains two key immune factors—transfer of proinflammatory cytokines to the foal and the foal's ability to respond to antigens. *By Ed Kane, PhD*

Equine neonates are susceptible to a wide variety of pathogens because of their naïve immune systems. As a result, sepsis in foals is a matter of concern to the equine industry.[1] Maria Julia Felippe, Med.Vet., MS, PhD, DACVIM, associate professor of large animal medicine at Cornell University's Equine Immunology Lab, is part of a Cornell group studying the development of the foal's immune system. The following discussion outlines several critical aspects of their work that's expanding our understanding of immunity.

Immunity basics

Foals begin to develop their innate and adaptive immune functions partially during gestation but more significantly after birth when exposed to environmental organisms.[1]

Colostrum is an essential source of immune components for newborn foals, the most important of which is IgG. Inadequate IgG absorption results in a partial or total failure to transfer immunoglobulins to the newborn, causing increased susceptibility to infectious diseases. Even with sufficient IgG, foals are susceptible to certain pathogens that rarely affect adult horses, such as *Rhodococcus equi*.

Transferring proinflammatory cytokines to the foal

A group of Cornell researchers that included Felippe found that "the transfer of cytokines in colostrum to equine neonates could have immunomodulatory effects and help with protection early in life. Perhaps foals with inadequate colostral ingestion and absorption may be more susceptible to infectious diseases not only because of the critical concentrations of IgG but also because of low proinflammatory cytokine transfer from colostrum—both important to help fight off pathogens before competence of their own immune systems are developed."[1]

This research determined that "serum TNF-alpha concentrations were high in postsuckle samples, though essentially undetectable in presuckle samples, as the TNF-alpha concentration in postsuckle serum predicted the concentration in colostrum."[1] The data suggested that "TNF-alpha is transferred to the foal via colostrum absorption and may play a role in early immunity. It is possible that the transfer of proinflammatory cytokines in colostrum helps with immune alertness and protection before the foal can efficiently elaborate an immune response. TNF-alpha has a key role in sepsis due to its potent proinflammatory properties."[1]

"It's possible that intake and absorption of proinflammatory cytokines in the colostrum might help," says Felippe. "In the manuscript, we cited previous work done in calves where they found that when you give IL-1 orally, it did have an immunomodulatory effect. If foals are drinking colostrum that contain cytokines, these cytokines are going to be absorbed, either to work systemically or locally in the gastrointestinal tract, and have an immunomodulatory effect. By analogy with what's been done in calves, it's very possible."

Felippe's team specifically looked into TNF-alpha, but other cytokines could be transferred via the colostrum. Some have suggested that IL-6 is one of them, though it has not been studied as systemically. "Maybe other anti-inflammatory cytokines, such as IL-10 could be transferred as well," Felippe

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says. "But we still need to learn how they are transferred through colostrum and what the effects are."

The potential for the immunomodulatory effects for cytokines is speculation at this point, but it may aid the neonate's immune response. "One answer that we don't know is the magnitude of an effect," Felippe says. "Is it dose-dependent? Do you need a lot of TNF-alpha to get an effect or a little bit? That is really an open question.

"This type of work is interesting, as we're learning that the importance of colostrum may be beyond the IgG, though perhaps IgG is the essential part," continues Felippe. "But it also tells us that there are other 'goodies' in the colostrum that can be very helpful during early life. Perhaps there is a quantitative correlation. We know the greater the amount of IgG, the better protected the foal is. Maybe more cytokines of one kind may be very beneficial for the foal. And maybe too much of another kind may not be beneficial for the foal. We just don't know. Too much of a good thing sometimes is not as good in immunology."

Another important aspect of this research is that the team questioned whether serum cytokine concentrations in neonates could be used to predict the severity or outcome of septicemia, therefore predicting foal survival.

"A lot of equine neonates get sick in early life, even when there are perhaps still high levels of those cytokines absorbed from the colostrum," Felippe says. "If you're trying to correlate the level of TNF-alpha, which is a prime inflammatory cytokine, with the severity of disease and perhaps death outcome, you need to keep in mind that in some foals that have more or less TNF-alpha, despite their inflammatory process, the level may be high or low because of maternal transfer from the colostrum. That is a major confounding value that can change your ability to use that as a prognostic indicator.

"There were some incoherencies in the findings of cytokine levels in septic neonates and how that correlated to survival outcome," continues Felippe. She says part of the problem probably relates to the fact that these foals, independent of their disease, have different backgrounds—some cytokine concentrations are coming via the colostrum, and others may have come from plasma transfusion, which is another way to transfer immunoglobulins and cytokines to foals.

"The plasma is from adult horses that are healthy, but they carry some cytokines along with them," Felippe says. "So we need to be careful about measuring things that are not necessarily inherent to the foal, or endogenous to the foal, but are being absorbed via the colostrum and may affect our ability to use those parameters as prognostic indicators."

Can foals respond to antigens?

Another critical question is how foals respond to antigens and vaccines.

"The equine neonate is considered immunocompetent at the time of birth because the equine fetus is capable of producing antigen-specific antibodies about day 180 to 200 of gestation when vaccinated in utero," says research associate Rebecca Tallmadge, PhD, and her colleagues at Cornell's Equine Immunology Lab.[2]

It is also known that because the equine placenta prevents transfer of maternal antibodies during gestation and because of the absence of exposure of the fetus to microorganisms, presuckle foals are born hypogammaglobulinemic and naïve to environmental pathogens.[2]

Humoral protection of the newborn foal depends on the absorption of preformed antibodies from the colostrum immediately after birth. Failure of immunoglobulin transfer via the colostrum increases the susceptibility of the foal to infection from environmental pathogens.[2]

Data collected by Tallmadge's team suggests that the equine neonatal immune system is naïve but competent, including potential B and T helper cell preparedness for the production of all immunoglobulin isotypes, which can be explored for prophylaxis. "Although the equine neonate humoral response seems competent, B cell activation factors derived from antigen presenting cells and T cells may control critical development regulation and immunoglobulin production during the initial months of life."[2]

"The major question is how can the foal respond to antigens?" Felippe says. "There are some general concerns that foals do not respond very well to vaccines. Interestingly, foals that received colostrum from mares that were vaccinated during the last month of gestation had a delayed ability in their humoral response to vaccination."

One explanation for this delay is the phenomenon called *maternal antibody interference*, according to Felippe. "The theory is that the circulating antibodies that came from the colostrum interfere with the ability of the foal to produce new antibodies in response to vaccination. How would that occur? A few mechanisms have been proposed. They would interfere by perhaps neutralizing the vaccine antigens. So if you're trying to put a vaccine antigen to stimulate the foal's immune system, and it is immediately neutralized by an antibody that is circulating against it, it doesn't do what it should. It doesn't stimulate the cells. It doesn't make them develop immunity against it."

Felippe says she questions this theory based on some fundamental principles of "mother nature." "The horse is an animal that has been selected for millions of years. One of the interesting things about horses is that they don't transfer immunoglobulins during gestation," she says. "Instead, the foal needs to get its immunoglobulins from the colostrum intake after birth. This is a major pressure in their selection process. If this foal is not healthy enough to nurse quickly and the mare is not healthy enough to produce good-quality colostrum, that transfer doesn't happen in a timely manner, and the foal will be very susceptible to infection.

"It would be a major selection pressure for colostrum, which essentially gives foals survival during the early weeks of life, to paradoxically prevent their own ability to produce protection for continued survival. The species would possibly be in major trouble if that was the case. Therefore, simplistically, I question it," says Felippe.

What is the basis for this hypothesis? Studies done across species have shown some limitations of neonatal response to some vaccines, whereas other vaccines were good at inducing immunity in the neonate despite circulating maternally derived antibodies. "The first thing that comes to mind is that one of the limiting factors here is not necessarily what is going on in the background, but it is the quality of what you are using to elaborate an immune response," says Felippe. "There is good research showing that depending on what you use to stimulate the immune system of the neonate, you are going to have a

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good response or not-so-good response."

Dosage has also been studied. "In fact, smaller doses may do a better job than higher doses for some pathogens," Felippe says. "We cannot generalize across antigens, but these are some observations that we know may play a role."

As for maternal antibody interference, there have been some conflicting results in the literature, and it depends on the type of model that has been used. "But some of the literature points to the fact that in the presence of circulating maternal antibodies, the immune response to some vaccine products is not as good," says Felippe. "If you vaccinate a foal that doesn't have that much circulating immunoglobulin specific to that antigen, the immune response could be more robust.

"I question some of the conclusions from some of the studies, because if these studies are basing their results on total serum immunoglobulin levels, I think there may be some limitations in understanding what the true response is," she continues. "Because when you measure serum immunoglobulin levels against an antigen, you're measuring the maternally derived and the foal's at the same time. There is no way to discern whose is whose. You're trying to identify an immune response that is going to be minor because it was from a neonate, a naïve individual, in the mix with a lot of other antibodies that belong to the mare. So to find that very small amount within that large sample can be difficult technically."

It does take time for an immune system to expand the population that will respond to an antigen, according to Felippe. With a more trained adult immune system, you can anticipate that fewer doses would be necessary for that population expansion. But in an untrained immune system, such as the foal, you would probably need more boosters to achieve the same level of population expansion that you would have with an adult horse. "We go back to principles that are not new, but the use of boosters, and perhaps more than one or two, are necessary for some antigenic stimulation to accomplish what we consider protective levels, or standard adult horse levels," Felippe says.

All of this leaves Felippe with two questions: Are we using the correct tools to measure this? And are we limiting our interpretation to our ability of measuring the foal's response to vaccination?

"What our lab developed with Rebecca Tallmadge, the creator of the technique, was the ability to measure the foal immune response to antigens without the confounding factor of maternally derived antibodies," Felippe says. "Tallmadge's technique measures the immunoglobulin expressed on B cells that is being generated by the foal against that antigen."

Within the immunoglobulin is a "variable" region. This region has specificity to the antigen that is being produced against it. Without the confounding element of the maternal antibodies, Tallmadge can measure the true production of immunoglobulins by the foal when they are still expressed on the surface of the foal's B cells. Not only that, she can measure how well these immunoglobulins are evolving with the boosters.

In an untrained immune system, such as the foal, you probably need more boosters to achieve the same level of population expansion that you have with an adult horse.

"With each round of boosters you are stimulating either the same cells or creating new cells that can bind to those antigens, and you are creating what we call *diversity* in the repertoire of immunoglobulins," Felippe says. "In the end, you are going to have immunoglobulins that can bind to any single small area on that antigen, and in a large amount of them. The efficiency in binding and neutralizing antigens increases with the number of exposures you have to that specific antigen. So we get better immunity as we go along with the boosters."

Tallmadge can measure initially and quantitatively how much of a response a neonate can elaborate, and she can measure the dynamics of the response over time with the boosters, without the technically confounding element of the maternal antibodies.

The development of memory cells also has been quite limited, even in the human literature. Several studies in humans discuss the inability of the infant to respond to vaccines and the maternal antibody interference. "But, very few of these studies address the elaboration of memory cells, which is important," says Felippe. "In some neonatal models of study, neonates are more interested at first in producing memory than they are necessarily in producing a significant amount of immunoglobulin, which is a differentiation of these cells into memory cells instead of plasma cells, respectively. We don't know the result in the foal, but we are studying it. Perhaps there is a bias in the neonate in producing memory, before they can necessarily devote the capacity to producing a high quantity of immunoglobulins. That's why they tend to increase their antibody levels kind of gently in the beginning, and then all of a sudden they spike their antibody production. There is an interesting aspect in the dynamics."

Next steps in research

To summarize, Felippe says her team has plenty of evidence that the horse fetus is well-prepared to face the world and respond to antigens with antibody production. Foals have all the "machinery" to produce antibodies, including elaborated antibodies, those antibodies that have diversity. "It's hit and go," says Felippe. "The foal will be exposed to antibodies when it hits the ground, and it is ready to respond to them."

Now Felippe's team is trying to evaluate the maternal antibody interference phenomenon by using sequences of the variable region of the immunoglobulins expressed on the surface of B cells as a means of, first, initiating a response to vaccination, and, second, determining their ability to elaborate that immune response efficiently.

"So we hope to have some evidence—not confounded by maternally derived antibody levels—that the neonate can indeed respond to vaccinations," Felippe says. "The foal might not respond to everything because some vaccines induce better immunity than others, but it seems that it is our job to find out what makes the 'trick' and take the opportunity that the foals can elaborate an immune response and then vaccinate accordingly."

The American Association of Equine Practitioners offers guidelines for neonatal vaccinations (aaep.org/vaccination_guidelines.htm) that state that it is important to note if a mare has been vaccinated during the last month of gestation. With the information Felippe and her colleagues are gathering, those guidelines could be revised.

In Part 2, the Cornell Equine research team explains two more important factors of the development of the foal's immune system—opsonization and the foal's defenses against *R. equi*. **dvm360**

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Ed Kane, PhD, is a researcher and consultant in animal nutrition. He is an author and editor on nutrition, physiology and veterinary medicine with a background in horses, pets and livestock. Kane is based in Seattle.

Scan this
Scan the QR code with your mobile device to watch video from the Tennessee raid.

Walking horse trainer charged with aggravated cruelty after USDA raid

Charges are expected to mount after veterinarian, investigators seize 19 horses found to be sore in Larry Wheelon's barn. *By Julie Scheidegger*

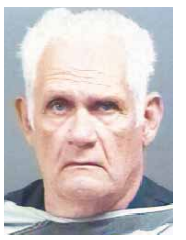
Larry Wheelon, a well-known member of the Tennessee walking horse circuit, was arrested and charged April 25 with one felony count of aggravated cruelty to livestock related to soring. The Blount County Society for the Prevention of Cruelty to Animals (SPCA) and the U.S. Department of Agriculture (USDA) executed a search warrant that led to Wheelon's arrest and the seizure of 19 horses from a barn in Maryville, Tenn.

>>> A horse is led out of a barn in Maryville, Tenn., after an investigation by the USDA prompted the seizure of 19 horses form the property and arrest of Tennessee walking horse trainer Larry Wheelon. The Humane Society of the United States assisted the Blount County Sheriffís Office, Blount County SPCA and Horse Haven of Tennessee assisted with the seizure.

"That same day we took those horses, he was arrested," says Gino Bachman, president of the Blount County SPCA. "We worked hand in hand with them to do that."

According to an affidavit from the Blount County General Sessions Court, investigators found during an April 18 search that horses had their legs wrapped in cellophane and leg wraps, which is indicative of chemical soring. All 27 horses in Wheelon's care were swabbed for foreign substances, and 19 were found to be sore by a USDA veterinarian.

Wheelon is a member of the Walking Horse Trainers' Association board of directors and a AAA-rated judge with S.H.O.W. Horse Inspection Organization. He has also reportedly been cited for numerous violations of the federal Horse Protection Act during the past 20 years. Wheelon did not respond to *dvm360's* request for comment but did tell *The Daily Times* of Maryville, Tenn., that he did not sore horses by using caustic chemicals like mustard oil.



Larry Wheelon

USDA special investigator Julie McMillan, who when reached said she did not have clearance to speak about the case, stated in the affidavit that substances could be seen on the horses' legs and a chemical odor was detected. Bachman, who accompanied McMillan on the raid, says lab tests have already confirmed the presence of caustic chemicals on the horses.

"He thinks because he's putting on certain chemicals that it's not illegal," Bachman says. However, if Wheelon used cinnamon oil instead of mustard oil, for example, "cinnamon oil is just as bad," he says. Several containers of chemicals, including mustard oil, were removed from the property, according to McMillan's affidavit account.

Wheelon contends in *The Daily Times* that he was framed and that someone must have come in the barn the night before the raid to sore the horses. In fact, he says his veterinarian checked the horses before the raid and gave them a clean bill of health.

Bachman isn't buying it. "He has to try to make it look like he didn't do anything wrong," he says. "The evidence will prove he's wrong." Bachman says he talked with the veterinarian in question, who told him she hadn't been out to the barn in a year—she only went out there a day after the raid to do Coggins testing.

The investigation will look at whether the veterinarian was compliant in the soring of horses and also ascertain the involvement of Wheelon's employees. Although Wheelon is presently charged with only one count of felony animal cruelty, the number will likely increase—possibly to a count for each horse seized.

Bachman says the raid was heartbreaking—the horses would jerk from the slightest touch of the USDA veterinarian. "It's really difficult to fathom that someone would do what they did to these animals," he says. "What they were doing with their hooves—they were keeping them in constant pain."

Bachman was pleased to see the animals transported from the confines of the barn. "That's what's hard, to see these guys locked in a 12 by 12 stall," he says. "They never get out to graze. Their eyes never get to see daylight. It's heartbreaking to see these guys have to live like that. We got at least 19 out of there."

Wheelon himself is out of the barn as well. The Carrie Harris Estate, from which Wheelon reportedly rented the barn, has served him with a detainer warrant May 2 listing "legal issues related to the care of animals" in order to remove him from the property and begin the legal process of eviction. Bachman says Wheelon has also been forced to retire from the Walking Horse Trainers' Association, although he is still listed as a member of the board on it's website. "His world is crumbling around him," Bachman says.

Recently, Jackie McConnell, a fellow Tennessee walking horse trainer, was indicted on 22 counts related to animal cruelty, including the torture and soring of horses in Fayette County, Tenn. If convicted, he faces a maximum term of three years in prison for each felony count and up to one year in prison for each misdemeanor.

Bachman says that in his experience, Wheelon and McConnell are not the exception but the rule in Tennessee walking horse circles. "They all cheat—or I should say, a lot of them cheat—but it's just a matter of how much and when they get caught," he says. He thinks more arrests and raids are coming. "We've already gotten tips of other places around."

Wheelon is free on bond. **dvm360**

dvm360.com Find it all here.

Tennessee raid

For more photos from the USDA's seizure of 19 horses from the barn of Tennessee walking horse trainer Larry Wheelon, see the slideshow at dvm360.com/wheelon.

PHOTO BY KATHY MILANI, FOR THE HSUS

Human CRE infections are 'untreatable,' experts say

How will this latest superbug impact veterinary patients? *By Ed Kane, PhD*

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This spring, the director of the U.S. Centers for Disease Control and Prevention (CDC) called carbapenem-resistant Enterobacteriaceae (CRE) a "nightmare bacteria." "Our strongest antibiotics don't work, and patients are left with potentially untreatable infections," said Tom Frieden, MD, MPH, in a press release.

In the first half of 2012, nearly 200 U.S. healthcare facilities treated at least one patient infected with this new super breed.[1] In a National Public Radio interview, the CDC's Michael Bell, MD, said, "This particular type of resistance has seemed to spread from one type of bacteria to another. It's able to hand off its blueprint for resistance to other types of bacteria, which raises the possibility that this kind of untreatable infection could become much more commonplace."

These types of bacteria don't get into human patients simply because of compromised immune systems, said Brad Spelberg, MD, of Harbor-UCLA Medical Center, in the same broadcast. "It's because we're providing very intensive care: putting plastic catheters into their bloodsteams so we can give life-saving medicines, inserting tubes into their lungs so we can have mechanical ventilators breathe for them or placing tubes in their bladders," he said. "When you break those types of anatomical barriers, it allows bacteria that normally don't get into those parts of your body to get in there."

Veterinary concerns

Fortunately, CRE have not been reported in dogs and cats to a great extent, if at all, says Jane E. Sykes, BVSc (Hons), PhD, DACVIM, of the University of California Davis School of Veterinary Medicine. Sykes is a member of the Antimicrobial Guidelines Working Group of the International Society for Companion Animal Infectious Diseases (ISCAID). "To our knowledge, we have never detected them here in our companion

"There's a possibility that CRE will become so much more prevalent in humans that we'll start seeing them colonizing pets too."
—Dr. Jane Sykes, UC Davis

animal patient population at UC Davis."

However, the rate of resistance in other bacteria that infect dogs and cats has increased to scary proportions. In particular, Sykes has seen a dramatic rise in multidrug-resistant *Staphylococcus pseudintermedius* infections and infections by Enterobacteriaceae (*Escherichia coli*, *Klebsiella*) and *Pseudomonas aeruginosa*. "Methicillin-resistant *Staphylococcus pseudintermedius* infections can be resistant to almost every orally administered drug available, and these can be particularly serious when they cause orthopedic infections, such as tibial plateau leveling osteotomy infections," she says.

Some of these resistant bacteria, especially the gram-negative organisms, may also have the potential to colonize humans that are in contact with these pets, Sykes continues. "More than ever before, veterinarians need to be prudent in regard to antibiotic use and hospital infection-control protocols," she says.

Taking precautions

In terms of preventing antibiotic-resistant organisms from infecting pets, veterinarians should institute the same basic precautions they would use for any infectious disease, says Mark Papich, DVM, MS, of North Carolina State University's College of Veterinary Medicine. When they identify an infection within an animal, veterinarians and their staff need to be cautious about spreading it from one animal patient to another or to themselves. "Basically, they should practice good normal hygiene," Papich says. "Routine hygiene, washing of hands, is probably the biggest component."

Patients known to be infected with multidrug-resistant bacteria such as CRE should be treated with strict isolation protocols to prevent spread within the hospital environment.

"We always recommend judicious use of the antibiotics that practitioners prescribe," Papich says. "Don't use an antibiotic when it's not indicated, and don't use antibiotics for longer than necessary. That's just part of good antibiotic stewardship and is essential to practicing good-quality veterinary medicine."

Sykes offers some key thoughts regarding antimicrobial selection and use:

1. Test. Whenever possible, verify the presence of a bacterial infection using cytologic examination and bacterial culture before starting antibiotic treatment.

2. Identify primary conditions. Always attempt to identify and treat the underlying cause of a bacterial infection—such as allergic dermatitis in dogs with superficial pyoderma or recessed vulva in dogs with recurrent urinary tract infections (UTIs)—rather than just treating the infection with antibiotics. Treatment with antibiotics without addressing the underlying cause can select for resistance.


Dr. Jane Sykes


Dr. Mark Papich

3. Target treatment. Select the most narrow-spectrum antibiotic based on cytologic examination, bacterial culture and susceptibility results or a knowledge of organisms that normally cause infections at a particular site. Choose an antibiotic known to be active at the site of the infection.

4. Follow protocol. Be diligent about hand washing (wash all surfaces of the hand and wrist for at least 15 seconds) and wear gloves for procedures involving non-intact skin to prevent nosocomial infections. Using hand sanitizer can help improve compliance. These routine precautions should be practiced before and after handling each patient.

Sykes' Antimicrobial Working Group is working on guidelines for treating common bacterial infections in companion animals because of the emergence of multidrug-resistant bacteria. The UTI guidelines can be found on the society's website at iscaid.org.

Because of heavy antimicrobial use in treating canine and feline UTIs, veterinarians must be aware of how inappropriate treatment contributes to the emergence of multidrug-resistant pathogens, the working group says. At the same time, prudent (and therefore rare) use of certain drugs would constitute a minuscule fraction of overall use. As such, using critically important antimicrobials in companion animals can be justified as long as their use is prudent and proper and based on bacterial culture and susceptibility data as well as patient care and welfare factors. In particular, the use of vancomycin, the carbapenems and linezolid is not justified unless the following criteria are met, the working group says:[2]

(1) Infection is documented based on clinical bacterial culture results and cytologic abnormalities. (2) Resistance to all other reasonable options and susceptibility to the chosen antimicrobial are documented. (3) The infection is potentially treatable. The use of critical drugs in situations in which there is little realistic chance of eliminating the infection (e.g., failure to remove the underlying cause) is not supported. (4) Consultation with an infectious disease and antimicrobial therapy expert has been obtained to determine if there are any other viable options.

A matter of time

Sykes thinks it's just a matter of time before CRE is recognized in animals. Because she and her colleagues are seeing more multidrug-resistant gram-negative bacteria, they're starting to use carbapenems such as meropenem more in companion animal medicine. "It's my concern that, as a result, we could select for CRE in veterinary patients as well," she says. "But there's a possibility that the other pathway will occur, which is that they'll become so much more prevalent in humans that we'll start seeing them colonizing pets too."

Papich says it's hard to predict how long it might take for CRE to affect veterinary patients. "Bacteria don't see any boundaries between species," he says. "Eventually these highly resistant pathogens infecting humans get transferred to our animals, and we end up with a similar problem."

J. Scott Weese, DVM, DVSc, DACVIM, of the University of Guelph's Ontario Veterinary College, says he has received anecdotal reports of sporadic CRE infections in animals, mainly out of the southern United States. "The saving grace for us at the moment is that CRE has not established much of a foothold yet in people in the community, but if or when it does, that means there will be exposure of animals," he says. "And given the broad range of bugs that can acquire resistance genes and their potential as enteric commensals, it certainly could spread in the animal population."

Papich says veterinarians who suspect CRE should use a laboratory that adheres to standards established by the Clinical Laboratory Standards Institute (CLSI; see clsi.org). "Although we do not have specific guidelines for testing animals at this time, laboratories should use the human testing standards," Papich says. At a CLSI meeting this month, a special workshop will meet to develop guidelines for veterinary diagnostic laboratories.

Take-home message

Whatever happens, the emergence of CRE has given the veterinary community an opportunity to discuss the importance of rational antibiotic use and hospital infection control practices. "We have to remember that indiscriminate antibiotic use in an individual patient, when it is done by thousands of other veterinarians and over the course of time in many animals, can actually be to the detriment of all of our patients in the future," says Sykes.

Papich agrees. "It is an important concern because we have so few antibiotics left to treat these infections," he says. "We do use the carbapenem antibiotics in companion animals. They have such a good spectrum of activity that veterinarians rely on them when there are few other antibiotics that are effective." **dvm360**

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Suggested reading

CDC. Guidance for control of Carbapenem-resistant Enterobacteriaceae (CRE). 2012 CRE Toolkit. Available at: www.cdc.gov/hai/pdfs/cre/CRE-guidance-508.pdf.

Veterinary caucus introduces bill to protect mobile practitioners

HR 1528 would exempt veterinarians from DEA restrictions on transporting controlled substances. *By Julie Scheidegger*

The U.S. House Veterinary Medicine Caucus, which consists of Reps. Kurt Schrader (D-Ore.) and Ted Yoho (R-Fla.), introduced legislation on April 12 to amend the Controlled Substances Act. House Resolution 1528, called the Veterinary Medicine Mobility Act, would make it legal for veterinarians to transport and dispense medications for pain management, anesthesia and euthanasia as needed to care for patients beyond the address they've registered with the Drug Enforcement Agency (DEA).

"As my fellow veterinarians know all too well, in the practice of veterinary medicine we are often required to provide mobile or ambulatory services in the field to treat our animal patients in a wide variety of settings," Schrader says in a release from the American Veterinary Medical Association (AVMA). Federal law currently requires veterinarians to store and administer controlled substances only at DEA-registered locations. The AVMA says this is especially problematic for large animal veterinarians in rural areas, emergency responders, veterinarians translocating wildlife, veterinarians providing house calls and those required to conduct field research—see the AVMA's infographic, right.

Schrader and the AVMA have appealed to the DEA in the past to exempt veterinarians from the mobile restrictions placed on them by the Controlled Substances Act. Last year, the situation became more urgent when a number of California veterinarians were notified by the agency that they were in violation of the law. Before this the DEA had rarely cited veterinarians for noncompliance.

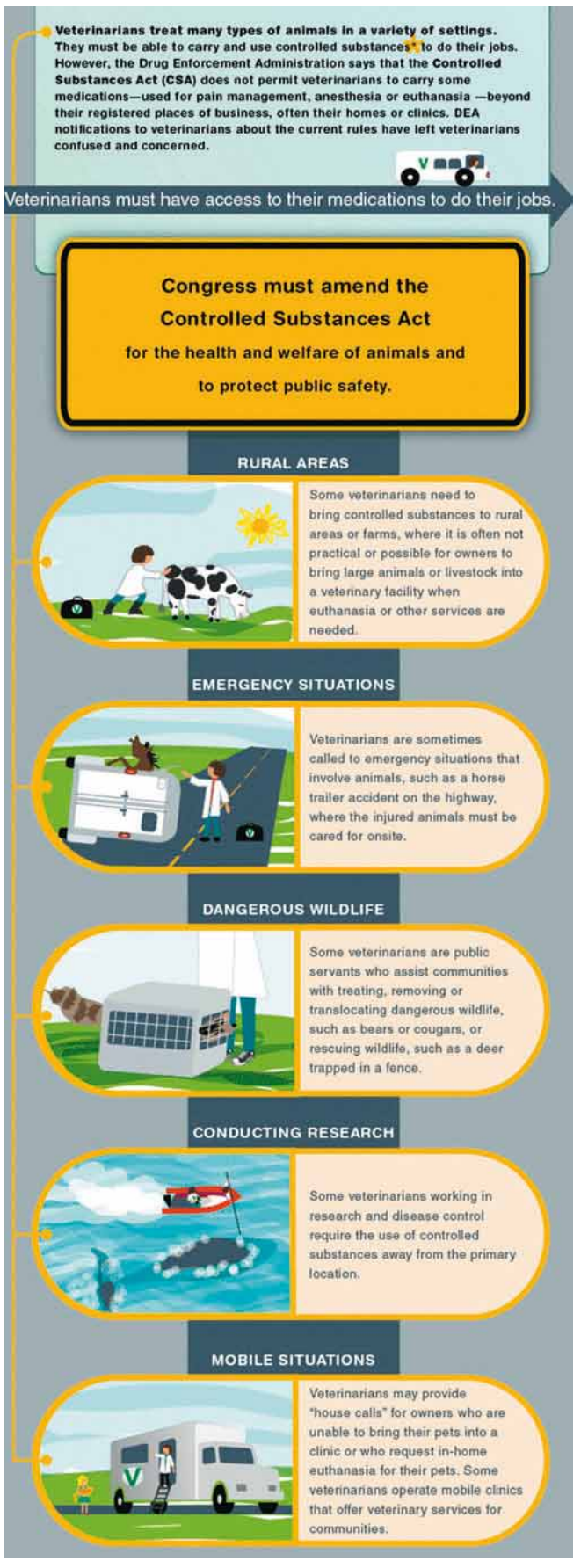
"It's our charge and our mandate to enforce the Controlled Substance Act," DEA spokesman Rusty Payne told *dvm360* earlier this year. "Those in violation could receive scrutiny." Payne added that it would take a legislative act to accommodate veterinarians.

Schrader says that's ridiculous. "The DEA's confusing interpretation of existing law makes little sense, is completely unreasonable, and hinders the ability of mobile and ambulatory veterinarians to properly care for their clients," he says. "We've made good-faith attempts to work with the DEA to cut through the bureaucratic red tape and find a sensible solution, but our overtures have fallen on deaf ears. Therefore, we're moving forward with what any reasonable person would interpret as a commonsense legislative solution to this bureaucratic nonsense."

Yoho, HR 1528 cosponsor, champions the idea of getting government out of the way of business. "This is another example of a well-intentioned regulation getting in the way of highly trained professionals trying to do their jobs efficiently," Yoho says. "Veterinarians like us must be able to travel to treat animals, and in emergency cases, any veterinarian should be able to get to the animal—and the community—in need. The government should facilitate this important work and not allow it to be debilitated with bureaucracy."

Mark Lutschaunig, VMD, director of the AVMA's Governmental Relations Division, reiterates that the practice of veterinary medicine goes beyond the walls of the veterinary clinic. "To provide complete care for their animal patients, veterinarians must have the ability to transport the medications they need beyond their brick-and-mortar clinics," Lutschanig says. "On behalf of the U.S. veterinary profession, we are pleased to see this legislation introduced and we encourage Congress to pass it quickly for the health and welfare of animals, to safeguard public safety and to protect the nation's food supply."

HR 1528 has been referred to the Committee on Energy and Commerce and the Committee on the Judiciary. To weigh in on the Veterinary Medicine Mobility Act, visit the AVMA's website, avma.org. **dvm360**



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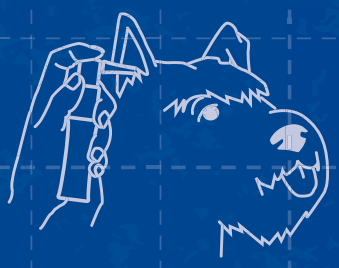

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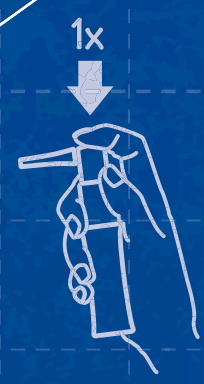

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See brief summary on page 40

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AAHA, AAFP release fluid therapy guidelines for veterinarians

To provide best practices and guidance for veterinary practitioners, the American Animal Hospital Association (AAHA) and the American Association of Feline Practitioners (AAFP) have released the AAHA/AAFP Fluid Therapy Guidelines for Dogs and Cats for use by veterinary professionals.

Released May 1, the fluid therapy guidelines are designed to provide practitioners with practical recommendations for choosing and administering fluids. Fluid therapy can positively impact patient outcome in a number of different scenarios, is easy to implement and does not require significant capital investment, say guidelines developers.

"Our hope is that we have removed the barriers for veterinarians who currently are not embracing fluid therapy to do so now," says contributing author Tracey Jensen, DVM, DABVP, in an AAHA release. "There are many conditions and situations where the patient can benefit from fluid support. We see this as a win-win-win: A win for the patient by receiving better medical care; a win for the client with quicker resolution of illness, decreased anesthesia risk and overall decreased veterinary expense; and a win for the practitioner with increased positive case outcome."

Because fluids are essential for life and support vital organs for longevity, many medical conditions can be more thoroughly and quickly treated with appropriate fluid therapy, saving the client money and adding years to their pet's life, developers say.

"The fluids committee did a great job of distilling medical information into a concise and easy to understand document," says Kate Knutson, DVM, 2013-2014 AAHA president. "AAHA will continue creating guidelines such as this one to provide clarity and support for practitioners in their quest for optimizing medical results."

To download the fluid therapy guidelines, visit catvets.com/professionals/guidelines/publications. In addition, AAHA will be offering a free web conference covering the new guidelines. It will be available July 1-14, 2013. Interested participants can visit aahanet.org/webconf for registration information. dvm360

Atopic or allergic dermatitis most common canine health condition in 2012

VPI reveals top 10 canine, feline veterinary diagnoses.

For the first time in five years, atopic or allergic dermatitis tops the charts for dogs.

The top condition in dogs that prompted a visit to the veterinary clinic in 2012 is a bit unexpected, according to recent research by Veterinary Pet Insurance (VPI). For the first time in five years, atopic or allergic dermatitis claimed the No. 1 slot, knocking the usual otitis externa down to second place.

VPI researched its database of more than 485,000 insured pets and found that policyholders spent more than $58 million in 2012 treating the 10 most common medical conditions affecting their pets. The insurance company received more than 68,000 canine claims for the No. 1 condition: atopic or allergic dermatitis. The average claim fee was $96 per office visit. Feline cystitis or feline lower urinary tract disease (FLUTD) was the most common reason pet owners brought their cats to the veterinary clinic. VPI received more than 4,000 medical claims for this ailment with an average claim of $251 per office visit.

The most expensive canine condition on the list, osteoarthritis, cost an average of $258 per visit. For cats, the most expensive condition—lymphosarcoma or lymphoma—cost an average of $415 per visit. Take a look at other the medical conditions that made the list in the chart at left.

"Although a few of the top 10 dog and cat conditions can be associated with an animal's natural aging process, many of the conditions listed above can occur in any pet," says Carol McConnell, DVM, MBA, vice president and chief veterinary medical officer for VPI. Regardless of the age or breed of the patient, she suggests telling clients, "Familiarize yourself with your pet's daily routine in order to identify abnormal behaviors that might indicate an injury or illness." dvm360

	Dogs
1	Atopic or allergic dermatitis
2	Otitis externa
3	Pyoderma/hot spot
4	Benign neoplasia
5	Gastropathy
6	Osteoarthritis
7	Enteropathy
8	Cystitis or urinary tract infection
9	Periodontitis/dental disease
10	Soft tissue trauma

	Cats
1	Feline cystitis or FLUTD
2	Periodontitis/dental disease
3	Hyperthyroidism
4	Chronic renal disease
5	Gastropathy
6	Diabetes mellitus
7	Enteropathy
8	Cystitis or urinary tract infection
9	Lymphosarcoma or lymphoma
10	Feline upper respiratory infection

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This is what's happening to our profession

Readers respond to Dr. Rebecca Tudor's commentary, "What's happening to our profession?" (April 2013).

Get in touch

Reach us through Twitter (@dvm360), Facebook (facebook.com/dvm360), e-mail (dvmnews@advanstar.com) or online (dvm360.com/community)

Dr. Tudor brings up many very good points to ponder. Here are a few more that I have wondered about for many years. While the increase in technology has provided us with the opportunity to offer our patients and their owners the very best veterinary medicine has available, we have not been very active in promoting any way for them to financially afford our services.

Physicians, dentists, chiropractors and so on provide service under the umbrella of insurance, yet we as a profession have been very reluctant to promote any type of third-party payment. How many of us would be here today if we hadn't had insurance to offset some medical problem?

In addition, we seem to have lost sight of the fact that we work within the bounds of what is mostly discretionary dollars (after the mortgage, utilities, groceries and so on). Couple that with the fact that our patients too often are expendable, for a multitude of reasons—it's no wonder we're having problems. This is especially true in the food animal industry, where for the most part it's all economics (no lap cow there). It's probably time to admit we're animal doctors and. for the most part, animals still come in second to people.

Les Perry, DVM
Troutdale, Ore.

Most of the pressures facing new graduates come from their "mountain of debt". Did they not notice when their debt hit $100K? It's no secret that the prospects of employment are bleak. That situation has been worsening since the crash of 2007. The personal management of one's debt sets the stage for everything that happens after graduation. Start a practice? Can't afford it. The new graduate feels the pressure to get a job or default because the nut looms. Economic lessons like this are not for the recent recipient of a doctoral degree. It seems like Economics 101. "Whaddyamean the credit card debt accumulates?! Somebody should DO something about this!"

Steve Odland, DVM
Auburn '76

I've been a veterinarian and owner for more than 50 years in a small animal practice—I've seen many changes. Currently we have three veterinarians on staff and we have an opening for a fourth. I've been advertising for more than two years for a veterinary associate but have had very little response. Most applicants have preset conditions upon interviewing.

Daniel Ebert, DVM
Ebert Animal Hospital
Youngstown, Ohio

The probles raised in Dr. Tudor's commentary have plagued us since the '80s. At that time, all the states suddenly wanted their own schools of veterinary medicine. So they built them in North Carolina, Tennessee, Virginia, Florida and so on. The huge expenses to build and maintain these monolithic hallmarks to each state's ego became a problem in the '90s and henceforth. But did they stop? No, people kept building more schools and increased the number of new graduates to sustain the budget. These were the days of "academic administrators gone wild," regardless of the obvious overproduction.

In the '80s, I was on the "manpower" committee formed by Washington, Oregon and Idaho's veterinary medical associations. (This committee's name was later changed to the more politically correct "steering committee.") Basically the school administrators were offended by practicing veterinarians talking about manpower. They were willing to let us have input on other things, which turned out not to be true either. Several other veterinarians and I gave 10 years of our association life to this committee until we threw up our hands in disgust. We tried to get Oregon to remain in the three-state program to no avail. Net result was an increase in veterinarians from Oregon, Washington and Idaho from 70 to about 150 within the first 10 years.

Furthermore, how can we ignore the progress of technology? My first few years out of school we still stomach-tubed horses for deworming twice yearly. This was not needed after the late '70s. Veterinarians used to do their own lab work and radiology studies. Well, not anymore—technicians do it for us. There is less and less TB testing on cattle. Sadly as technology grows and we become more efficient, the

demand for veterinarians has proportionately decreased. How hard is this to understand?

We can fix this. There are teaching hospitals to be closed and student numbers to be downsized. A new emphasis on a six-year total veterinary program with one to two years at the end of veterinary school to specialize is obviously needed. At a recent state meeting, one of the Washington State University administrators pined the loss of 25 percent of her budget. When I suggested that they reduce the number of students by 25 percent she had no comment. The disconnect between veterinary practice and veterinary education is a critical issue. We are the profession. School administrators are not the profession. Our national association must stand up to these forces and crank the voice of our political strength until we are heard.

If we don't change this now we will lose the enjoyment and satisfaction of this noble profession forever.

Rick Williams
Equine Associates
Spokane, Wash.

I agree that the onus is largely on the veterinary colleges to fix the problem. A veterinary student told me that when she initially applied to veterinary school, she was placed on an alternate list and given the option of accepting an out-of-state position in spite being a resident. She's now able to live her dream of becoming a veterinarian, but the dream will come at $100,000 to $130,000 in additional debt on top of the already exorbitant amount that the typical veterinary student has to pay.

Money is the number one driver behind this policy. Veterinary schools are able to free up state money while shifting more of their costs to students paying nonresident tuition.

We're all aware of the overwhelming debt burden facing new graduates. Combine the zeal and desire that most prospective professional students possess along with easy access to student loan money, and 95 out of 100 times the prospective student is going to make the unwise financial choice and accept a position. This is precisely what veterinary programs are counting on. Bottom line: These practices need to be stopped and veterinary programs nationwide need to not make the debt problem worse by conducting business in such a manner. State legislators need to go beyond loan forgiveness plans and take real measures to decrease the debt load. Perhaps student loans should be harder to obtain, making it harder for schools to increase their tuition and harder for students to make bad decisions for their future. I don't know the answer, but I do know that the student debt issue, both on a micro scale within the profession as well as on a macro scale, is going to be the next bubble to burst if we don't do something fast.

Chad Zadina, DVM
Fort Collins, Colo.

Read it
Scan the QR code to see the original article that sparked this letter.

Editor's note strikes a chord

I enjoyed reading editor Kristi Reimer's commentary, "*New York Times* shines a harsh spotlight on profession's woes" (April 2013). Of course, it's a topic that is all too familiar, with no real solutions standing out. What I enjoyed most is her inclusion of musical references such as "minor chords," "song of doom" and "a song of hope." I'm guessing that she has a background in music. I don't, but I looked up minor chords in symphonies and of course many of the most recognized symphonies are based upon minor chord keys. One statement that stood out for me was, "C minor imparts a symphony in the key a character of heroic struggle."

That seems to be a very apt analogy for the challenges facing the members of our profession. It's a heroic struggle, just as our lives are a heroic journey.

Reimer concluded the commentary by stating, "Individually and collectively, we as a profession must refuse to see ourselves as victims of circumstances beyond our control."

I read this from the perspective of the seven levels of engagement that all people experience. The lowest level is that of victim—feeling guilty, unworthy and hopeless. The highest level, one that many of us experience only in fleeting moments, is characterized by absolute passion, trust and fearlessness. Veterinarians naturally resonate in the middle levels of engagement—what is characterized by cooperation, rationalizing and solving problems. The next level of engagement is what I call the "sweet spot" for veterinarians and other healthcare providers. It's characterized by concern, compassion and service. There's also an aspect of wanting to feel needed and appreciated, which can be considered the veterinarian's Achilles' heel.

One of the primary motivators for veterinarians is to please clients. When a client refuses their recommendation, they can quickly be triggered into feeling hopeless ...

One of the primary motivators for veterinarians is to please clients. When clients refuse their recommendations, veterinarians can quickly be triggered into feeling hopeless and guilty.

This is a generalization but one that has merit. Much is being discussed about how veterinarians need to communicate better with their clients. I'm sure any veterinarian would love to do that. However, many veterinarians walk into the exam room already unconsciously protecting themselves against clients saying, "No." That's what the lower levels of engagement are about: Protecting oneself based on prior experiences that stirred up one's sense of inadequacy.

This can be very heavy stuff, which is why we can so easily get mired in self-doubt and anger. By contrast, the higher levels of engagement feel light and free, where we tap into our creative genius and are in the zone. The outcome may be a symphony or a "song of hope," as Reimer put it. At the highest levels, there really are no limits.

Michael Murray, DVM
MS, DACVIM
Technical Marketing Director
USA Pet Parasiticides
Merial Ltd.

Biting into the rabies debate

I read with interest about Dr. Hardy's dilemma in Dr. Marc Rosenberg's March 2013 column, "Rabies vaccination: To exempt or not?" A simple solution would be to offer titers for clients who wish to decline medically or legally necessary vaccines. In fact, from a scientific point of view, we care about antibody protection, not whether the pet was poked with a syringe of pink liquid.

I realize humoral antibody titers don't measure cell-mediated immunity, but titers have long been acceptable measures of protection for animal export as well being useful on the human side. Most jurisdictions will honor them if a veterinarian provides a letter of explanation. We have a Auto Immune Hemolytic Anemia (AIHA) survivor, a cocker spaniel, who gets his rabies titer done yearly and he has maintained protection. I just send a detailed letter and our township gives the owner a license.

One additional benefit of recommending a $150 titer is that many clients will happily choose the $20 vaccine as an alternative—case closed!

Robert Hott, DVM
Plymouth, Mich.

Shooting off a few gun ban concerns

Dr. Neel's reaction to a gun threat from an irate client was interesting in the March 2013 article "Firearm Fiasco: Guns in veterinary practice." However, Dr. Neel's decision to ban firearms from her clinic may be counterproductive. Some of her employees carried a gun, so I assume that a threat in her area exists. By banning her employees from carrying a firearm to and from their cars, she's exposing them to danger.

I stored a shotgun in my office closet for years as insurance if the unthinkable occurred. Thank God I only had to pull it out once when an irate client who belonged to a biker gang made some threats with a knife. I kept the gun hidden and luckily I defused the situation (by using a strategy similar to the excellent tips given adjacent to the article about Dr. Neel). If he had continued, the shotgun could have protected my staff from attack. Dr. Neel's gun ban guarantees that the only person in her clinic packing heat will be someone with evil intentions.

Mitch Tedeschi, DVM
Midlothian, Va.

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Hot new treatment: Pot for pain

My dog was wasting away. When all else failed, I had to try something new. *By Douglas Kramer, DVM*

Dr. Douglas Kramer is CEO of Vet Guru, Inc. in Chatsworth, Calif.

My first exposure to the idea of using medicinal marijuana as a pet therapeutic occurred when I was practicing as a small animal veterinarian in Southern California. I had a client whose dog was unfortunately losing the battle against cancer after failing to respond to every conventional modern therapeutic that we tried. My client was well-versed in alternative herbal therapeutics and one day confided in me that she had been administering specially made treats containing cannabis to her dog.

The results, she reported, were impressive. Her dog began to eat again and overall appeared much more comfortable. This experience led me to begin my endeavor to research and learn all that I could about possibly incorporating medical marijuana into veterinary medicine.

Not long thereafter, my own dog, a husky named Nikita, was also diagnosed with cancer. After surgery and pharmaceutical medications failed to contain the disease, I decided that I would administer cannabis as a treatment. In my mind it was a welfare and quality-of-life issue. She was wasting away before my eyes as her appetite waned and the energy drained from her body. My beautiful girl with the piercing blue eyes was reduced to an emaciated, unsteady and frightfully frail version of her former self. However, she was still of sound mind and was fully cognizant of what was happening around her. At the very least, I wanted to ease any pain she was experiencing and ensure that she was as comfortable as possible in her final days.

Douglas Kramer, DVM

Within 24 hours of administering the first dose of medical marijuana tincture, I observed a remarkable improvement in her appetite. In the following days she regained much of her strength as she once again ate full meals and rebuilt her muscles that had wasted away. As a result her balance improved and she was able to rise and walk without as much difficulty. There was no doubt in my mind that cannabis played a pivotal role in alleviating any unnecessary pain and suffering. It was the ideal therapeutic for palliative care in Nikita's situation.

However, in her case, medical marijuana was a palliative treatment and not curative. It didn't perform any miracles. Eventually the cancer spread and she began to have difficulty breathing and could no longer get to her feet on her own. I euthanized her myself and watched as peace fell over her soul while she was surrounded by those who loved her most in her own warm home. The medical marijuana treatments had given her several more months of quality time with her family—time and memories that she wouldn't have otherwise enjoyed if I had decided to euthanize her immediately rather than first administering cannabis.

My personal experience with Nikita remains one of the core driving forces that continues to push me to help other pet owners who find themselves in a similar unfortunate situation. There are few things worse than watching a loved one waste away before your eyes while feeling absolutely powerless to help. There is more we can do. **dvm360**

TWEET & greet
Readers react to topics via Twitter

>> How to harness a pitchfork-wielding horde for your practice (April 2013)

JeremyShaba: @pawcurious
Just got a read of your new @dvm360 article. Great job! Really puts things into perspective. #socialmedia #veterinarians

NewportVet: @ NewportVet
Poignant/helpful article from Dr. V @pawcurious in printed @dvm360 mag re: online reviews

>> What's happening to our profession? (April 2013)

iamvetmed: @dvm360
Agreed—but that still does not want to make me choose another career option

>> The fastest path veterinarians can take to unhappiness (April 2013)

kokirby83 @dvm360
Great article!

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Kevin C Knighton, D.V.M.
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REFUSING TO EUTHANIZE *a healthy pet*

Should you end an animal's life if there are options for a bright future?

Dr. Hauser was a solo small animal practitioner in a suburban Midwestern community. He loved his work and he loved his patients. His particular passions were veterinary cardiology and the health and well-being of shelter animals. He had taken postgraduate training in cardiology and volunteered his services at the local shelter once a week.

Late on a Tuesday morning Mr. Howard came to see him with his 6-year-old Labrador Blackie. Blackie was his lovable self but was gain-

ing some weight. Dr. Hauser examined him and thought the dog looked fine, but the mild lethargy and weight gain led him to order a blood profile. The following day he informed Mr. Howard that Blackie was just fine but that he had an underactive thyroid. He went on to explain that this was not unusual with Labs. The treatment was an inexpensive, small tablet that could be hidden in Blackie's food.

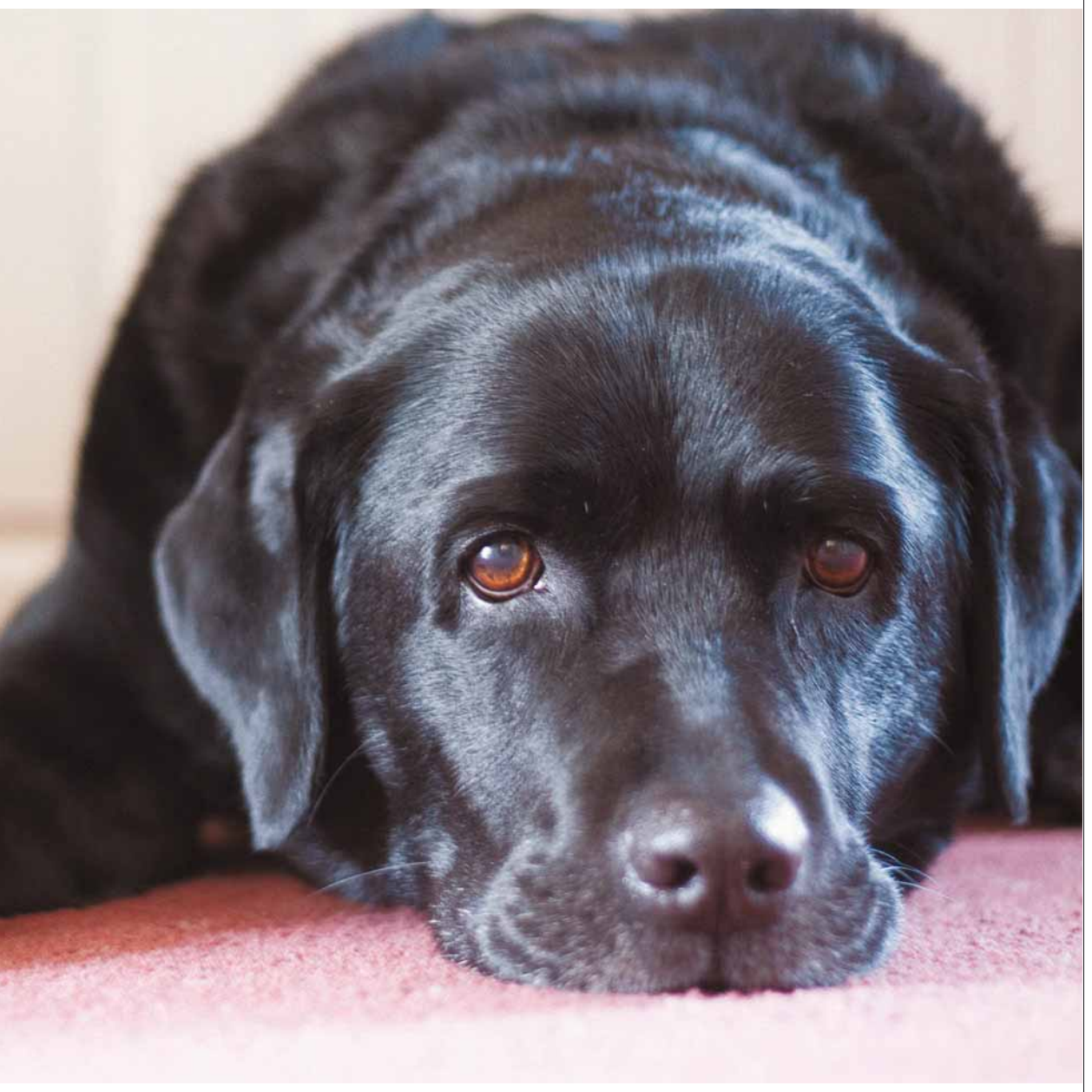
Mr. Howard made an appointment three days later to bring Blackie back in and talk to Dr. Hauser about what he called some "personal issues." When the owner and dog arrived, Dr. Hauser again explained the hypothyroid condition he had discovered. But Mr. Howard replied that he'd recently had some financial reversals. He was no longer working and had to leave his home. Blackie had become an added expense that he could no longer afford, nor could he provide an alternate home for him.

Dr. Hauser suggested placing Blackie in temporary foster care until Mr. Howard got back on his feet. If that wasn't possible, adoption options such as the local Lab rescue or the county humane shelter would very likely lead to Blackie finding a new home.

Mr. Howard was distraught. He'd had this dog since he was a pup. He admittedly was very "mentally stressed." But he did not feel that Blackie would thrive in any other household. The dog was set in his ways. Mr. Howard said that after much soul-searching he'd decided to have Blackie put to sleep, rather than put him through the trauma of parting with his owner and his home.

Dr. Hauser was torn. Blackie was a vibrant Lab with a minor thyroid problem. As a result of his shelter efforts and networking within the shelter community, Dr. Hauser was sure he could relocate Blackie to a caring home. He spoke at length with Mr. Howard and told him that in spite of his anxieties, euthanasia was not the way to part with this pet. Mr. Howard listened but told Dr. Hauser that Blackie was his dog, his mind was made up and that euthanasia was a humane option. He added that he expected his decision be honored.

Dr. Hauser was suffering a crisis of conscience. His role as a veterinarian was to help pets in need and relieve any suffering when



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possible. He thought that in Blackie's case, he would be euthanizing an essentially healthy dog with a bright future. He knew if he refused that Mr. Howard would very likely just go down the road to another veterinarian who would respect his wishes and perform the euthanasia.

Dr. Hauser decided to tell Mr. Howard that he could not in good conscience put Blackie to sleep. He sympathized with Mr. Howard's position but felt it did not warrant euthanizing a pet before exploring other viable options. Mr. Howard was distressed. He said he was not asking the doctor to do anything illegal but simply to respect his decision and humanely put his pet to sleep. He took Blackie and left the clinic.

Did Dr. Hauser make the right decision in this situation?

Rosenberg's response

Unfortunately, this is not a unique situation. Many clinicians are faced with a similar dilemma every day. In this case Blackie was going to be euthanized, just not by Dr. Hauser.

In all honesty, there is no right or wrong action in this situation. Another veterinarian may have felt that the owner was resigned to the euthanasia and that it was not fair to put Blackie through the stress of being taken to another strange clinic or shelter for the inevitable. In that case, humane euthanasia would be appropriate.

Speaking personally, I won't euthanize a pet with a potential viable option for relocation. I have to sleep at night. On the other hand, I will euthanize a pet that is reasonably healthy but has no options for a caring home. My goal is to see that my patients are not frightened and not in pain. In addition, I try to see that these animals are not put in a position where they will be frightened or in pain.

Dr. Hauser made the decision that he could live with. I feel that if Blackie's owner was determined to euthanize his dog and I had exhausted every option, I would have put Blackie to sleep rather than expose him to a fate that I could not caringly oversee. **dvm360**

Dr. Marc Rosenberg is director of the Voorhees Veterinary Center in Voorhees, N.J. He is a member of the New Jersey Board of Veterinary Medical Examiners.

3 reasons we're NOT DOOMED

Want to fix what's wrong with veterinary medicine? First, remember what's right.

I'm going to let you in on a little secret. There are a lot of *very* smart people out there who think veterinary medicine is in trouble.

I was speaking to a successful veterinarian a few months ago, and he decided to share with me all the reasons he thinks our profession is doomed. He touched on enormous educational debt, people bringing pets to the veterinarian less often and a potential scarcity of jobs in the coming years. He talked about the economy, difficulties facing small businesses today and the rising costs of healthcare for both people and pets.

He finished by pointing out that I, as a fairly young veterinarian, was going to be maximally affected by the rapid downward trajectory of the veterinary field. I think his exact words were, "You're totally screwed." How very helpful.

I was so taken aback by this stream of negativity that at the time I could barely muster an articulate response. While I don't think anyone has answers to all the issues he brought up, here's what I wish I had said in reply:

"My fellow veterinarians and veterinary technicians do have lots of challenges ahead. I don't think anyone knows exactly how to navigate the changing world around us, but I have no interest in abandoning ship. If we want to save the veterinary profession, then the first thing we have to do is remember why it's worth saving. I still love veterinary medicine, and this field has a lot going for it."

Here's what's right.

The people

The people working at the front desks in veterinary clinics could do a very similar but easier and less stressful version of their job for a thousand other types of businesses. They could be in dental or human healthcare offices, maybe even making better money, but they're here because they want to make a difference in the lives of pets.

Plus, few people out there work as hard as our technicians. And theirs is a dirty job. They get spattered with vomit, rejected cat medications, anal gland secretions and all other manner of bodily waste. They wear x-ray exposure meters to measure how much radiation they're exposed to, they know how to assist in surgery, they understand the side effects of common medications, and they're able to gently but firmly restrain pets while minimizing pain and fear.

They get called on to handle scared pets, emotional people and—perhaps most impressively—a variety of computer problems that are beyond the abilities of the doctors they work with. (Ahem. Present company included.) They take years' worth of advanced education courses to become credentialed as veterinary technicians, and their salaries often don't reflect their high level of training, immense skill or strong work ethic. They're in it for more than money.

Furthermore, many of these angels are the driving forces behind local rescue and shelter programs. They're the ones who adopt the "broken" pets no one else would take after life-altering injuries. They're also the ones who get to apologize to pet owners when the veterinarian is running late, stuck in surgery or home with a sick child.

Do these people make mistakes or have bad days sometimes? Of course. They're human. But the fact that they exist in the world should brighten all of our days.

The progress

We can't fix every medical problem, and many of our treatment and diagnostic options are not cheap. But think about all we can do today that we couldn't even 10 years ago.

Wes econd-guess ourselves, sometimes suffering baseless guilt and remorse for outcomes we can't control. Our pay grade is below our human-focused counterparts. Still, it's in our blood.

Blood analyzers give our patients what amounts to an internal physical examination in less than a minute. We take radiographs that we lighten, darken, zoom and reposition with the touch of a button. We copy those same radiographs onto a DVD or e-mail them to a veterinary radiologist on the other side of the country for a consult within the hour.

Also, the level of comfort we're

>>> Before you abandon ship: Remember everything the veterinary profession has going for it.

THINKSTOCK

able to provide injured pets and pets recovering from surgery is on an entirely different level today from where it was a decade ago. Continuous rate infusions, multimodal pain control, epidurals for orthopedic pain—these were practically unheard of in the recent past. Now they're increasingly common practices. The idea that pets don't feel pain or don't experience it in a way that justifies proper pain management is fading away, and we're entering an enlightened new age.

Access to veterinary specialists with highly advanced medical equipment, skills and training is soaring. These specialists used to be found only in large universities with veterinary teaching programs. Now they're in every major city.

What's more, they're readily available via telemedicine. We can send photos to dermatologists, videos to behaviorists, EKG recordings to cardiologists, ultrasound scans to radiologists and lab results to internal medicine specialists. This technology barely existed five years ago, and now it's everywhere.

The purpose

When I was applying to veterinary school, my wife met the wife of a veterinarian in our area. My wife told her that I was applying and asked, "What advice do you think your husband would give Andy about going to vet school?" The lady smiled grimly and said, "Go to dental school."

Life as a veterinarian or veterinary technician is not easy. It includes a work schedule that doesn't end when the veterinary clinic is scheduled to close. It can mean stress and long days. Our emotions take daily bungee jumps as we handle everything from kittens to euthanasia. We second-guess ourselves, sometimes suffering baseless guilt and remorse for outcomes we can't control. Our pay grade is below our human-focused counterparts. Still, it's in our blood. Those of us who love it wouldn't trade it for any other job.

Being a veterinarian is deeply rewarding. It's a calling. There's a reason most of us take out big loans to fund our education. This is a profession where you can lay hands on an animal and save both that pet and the spirit of its owner. While that reality can slip from view underneath piles of bills and paperwork from time to time, it's still very real. It's a life with purpose, and that's wonderful.

So let's explore options and run numbers. Let's think and rethink how we do our work. And let's keep our eyes on our purpose. If we do that, we'll find a way to fix the problems that come up as veterinary medicine continues to evolve. I have faith in that. **dvm360**

Dr. Andy Roark practices in Greenville, S.C. He is the founder of veterinary consulting firm Tall Oaks Enterprises. Follow him on Facebook or @DrAndyRoark on Twitter.

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Why you *shouldn't* follow your passion

Are you barking up the wrong tree by leading with what you love in life, rather than what you're good at?

How often have you heard someone say, "Follow your passion," the implication being that at the end of the passion rainbow sits a pot of gold full of happiness, health and prosperity? It seemingly makes a lot of sense. How can you go wrong doing what you relish? Take a few risks, dedicate yourself to a goal and all will be great, grand and glorious, right? Well, not surprisingly, I have a contrary perspective—in fact, I want to call total baloney.

Rarely is it that simple. For one thing, most of us don't have clearly determined passions and even fewer of us understand what passion really is. How can we follow something we can't identify? To follow our passion would require that we identify it as such or rely on blind luck to lead us. Not so easy given that passion is really an emotion and fluctuates with age, opportunity and influence from others.

Built on a shaky premise

As Cal Newport, author of *So Good They Can't Ignore You: Why Skills Trump Passion in the Quest for Work You Love* (Business Plus, 2012), says, the advice to follow your passion "assumes that you have an identifiable preexisting passion, and if you match this passion to your life … " well, it isn't so easy. It becomes an old saw built on a shaky premise.

The thing is, being passionate about something doesn't mean we'll be any good at it. Instead we must study, practice, strengthen and build on what we do and shape those skills into a passion for our work. It means becoming passionate about what we do, not just doing what we have a passion for.

"Follow your passion" may actually be some of the worst advice you can take or give. I know it sounds good—who doesn't want to get paid for doing what they love? The reality, though, is that first you become really good at something and then you grow passionate about it. The reverse rarely works.

Something magical will happen

Here's a personal example: When I was a youngster, I loved baseball. I knew batting averages, ERAs and team rosters three layers deep. I learned to stand like the great Mickey Mantle and copied Whitey Ford's pitching form. Few kids were more passionate about baseball than me. But there was one small problem: I sucked at the game. So my passion quickly turned to indifference and my new passion became football. And then later it was music—ultimately all with the same unfortunate results.

You see, it hadn't occurred to me that I actually had to practice. I was passionate! I figured something magical would happen. Unfortunately, you can search the halls of Cleveland, Canton or Cooperstown and you won't find my name. Had I understood the chicken-and-egg concept of

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passion and excellence, I might have looked into sportscasting or writing with better results.

Is it really a passion for the veterinary profession?

This yin and yang is very much a part of our profession. The truth is that for most of us, our passion was never the veterinary profession itself. Rather it was the delight of interacting with animals, the challenge of problem-solving, the fulfillment of treating and preventing disease and, yes, in some cases, financial reward. Veterinary medicine provided a way of getting really good at those things and allowed our profession to achieve those passions.

Have you ever been interviewed by a youngster whose parents said, "She wants to be a veterinarian more than anything"? No, she doesn't—she wants to work with animals, is intrigued by your stethoscope and realizes that becoming a veterinarian will make that possible. The parents have skipped past the fact that she loves animals or science. How many youngsters started out thinking they were passionate about being involved in organized medicine or public health or wanted to own a large practice? Rather, they worked at skill sets and parlayed their actual passion into becoming veterinarians.

Do what you do well

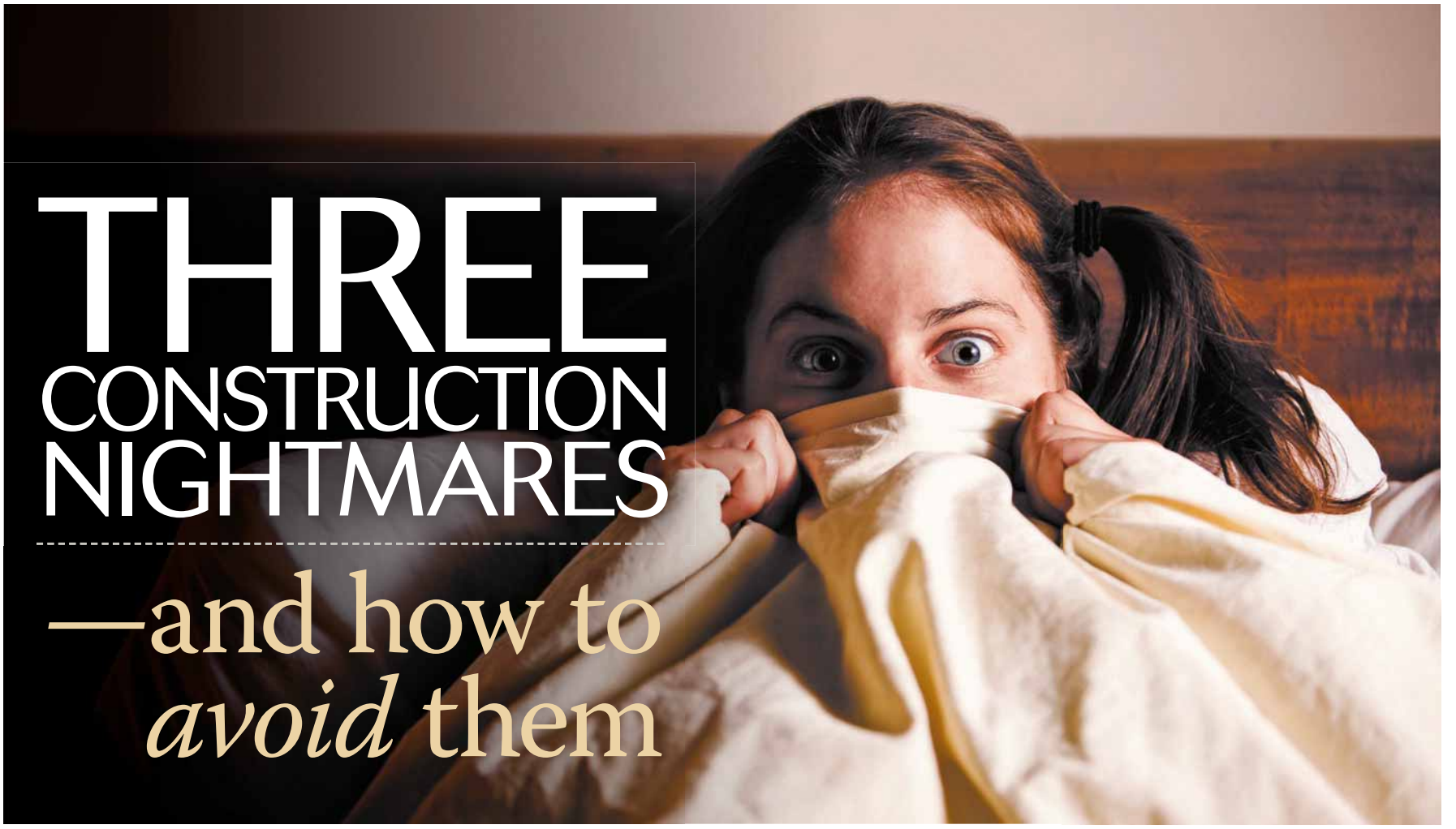
So why do we focus on following an imaginary emotional goal? One reason is that people have told us that wanting something badly enough will make it come true. "You can be anything you want to be," they say. Really? It feels good to do something we enjoy and hopefully life will reward us, but take a look at the talents and skills required to be a musician, an athlete, a dancer or that old standby, the president of the United States. Really?

I will be frank—I hope you grow to love what you do and spend your life doing what you love. I hope that elusive thing called passion works its way into your life's work. But in reality, unless I'm your parent or Dr. Phil, I don't care! I want you to be good, well-prepared, knowledgeable and as much of an expert as possible, regardless of whether you're doing my taxes or operating on my back. I don't pay you for being passionate or happy—I pay you for excellence and I expect you to pursue that as your passion.

So contrary to what your high school guidance counselor advised, don't pursue your passion. Look at your interests, talents and skills and pursue excellence—your passion. Do what you do well and get better at it. *That* will be recognized and rewarded internally where it really matters.

Had I followed my own advice years ago, I might have found myself sitting where Bob Costas sits, instead of wishing I could see the TV better. **dvm360**

Dr. Michael Paul is a nationally known speaker and columnist and the principal of Magpie Veterinary Consulting. He lives in Anguilla in the British West Indies. Got a question for Dr. Paul? Ask him on Twitter @mikepauldvm. Your question could be answered in his next column.



THREE CONSTRUCTION NIGHTMARES —and how to *avoid* them

Expanding your practice into a new facility doesn't have to keep you awake at night—if you take necessary precautions ahead of time.

Veterinary practices are like people in certain ways—they have identities, personalities, peculiarities and even Facebook pages. And just as people often outgrow their dwellings, businesses outgrow their physical environments, too. But unlike a person, a business can't just move into a Hampton Inn if the lease expires. A veterinary practice can't just bunk up with relatives for a few weeks if the building it lives in sells faster than anticipated.

Therefore, it's vital that veterinary practice owners give due consideration to the logistics of moving to new facilities. Failure to plan for such a move can mean paying a steep price to landlords, banks, construction professionals and potential tenants.

There can also be a big financial sacrifice in lost revenue and lost clients, not to mention what you could spend on inadequate temporary facilities. And all that stress on the practice owner? That too is a price that can be incredibly high and impossible to quantify.

So let's look at some fixes to consider when faced with a nightmare situation.

Nightmare No. 1: Construction contracts

Ask most folks who've ever had a building project done and they'll likely tell you the same story: Builders almost always take longer to complete a project than they predict (or at least than they tell you to expect).

When a construction firm runs behind on your building project, it means you'll probably be paying interest and principal payments on your construction loan before you can use the space you're paying to have constructed. And the majority of each payment in the early stages of a typical building loan is interest you won't recover, even if you pay your loan off early.

In the meantime, you'll have to continue operating out of your existing facility. If you're renting, that means making continued rent payments along with construction loan payments, as well as a land mortgage in some cases.

The fix: Although it's a long shot, you might be able to do what schools, municipalities and other large organizations do, which is require the builder to post a surety bond. Such bonds are like insurance policies that guarantee the timing and quality of the construction work. Unfortunately, they're expensive and can cause the price of the project to rise dramatically. But it's worth checking with your architect about the possibility.

A more realistic option is to insist that your construction contract include a clause indicating that "time is of the essence." It could be drafted to state that the builder will forego a certain portion of his payment for each day or month the project runs over the promised completion date.

Nightmare No. 2: The end of the lease

Obviously, no veterinarian wants to pay rent on an old place after moving his or her practice to a gleaming new facility. So generally veterinarians try to correlate the end of their old practice lease—or the closing of sale on their old building—with the completion of the new practice digs.

But consider this scenario: The

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builder isn't quite finished with the new building, but the old building is sold or has a new tenant effective on the date when the new building was supposed to be finished. The result? Rented trailers on your new building lot, office calls for surgery that you have to refer to other hospitals, zero income on radiology and so on. Oh yeah, and then there are the Port-a-Johns.

The fix: For renters, try to amend your lease before signing on the dotted line to provide an option to convert to month-to-month tenancy around the time your new office is supposed to be finished.

For property owners, negotiate a flexible occupancy from the buyer of your old space. If you draft in a right to rent the old place back for a few months, you'll have a cushion that will prevent sleepless nights as the construction deadline approaches.

If you're really clever, you can use the same lease-back figure included in your sale contract to establish the late-completion penalty clause you demand from your builder. That way your tardy contractor can pay the economic consequences of his slow work instead of you.

Nightmare No. 3: Underestimating bureaucracy

I have a client in Southern California who had to wait three years for her locality to issue all the zoning, environmental and public hearing approvals she needed to allow her new animal hospital to open its doors. The fact is, government red tape can be a business-killer.

The problem is that local government has so much autonomy that it has no incentive to be fair or expeditious. Therefore, it's highly unpredictable whether or not bureaucratic delays will affect you. If a delay should occur, your goal is to minimize the *amount* of delay.

The fix: First, do your due diligence before getting started. Find out what time frame others in the area have encountered working through city, town and village obstacles.

Second, hire an attorney with experience in obtaining construction permits in the jurisdiction you want to build. Keep in mind that in municipal law, it's often better to have a local lawyer than a brilliant lawyer.

Third, pay your architect a few extra bucks to help represent you before the zoning and other local boards—she has more experience than you do. And just as importantly, she has experience behaving calmly and rationally in the face of irrational words and deeds generated by government agencies.

While the idea of growing into a new facility may not initially sound like a nightmarish endeavor, it can quickly become one. But with some good planning and wise safeguards, you can minimize your growing pains and focus on the opportunities your new facility will bring your way. **dvm360**

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Your *time* = your *money*

Want to realize a return on your veterinary school investment? It's as simple as charging for your services—all of them.

To realize the value of one minute, ask a person who just missed the plane. To realize the value of one second, ask a person who survived an accident. To realize the value of one millisecond, ask the person who won a silver medal at the Olympics. So what then is the value of four arduous years of study for a veterinary degree?

The cost of achieving a veterinary degree has been skyrocketing over the last few years. The average debt load for newly graduated veterinarians was about $150,000 in 2012. There are houses you can buy for that price! Yet the average starting salary for graduates was close to $65,000 last year.

Remember that these are averages, so some have more debt load and some start with a lower salary. Sadly, once a veterinarian finally graduates and finds a professional position, a huge part of his or her salary goes to repaying debt.

The reality of veterinary debt

This means that new veterinarians find it harder than ever to make ends meet and don't have the financial ability to start or buy into a practice. Based on reports over the last few years, we

Per-minute client costs based on veterinary salaries

Veterinarian's salary	$80,000	$85,000	$90,000	$100,000	$110,000	$120,000	$130,000	$140,000	$150,000
Hours worked per week	45	45	45	45	45	45	45	45	45
Medicare and FICA	$6,096	$6,477	$6,858	$7,620	$8,382	$9,144	$9,906	$10,668	$11,430
Federal unemployment tax	$56	$56	$56	$56	$56	$56	$56	$56	$56
Health insurance	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000
Minimum 401(k)	$4,000	$4,250	$4,500	$4,750	$5,000	$5,250	$5,500	$5,750	$6,000
Pet care	$500	$500	$500	$500	$500	$500	$500	$500	$500
Professional dues	$500	$500	$500	$500	$500	$500	$500	$500	$500
Continuing education	$500	$500	$500	$500	$500	$500	$500	$500	$500
Liability insurance	$500	$500	$500	$500	$500	$500	$500	$500	$500
Total cost	**$100,152**	**$105,783**	**$111,414**	**$122,426**	**$133,438**	**$144,450**	**$155,462**	**$166,474**	**$177,486**
Cost per hour	$44.51	$47.01	$49.52	$54.41	$59.31	$64.20	$69.09	$73.99	$78.88
Cost per minute	$0.74	$0.78	$0.83	$0.91	$0.99	$1.07	$1.15	$1.23	$1.31
Efficiency	60%	60%	60%	60%	60%	60%	60%	60%	60%
Cost per effective minute	$1.24	$1.31	$1.38	$1.51	$1.65	$1.78	$1.92	$2.06	$2.19
Charge to client per minute	**$4.95**	**$5.22**	**$5.50**	**$6.05**	**$6.59**	**$7.13**	**$7.68**	**$8.22**	**$8.76**

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experience one of the highest debt-to-income ratios compared to our human healthcare peers.

We put a lot of time, trouble and money into our jobs so we can get paid less than a third of what our human medicine counterparts make. We must adore working long, hard hours for so much less than our educational investment would suggest. After sinking about $200,000 into achieving our degree and getting our license, we must learn to be more cognizant of achieving a return on our investment.

Time is a valuable commodity

What we really need is a meter installed in our heads that monitors our most sellable merchandise: our time. We cannot survive by giving it away. Everything we do has a time component and should be sold at an appropriate dollar amount per unit of time.

So who sets the dollar amount for you? Initially, your employer does during your associate days. How does that happen? There are rules to follow and after that, it's simple math.

Let's say you're a salaried veterinary associate working 45 hours a week and being compensated at $80,000 per year. In addition to the $80,000, your employer must add Medicare, FICA and federal unemployment taxes amounting to $6,152, health insurance at a minimum of $8,000 and some kind of pension contribution amounting to about $4,000.

Now we add expenses for personal pet care, association dues, continuing education and medical liability insurance at a very minimum of another $2,000. The total cost has just leaped from $80,000 to $100,000, pretty typical of 20 percent in benefits added to salary. If you work an average of 45 hours a week or 2,250 hours a year, that comes out to an employer's cost of $44.51 for each hour and 74 cents for each minute you are employed.

So how does the practice profit?

But how is the veterinary practice owner going to show a profit for taking you off the unemployment line? He or she cannot sell 100 percent of your time. What about the time you spend getting ready between clients, writing up records and even potty time. Let's face it: Only 60 percent of your time is billable to the clients. Now your 74 cents per minute cost becomes $1.24 per billable minute.

Remember I said that there are rules to follow? Well, this one is incontravertible: No practice can survive if veterinary employment costs exceed 25 percent of total practice expenses. So it follows that per-minute costs must be marked up four times to determine client fees for your service. Now your client must be billed $4.95 for each minute you spend serving his or her needs or the practice loses money.

Calling it simply $5 per minute, a 15-minute exam must produce at least $75 to break even. An hourlong surgery cannot be less than $300 for an

$80,000-per-year surgeon's time alone. A $100,000-per-year surgeon's time must be marketed at $6 per minute and $360 per hour. When an associate does a free nail trim that takes just two minutes, the hospital loses at least $10. (Consult the table on page 58 to put your own hospital's staff in perspective. Of course, this data doesn't consider the fixed costs of the hospital that must be added in, but that's a different discussion for another day.)

Everyone's time is money

Shall we mention the markup on staff members' time? There's a rule for this as well. Costs for paraprofessional staff—receptionists, technicians and kennel employees—may not exceed 20 percent of practice expenses.

If we add 20 percent for benefits to paraprofessional wages and consider those employees to also be about 60 percent efficient, a $14-per-hour full-time staff member's time must be charged out at $2.33 per minute. A receptionist invoicing a cat toy for $2 and taking two minutes for the process is an invitation to bankruptcy, because time is money and profit is not a town in Serbia. It nauseates me to think of a veterinarian and technician spending an extra three minutes in an exam room trimming a pet's nails and not charging for the service.

Over the career of the average veterinarian, an amount greater than double the total cost of today's veterinary education is given away as free services. I know of no other profession that is as generous to its staff and clients. And while generosity is a noble trait, it's certainly not helping our debt-laden profession one bit. **dvm360**

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>>> Not charging for that puppy's toenail trim? That's a big mistake, says Dr. Snyder, because everyone's time is money.

HEY, VETERINARIANS:

It's time to get our sexy back

These tips can spice up your professional life now and build stamina for the years to come.

Is your choice of profession leaving you feeling a bit, let's say, unaroused these days? Want to spice up your life in the exam room? Let's consider some changes we can make to leave ourselves, our clients and our patients a little more satisfied after those long, strenuous workups in the clinic.

Much of how we feel about our jobs depends on all of the factors we juggle to try to reach the ever-elusive "job satisfaction." Yes, we're part of a great profession. But we deserve more than "Yeah, I like my job OK." We deserve to reach the ground-shaking, window-shattering, deep-down career fulfillment that any other professional would envy.

How we feel about our career on a day-to-day basis is related to the ever-present stresses that affect our lives. Many of those stresses have nothing to do with pets, our clients or anything related to veterinary medicine at all. But indirectly, they affect our mood and ultimately (rather unfortunately) how we approach our clients, handle our patients and practice medicine.

Depending on your current chapter in life, I'm sure you can think of a few stressors that have altered your demeanor in the clinic. How about drama with teenagers, sleepless nights with small children, staff squabbles and other practice management dilemmas, a flooded basement, the dog getting into the trash (again), the landlord being a jerk—the list goes on.

There are countless articles, CE courses and experts addressing the subject of work-life balance for veterinarians, which underscores how important it is to assess and manage these factors if we want to get the most out of our careers. With so much to consider in all of this, I would like to draw your attention to one of the biggest stress factors of all. If you've read any of my previous articles in this column, you probably know where I'm

headed: *debt.* It's a four-letter word, and I don't think that is any coincidence.

Getting back in the game

Want to get your "O-face" back when you walk into the clinic in the morning? (Better yet, some of you, like me, might prefer the evening for an all-night supercharged marathon emergency shift.) My top recommendation is to push harder to get a couple of "0"s off that loan balance sheet.

I think we grossly underestimate the constant mental burden that debt causes. Twist the numbers how you will. Get the most creative tax accountant you can find. Be satisfied with "It's only another two or three decades before it's all paid off." But like it or not, however you choose to think about it, you owe a substantial amount of money to someone, and that's no source of enjoyment for anyone—except perhaps your creditors.

Wanting to pay down the debt and finding the path to do so are, of course, two entirely different processes. What I am coming to realize, slowly and deliberately, is that in order to whack down that debt, we must change our entire lifestyle. It's going to take some serious soul-searching if we're going to stay on top of our debt, along with drastic changes to how we live. (Dealing with debt is probably the only time I will ever stress the importance of always being on top.)

Here's something crazy I did recently to save money. Last year my wife (as of this month!) and I were renting a fantastic house. Great part of town, quiet neighborhood, beautiful view. But pretty pricey. When I took a hard look at our financial liabilities and assessed what we could trim even more, the house rental stood out like a sore thumb. We looked into buying, but it just wasn't the right time for us.

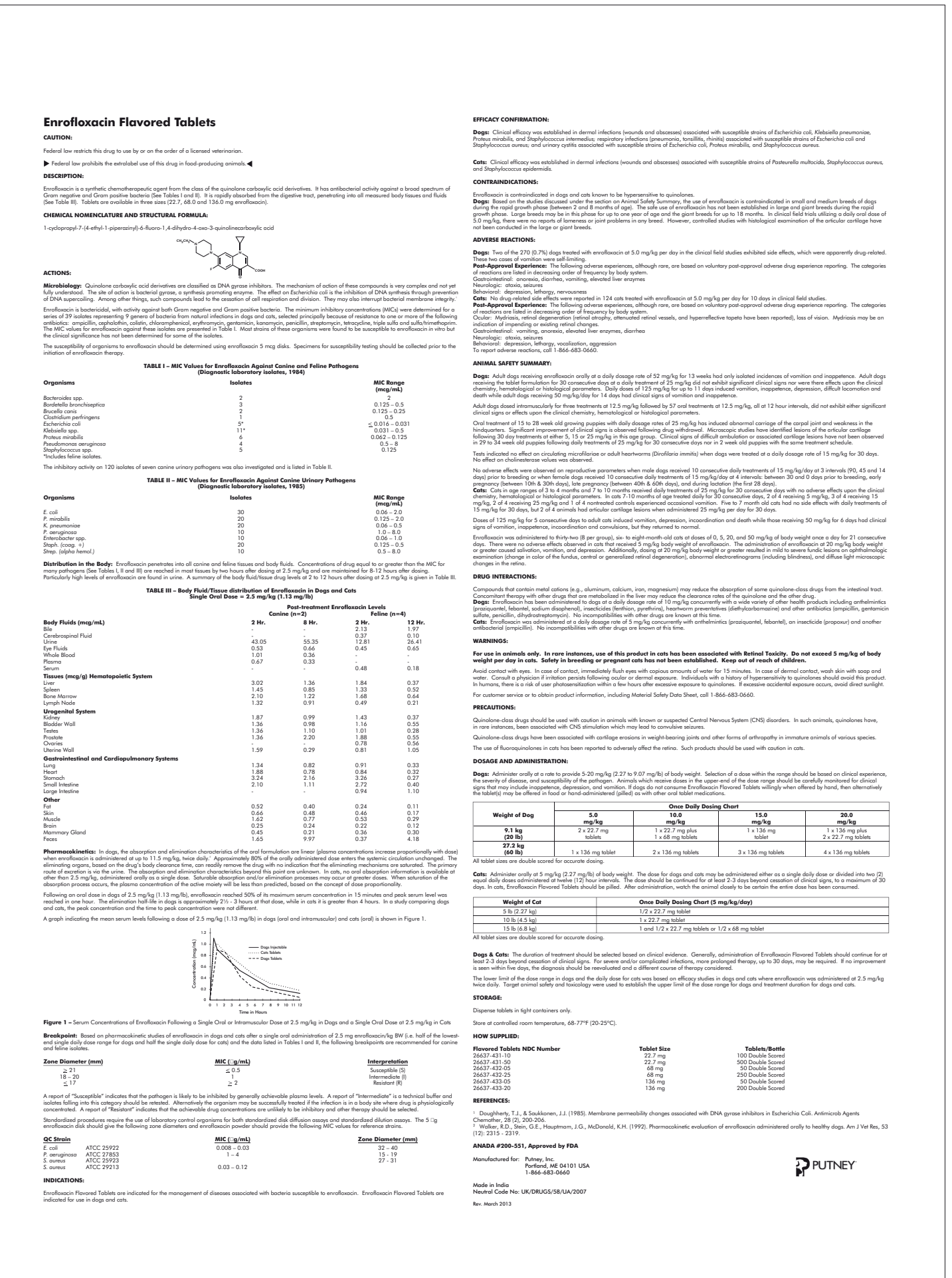
So we moved. It sucked. Big-time. We're in a smaller place, it's older, and it's not in the most desirable location. But guess what? It's totally livable. And our dogs even seem to like it better here than the last house! What's even better? We're saving an extra grand a month. That's a thousand dollars closer to being debt-free every single month.

What you can and can't live with is ultimately up to you. But after making some changes that seem tough initially, you may find out it's actually not so bad. And you will see those rewards start adding up as the debt shrinks down. The more rewarding it gets, the easier it is to make more changes, and the effects of your efforts will start to multiply.

Taking it even further

OK, there's plenty more to being a happy veterinarian than getting out of debt. So let's move on to some other quickies that will have the whole of your staff and client base begging for more.

Change positions. Sometimes things can get a little dull, even boring—it happens to the best of us. This occurs when we fail to engage ourselves fully in the task at hand.



Enrofloxacin Flavored Tablets

CAUTION:

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

▶ Federal law prohibits the extralabel use of this drug in food-producing animals.◀

DESCRIPTION:

Enrofloxacin is a synthetic chemotherapeutic agent from the class of the quinolone carboxylic acid derivatives. It has antibacterial activity against a broad spectrum of Gram negative and Gram positive bacteria (See Tables I and II). It is rapidly absorbed from the digestive tract, penetrating into all measured body tissues and fluids (See Table III). Tablets are available in three sizes (22.7, 68.0 and 136.0 mg enrofloxacin).

CHEMICAL NOMENCLATURE AND STRUCTURAL FORMULA:

1-cyclopropyl-7-(4-ethyl-1-piperazinyl)-6-fluoro-1,4-dihydro-4-oxo-3-quinolinecarboxylic acid

ACTIONS:

Microbiology: Quinolone carboxylic acid derivatives are classified as DNA gyrase inhibitors. The mechanism of action of these compounds is very complex and not yet fully understood. The site of action is bacterial gyrase, a synthesis promoting enzyme. The effect on *Escherichia coli* is the inhibition of DNA synthesis through prevention of DNA supercoiling. Among other things, such compounds lead to the cessation of cell respiration and division. They may also interrupt bacterial membrane integrity.[1]

Enrofloxacin is bactericidal, with activity against both Gram negative and Gram positive bacteria. The minimum inhibitory concentrations (MICs) were determined for a series of 39 isolates representing 9 genera of bacteria from natural infections in dogs and cats, selected principally because of resistance to one or more of the following antibiotics: ampicillin, cephalothin, colistin, chloramphenicol, erythromycin, gentamicin, kanamycin, penicillin, streptomycin, tetracycline, triple sulfa and sulfa/trimethoprim. The MIC values for enrofloxacin against these isolates are presented in Table I. Most strains of these organisms were found to be susceptible to enrofloxacin *in vitro* but the clinical significance has not been determined for some of the isolates.

The susceptibility of organisms to enrofloxacin should be determined using enrofloxacin 5 mcg disks. Specimens for susceptibility testing should be collected prior to the initiation of enrofloxacin therapy.

TABLE I – MIC Values for Enrofloxacin Against Canine and Feline Pathogens (Diagnostic laboratory isolates, 1984)

Organisms	Isolates	MIC Range (mcg/mL)
Bacteroides spp.	2	2
Bordetella bronchiseptica	3	0.125 – 0.5
Brucella canis	2	0.125 – 0.25
Clostridium perfringens	1	0.5
Escherichia coli	5*	≤ 0.016 – 0.031
Klebsiella spp.	11*	0.031 – 0.5
Proteus mirabilis	6	0.062 – 0.125
Pseudomonas aeruginosa	4	0.5 – 8
Staphylococcus spp.	5	0.125

*Includes feline isolates.

The inhibitory activity on 120 isolates of seven canine urinary pathogens was also investigated and is listed in Table II.

TABLE II – MIC Values for Enrofloxacin Against Canine Urinary Pathogens (Diagnostic laboratory isolates, 1985)

Organisms	Isolates	MIC Range (mcg/mL)
E. coli	30	0.06 – 2.0
P. mirabilis	20	0.125 – 2.0
K. pneumoniae	20	0.06 – 0.5
P. aeruginosa	10	1.0 – 8.0
Enterobacter spp.	10	0.06 – 1.0
Staph. (coag. +)	20	0.125 – 0.5
Strep. (alpha hemol.)	10	0.5 – 8.0

Distribution in the Body: Enrofloxacin penetrates into all canine and feline tissues and body fluids. Concentrations of drug equal to or greater than the MIC for many pathogens (See Tables I, II and III) are reached in most tissues by two hours after dosing at 2.5 mg/kg and are maintained for 8-12 hours after dosing. Particularly high levels of enrofloxacin are found in urine. A summary of the body fluid/tissue drug levels at 2 to 12 hours after dosing at 2.5 mg/kg is given in Table III.

TABLE III – Body Fluid/Tissue distribution of Enrofloxacin in Dogs and Cats Single Oral Dose = 2.5 mg/kg (1.13 mg/lb)

	Post-treatment Enrofloxacin Levels			
	Canine (n=2)		Feline (n=4)	
Body Fluids (mcg/mL)	**2 Hr.**	**8 Hr.**	**2 Hr.**	**12 Hr.**
Bile	-	-	2.13	1.97
Cerebrospinal Fluid	-	-	0.37	0.10
Urine	43.05	55.35	12.81	26.41
Eye Fluids	0.53	0.66	0.45	0.65
Whole Blood	1.01	0.36	-	-
Plasma	0.67	0.33	-	-
Serum	-	-	0.48	0.18
Tissues (mcg/g) Hematopoietic System				
Liver	3.02	1.36	1.84	0.37
Spleen	1.45	0.85	1.33	0.52
Bone Marrow	2.10	1.22	1.68	0.64
Lymph Node	1.32	0.91	0.49	0.21
Urogenital System				
Kidney	1.87	0.99	1.43	0.37
Bladder Wall	1.36	0.98	1.16	0.55
Testes	1.36	1.10	1.01	0.28
Prostate	1.36	2.20	1.88	0.55
Ovaries	-	-	0.78	0.56
Uterine Wall	1.59	0.29	0.81	1.05
Gastrointestinal and Cardiopulmonary Systems				
Lung	1.34	0.82	0.91	0.33
Heart	1.88	0.78	0.84	0.32
Stomach	3.24	2.16	3.26	0.27
Small Intestine	2.10	1.11	2.72	0.40
Large Intestine	-	-	0.94	1.10
Other				
Fat	0.52	0.40	0.24	0.11
Skin	0.66	0.48	0.46	0.17
Muscle	1.62	0.77	0.53	0.29
Brain	0.25	0.24	0.22	0.12
Mammary Gland	0.45	0.21	0.36	0.30
Feces	1.65	9.97	0.37	4.18

Pharmacokinetics: In dogs, the absorption and elimination characteristics of the oral formulation are linear (plasma concentrations increase proportionally with dose) when enrofloxacin is administered at up to 11.5 mg/kg, twice daily.[1] Approximately 80% of the orally administered dose enters the systemic circulation unchanged. The eliminating organs, based on the drug's body clearance time, can readily remove the drug with no indication that the eliminating mechanisms are saturated. The primary route of excretion is via the urine. The absorption and elimination characteristics beyond this point are unknown. In cats, no oral absorption information is available at other than 2.5 mg/kg, administered orally as a single dose. Saturable absorption and/or elimination processes may occur at greater doses. When saturation of the absorption process occurs, the plasma concentration of the active moiety will be less than predicted, based on the concept of dose proportionality.

Following an oral dose in dogs of 2.5 mg/kg (1.13 mg/lb), enrofloxacin reached 50% of its maximum serum concentration in 15 minutes and peak serum level was reached in one hour. The elimination half-life in dogs is approximately 2½ - 3 hours at that dose, while in cats it is greater than 4 hours. In a study comparing dogs and cats, the peak concentration and the time to peak concentration were not different.

A graph indicating the mean serum levels following a dose of 2.5 mg/kg (1.13 mg/lb) in dogs (oral and intramuscular) and cats (oral) is shown in Figure 1.

Figure 1 – Serum Concentrations of Enrofloxacin Following a Single Oral or Intramuscular Dose at 2.5 mg/kg in Dogs and a Single Oral Dose at 2.5 mg/kg in Cats

Breakpoint: Based on pharmacokinetic studies of enrofloxacin in dogs and cats after a single oral administration of 2.5 mg enrofloxacin/kg BW (i.e. half of the lowest-end single daily dose range for dogs and half the single daily dose for cats) and the data listed in Tables I and II, the following breakpoints are recommended for canine and feline isolates.

Zone Diameter (mm)	MIC (□g/mL)	Interpretation
≥ 21	≤ 0.5	Susceptible (S)
18 – 20	1	Intermediate (I)
≤ 17	≥ 2	Resistant (R)

A report of "Susceptible" indicates that the pathogen is likely to be inhibited by generally achievable plasma levels. A report of "Intermediate" is a technical buffer and isolates falling into this category should be retested. Alternatively the organism may be successfully treated if the infection is in a body site where drug is physiologically concentrated. A report of "Resistant" indicates that the achievable drug concentrations are unlikely to be inhibitory and other therapy should be selected.

Standardized procedures require the use of laboratory control organisms for both standardized disk diffusion assays and standardized dilution assays. The 5 □g enrofloxacin disk should give the following zone diameters and enrofloxacin powder should provide the following MIC values for reference strains.

QC Strain		MIC (□g/mL)	Zone Diameter (mm)
E. coli	ATCC 25922	0.008 – 0.03	32 – 40
P. aeruginosa	ATCC 27853	1 – 4	15 - 19
S. aureus	ATCC 25923		27 - 31
S. aureus	ATCC 29213	0.03 – 0.12	

INDICATIONS:

Enrofloxacin Flavored Tablets are indicated for the management of diseases associated with bacteria susceptible to enrofloxacin. Enrofloxacin Flavored Tablets are indicated for use in dogs and cats.

EFFICACY CONFIRMATION:

Dogs: Clinical efficacy was established in dermal infections (wounds and abscesses) associated with susceptible strains of *Escherichia coli, Klebsiella pneumoniae, Proteus mirabilis,* and *Staphylococcus intermedius;* respiratory infections (pneumonia, tonsillitis, rhinitis) associated with susceptible strains of *Escherichia coli* and *Staphylococcus aureus;* and urinary cystitis associated with susceptible strains of *Escherichia coli, Proteus mirabilis,* and *Staphylococcus aureus.*

Cats: Clinical efficacy was established in dermal infections (wounds and abscesses) associated with susceptible strains of *Pasteurella multocida, Staphylococcus aureus,* and *Staphylococcus epidermidis.*

CONTRAINDICATIONS:

Enrofloxacin is contraindicated in dogs and cats known to be hypersensitive to quinolones.
Dogs: Based on the studies discussed under the section on Animal Safety Summary, the use of enrofloxacin is contraindicated in small and medium breeds of dogs during the rapid growth phase (between 2 and 8 months of age). The safe use of enrofloxacin has not been established in large and giant breeds during the rapid growth phase. Large breeds may be in this phase for up to one year of age and the giant breeds for up to 18 months. In clinical field trials utilizing a daily oral dose of 5.0 mg/kg, there were no reports of lameness or joint problems in any breed. However, controlled studies with histological examination of the articular cartilage have not been conducted in the large or giant breeds.

ADVERSE REACTIONS:

Dogs: Two of the 270 (0.7%) dogs treated with enrofloxacin at 5.0 mg/kg per day in the clinical field studies exhibited side effects, which were apparently drug-related. These two cases of vomition were self-limiting.
Post-Approval Experience: The following adverse experiences, although rare, are based on voluntary post-approval adverse drug experience reporting. The categories of reactions are listed in decreasing order of frequency by body system.
Gastrointestinal: anorexia, diarrhea, vomiting, elevated liver enzymes
Neurologic: ataxia, seizures
Behavioral: depression, lethargy, nervousness
Cats: No drug-related side effects were reported in 124 cats treated with enrofloxacin at 5.0 mg/kg per day for 10 days in clinical field studies.
Post-Approval Experience: The following adverse experiences, although rare, are based on voluntary post-approval adverse drug experience reporting. The categories of reactions are listed in decreasing order of frequency by body system.
Ocular: Mydriasis, retinal degeneration (retinal atrophy, attenuated retinal vessels, and hyperreflective tapeta have been reported), loss of vision. Mydriasis may be an indication of impending or existing retinal changes.
Gastrointestinal: vomiting, anorexia, elevated liver enzymes, diarrhea
Neurologic: ataxia, seizures
Behavioral: depression, lethargy, vocalization, aggression
To report adverse reactions, call 1-866-683-0660.

ANIMAL SAFETY SUMMARY:

Dogs: Adult dogs receiving enrofloxacin orally at a daily dosage rate of 52 mg/kg for 13 weeks had only isolated incidences of vomition and inappetence. Adult dogs receiving the tablet formulation for 30 consecutive days at a daily treatment of 25 mg/kg did not exhibit significant clinical signs nor were there effects upon the clinical chemistry, hematological or histological parameters. Daily doses of 125 mg/kg for up to 11 days induced vomition, inappetence, depression, difficult locomotion and death while adult dogs receiving 50 mg/kg/day for 14 days had clinical signs of vomition and inappetence.

Adult dogs dosed intramuscularly for three treatments at 12.5 mg/kg followed by 57 oral treatments at 12.5 mg/kg, all at 12 hour intervals, did not exhibit either significant clinical signs or effects upon the clinical chemistry, hematological or histological parameters.

Oral treatment of 15 to 28 week old growing puppies with daily dosage rates of 25 mg/kg has induced abnormal carriage of the carpal joint and weakness in the hindquarters. Significant improvement of clinical signs is observed following drug withdrawal. Microscopic studies have identified lesions of the articular cartilage following 30 day treatments at either 5, 15 or 25 mg/kg in this age group. Clinical signs of difficult ambulation or associated cartilage lesions have not been observed in 29 to 34 week old puppies following daily treatments of 25 mg/kg for 30 consecutive days nor in 2 week old puppies with the same treatment schedule.

Tests indicated no effect on circulating microfilariae or adult heartworms *(Dirofilaria immitis)* when dogs were treated at a daily dosage rate of 15 mg/kg for 30 days. No effect on cholinesterase values was observed.

No adverse effects were observed on reproductive parameters when male dogs received 10 consecutive daily treatments of 15 mg/kg/day at 3 intervals (90, 45 and 14 days) prior to breeding or when female dogs received 10 consecutive daily treatments of 15 mg/kg/day at 4 intervals: between 30 and 0 days prior to breeding, early pregnancy (between 10th & 30th days), late pregnancy (between 40th & 60th days), and during lactation (the first 28 days).
Cats: Cats in age ranges of 3 to 4 months and 7 to 10 months received daily treatments of 25 mg/kg for 30 consecutive days with no adverse effects upon the clinical chemistry, hematological or histological parameters. In cats 7-10 months of age treated daily for 30 consecutive days, 2 of 4 receiving 5 mg/kg, 3 of 4 receiving 15 mg/kg, 2 of 4 receiving 25 mg/kg and 1 of 4 nontreated controls experienced occasional vomition. Five to 7 month old cats had no side effects with daily treatments of 15 mg/kg for 30 days, but 2 of 4 animals had articular cartilage lesions when administered 25 mg/kg per day for 30 days.

Doses of 125 mg/kg for 5 consecutive days to adult cats induced vomition, depression, incoordination and death while those receiving 50 mg/kg for 6 days had clinical signs of vomition, inappetence, incoordination and convulsions, but they returned to normal.

Enrofloxacin was administered to thirty-two (8 per group), six- to eight-month-old cats at doses of 0, 5, 20, and 50 mg/kg of body weight once a day for 21 consecutive days. There were no adverse effects observed in cats that received 5 mg/kg body weight of enrofloxacin. The administration of enrofloxacin at 20 mg/kg body weight or greater caused salivation, vomition, and depression. Additionally, dosing at 20 mg/kg body weight or greater resulted in mild to severe fundic lesions on ophthalmologic examination (change in color of the fundus, central or generalized retinal degeneration), abnormal electroretinograms (including blindness), and diffuse light microscopic changes in the retina.

DRUG INTERACTIONS:

Compounds that contain metal cations (e.g., aluminum, calcium, iron, magnesium) may reduce the absorption of some quinolone-class drugs from the intestinal tract. Concomitant therapy with other drugs that are metabolized in the liver may reduce the clearance rates of the quinolone and the other drug.
Dogs: Enrofloxacin has been administered to dogs at a daily dosage rate of 10 mg/kg concurrently with a wide variety of other health products including anthelmintics (praziquantel, febantel, sodium disophenol), insecticides (fenthion, pyrethrins), heartworm preventatives (diethylcarbamazine) and other antibiotics (ampicillin, gentamicin sulfate, penicillin, dihydrostreptomycin). No incompatibilities with other drugs are known at this time.
Cats: Enrofloxacin was administered at a daily dosage rate of 5 mg/kg concurrently with anthelmintics (praziquantel, febantel), an insecticide (propoxur) and another antibacterial (ampicillin). No incompatibilities with other drugs are known at this time.

WARNINGS:

For use in animals only. In rare instances, use of this product in cats has been associated with Retinal Toxicity. Do not exceed 5 mg/kg of body weight per day in cats. Safety in breeding or pregnant cats has not been established. Keep out of reach of children.

Avoid contact with eyes. In case of contact, immediately flush eyes with copious amounts of water for 15 minutes. In case of dermal contact, wash skin with soap and water. Consult a physician if irritation persists following ocular or dermal exposure. Individuals with a history of hypersensitivity to quinolones should avoid this product. In humans, there is a risk of user photosensitization within a few hours after excessive exposure to quinolones. If excessive accidental exposure occurs, avoid direct sunlight.

For customer service or to obtain product information, including Material Safety Data Sheet, call 1-866-683-0660.

PRECAUTIONS:

Quinolone-class drugs should be used with caution in animals with known or suspected Central Nervous System (CNS) disorders. In such animals, quinolones have, in rare instances, been associated with CNS stimulation which may lead to convulsive seizures.

Quinolone-class drugs have been associated with cartilage erosions in weight-bearing joints and other forms of arthropathy in immature animals of various species.

The use of fluoroquinolones in cats has been reported to adversely affect the retina. Such products should be used with caution in cats.

DOSAGE AND ADMINISTRATION:

Dogs: Administer orally at a rate to provide 5-20 mg/kg (2.27 to 9.07 mg/lb) of body weight. Selection of a dose within the range should be based on clinical experience, the severity of disease, and susceptibility of the pathogen. Animals which receive doses in the upper-end of the dose range should be carefully monitored for clinical signs that may include inappetence, depression, and vomition. If dogs do not consume Enrofloxacin Flavored Tablets willingly when offered by hand, then alternatively the tablet(s) may be offered in food or hand-administered (pilled) as with other oral tablet medications.

Weight of Dog	Once Daily Dosing Chart			
	5.0 mg/kg	10.0 mg/kg	15.0 mg/kg	20.0 mg/kg
9.1 kg (20 lb)	2 x 22.7 mg tablets	1 x 22.7 mg plus 1 x 68 mg tablets	1 x 136 mg tablet	1 x 136 mg plus 2 x 22.7 mg tablets
27.2 kg (60 lb)	1 x 136 mg tablet	2 x 136 mg tablets	3 x 136 mg tablets	4 x 136 mg tablets

All tablet sizes are double scored for accurate dosing.

Cats: Administer orally at 5 mg/kg (2.27 mg/lb) of body weight. The dose for dogs and cats may be administered either as a single daily dose or divided into two (2) equal daily doses administered at twelve (12) hour intervals. The dose should be continued for at least 2-3 days beyond cessation of clinical signs, to a maximum of 30 days. In cats, Enrofloxacin Flavored Tablets should be pilled. After administration, watch the animal closely to be certain the entire dose has been consumed.

Weight of Cat	Once Daily Dosing Chart (5 mg/kg/day)
5 lb (2.27 kg)	1/2 x 22.7 mg tablet
10 lb (4.5 kg)	1 x 22.7 mg tablet
15 lb (6.8 kg)	1 and 1/2 x 22.7 mg tablets or 1/2 x 68 mg tablet

All tablet sizes are double scored for accurate dosing.

Dogs & Cats: The duration of treatment should be selected based on clinical evidence. Generally, administration of Enrofloxacin Flavored Tablets should continue for at least 2-3 days beyond cessation of clinical signs. For severe and/or complicated infections, more prolonged therapy, up to 30 days, may be required. If no improvement is seen within five days, the diagnosis should be reevaluated and a different course of therapy considered.

The lower limit of the dose range in dogs and the daily dose for cats was based on efficacy studies in dogs and cats where enrofloxacin was administered at 2.5 mg/kg twice daily. Target animal safety and toxicology were used to establish the upper limit of the dose range for dogs and treatment duration for dogs and cats.

STORAGE:

Dispense tablets in tight containers only.

Store at controlled room temperature, 68-77°F (20-25°C).

HOW SUPPLIED:

Flavored Tablets NDC Number	Tablet Size	Tablets/Bottle
26637-431-10	22.7 mg	100 Double Scored
26637-431-50	22.7 mg	500 Double Scored
26637-432-05	68 mg	50 Double Scored
26637-432-25	68 mg	250 Double Scored
26637-433-05	136 mg	50 Double Scored
26637-433-20	136 mg	200 Double Scored

REFERENCES:

[1] Dougherty, T.J., & Saukkonen, J.J. (1985). Membrane permeability changes associated with DNA gyrase inhibitors in Escherichia Coli. Antimicrob Agents Chemother, 28 (2), 200-206.
[1] Walker, R.D., Stein, G.E., Hauptmam, J.G., McDonald, K.H. (1992). Pharmacokinetic evaluation of enrofloxacin administered orally to healthy dogs. Am J Vet Res, 53 (12): 2315 - 2319.

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1-866-683-0660

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Rev. March 2013

Simply going through the motions is not always enough. A simple remedy to this problem is to add a new position to the repertoire.

One example may be in our approach with a particular staff member with whom we're not having the warmest of relations. It's amazing how a small adjustment in our mental position and attitude can brighten another's day or, at the very least, give us a new perspective on how we might try coping with various issues.

Another change in position that I enjoy on a daily basis has to do with my attitude in situations where a client has obviously been negligent toward an animal. Try to avoid the knee-jerk reaction of what I like to call "room rage" where you all but reach out and strangle your client. "What do you mean he's been vomiting for five days? How many days of vomiting would it take for *you* go to the doctor?" Those comments are unlikely to get us very far.

I have found on a few occasions that taking a more compassionate attitude can go farther toward getting the patient the care it needs. If they start declining all services, then you can let 'em have it.

Do it outside. Nowhere in my preaching about cutting down debt have I ever—not even once—suggested working more or working harder. While that might be an obvious remedy, I doubt it's going to add to your overall job satisfaction. I'm also certain that those reading this are already hard workers. Adding more hours and taking less time off is no way to feel better about your job. Take to the outdoors on your day off. Find your local recreation opportunities and get out there and explore. A backpack and a day in the woods can do more for your sense of well-being and overall happiness than any add-on surgery or CE meeting. Take some time to get back into nature and enjoy the elements and the wildlife, which for many of us had something to do with our pursuing veterinary medicine in the first place.

THINKSTOCK

Get some new toys and learn a new trick or two. We all want to practice better medicine. But it's difficult to find the time to acquire new skills and add to our knowledge base. Admittedly, I am terrible at this, and I am trying to better stay on top of reading and applying new concepts in practice. Sign up for that ultrasound CE. Pin the boss down and demand that the practice purchase that MRI machine. Finding new ways to challenge yourself in practice is a good start to getting more satisfaction out of your job.

Like many things in life, our career will be more fulfilling if we actively maintain it, nurture it and focus on creating our own happiness within it. Since so many personal elements are wrapped up in why and how we practice veterinary medicine, we as individuals are the only ones who can ensure our own well-being. So get to it. Do whatever it takes. Whatever floats your boat. **dvm360**

Dr. Jeremy Campfield works in emergency and critical care private practice in Southern California. He is also an avid kitesurfer.

Merck Animal Health

Insulin for dogs and cats

Merck Animal Health has announced that Vetsulin, the only federally approved insulin for dogs and cats with diabetes mellitus, is once again available to the U.S. veterinary market. Vetsulin was initially launched in 2004, but in 2009 the U.S. Food and Drug Administration (FDA) raised concerns about its stability. Merck says these issues have been fully addressed, and FDA approval has been obtained to reintroduce Vetsulin.

For fastest response, visit vetsulin.com

Putney

Generic of Enrofloxacin tabs

Putney has announced the launch of Enrofloxacin Flavored Tablets, the only FDA-approved veterinary generic of Baytril Taste Tabs. Putney's Enrofloxacin Flavored Tablets are indicated for the management of diseases associated with bacteria susceptible to enrofloxacin, such as urinary cystitis, respiratory tract infections and dermal infections in dogs and cats.

For fastest response, visit putneyvet.com

Novartis Animal Health

Heartworm control

Production of Novartis Animal Health products at its Lincoln, Neb., facility has resumed and Sentinel Flavor Tabs (milbemycin oxime/lufenuron) are once again available to veterinarians and pet owners. The beef-flavored tablets, which are given orally to protect dogs from heartworms, fleas, whipworms, roundworms and hookworms, had been absent from the market since Novartis suspended production at the facility in late 2011.

For fastest response, visit sentinelpet.com

Abaxis

Hematology system

Abaxis announces the addition of the new color VetScan HM5 Hematology System to its growing point-of-care laboratory system product line. The VetScan HM5 is a fully automated five-part differential hematology analyzer offering a comprehensive 22-parameter complete blood count with direct eosinophil counts and cellular histograms. In addition, the new color HM5 provides numerous value-added features such as an intuitive touch screen menu, patient trending of parameters, bar-code or USB entry of control values and automated cleaning cycles.

For fastest response, call (510) 675-6500 or visit abaxis.com

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Heartworm antigen test

The U.S. Department of Agriculture has approved a newly enhanced version of the Witness Hw Heartworm Antigen Test kit for dogs and cats and the kit is now available to veterinarians nationwide. Enhancements to the biologics—including test antibodies, improvements to the buffer and sample pad and improved signal strength at the control line for better confidence in the results—translate to improved sensitivity in this convenient, affordable and versatile test.

For fastest response, visit zoetis.com

Ceva

Feline pheromone wipes

In order to help cat owners reduce the stress associated with veterinary visits, Ceva Animal Health has introduced Feliway wipes, an on-the-spot solution to help comfort anxious cats. The single-use disposable wipes are individually sealed and packaged in a box of 12. The wipes contain the same pheromone analog ingredients and retain the same efficacy as Feliway Spray. Feliway wipes can be used to wipe down a cat carrier and get a cat used to the carrier as a place of comfort for travel or a visit to the veterinarian. The wipes can also be used in bedding areas.

For fastest response, call (800) 999-0297 or visit ceva.us

Operatory/recovery room equipment

Norfolk Vet Products

Recurrent pneumothorax treatment

Norfolk Vet Products' PleuralPort has been found to offer a successful and practical alternative for the treatment of recurrent pneumothorax in situations when additional surgery is no longer a viable option. After postoperative healing, use of the PleuralPort eliminates inflammation and potential pain associated with repeated thoracocentesis or placement of a thoracostomy tube. Because the port is implanted subcutaneously, the risk of ascending infection is minimized. Placement and use of pleural access ports can be performed on an outpatient basis, and owners and general practitioners can be instructed on their use.

For fastest response, visit norfolkvetproducts.com

Pharmaceuticals

Hardy Diagnostics

Compounding-sterile preparations kit

Hardy Diagnostics announced the release of HardyVal Media-Fill Challenge Kits for USP compliance testing for compounding-sterile preparations. HardyVal Kits are a unique line of ready-to-use media-fill challenge kits designed for use in validating pharmacy compounding personnel in accordance with USP.

For fastest response, visit HardyDiagnostics.com

Diagnostics, laboratory, imaging equipment and supplies

Bloxr

X-ray protection apparel

Bloxr has created a line of lightweight, flexible, foldable, machine washable X-Ray Protection Apparel using exclusive nontoxic XPF technology. Bloxr products contain no lead or heavy metals yet offer protection comparable to 0.5-mm lead products. XPF is a bi-layer material made of barium sulfate and bismuth oxide, both nontoxic materials that have a long history of safe use unlike lead and antimony.

For fastest response, call (800) 759-3644 or visit bloxr.com

Company news

Boehringer Ingelheim lauches Lyme, leptospirosis websites

Boehringer Ingelheim Vetmedica Inc. has launched two new websites, DuramuneLyme.com and DuramuneLepto.com. The sites feature information on canine Lyme and leptospirosis (lepto) diseases, as well as the features and benefits of BIVI's Duramune Lyme and Duramune Lepto vaccines and combinations.

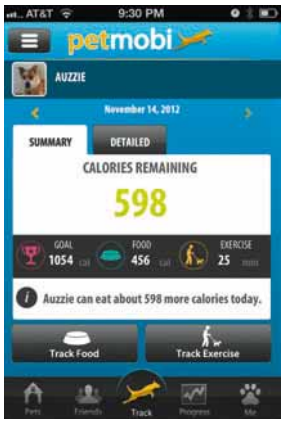
As educational resources for veterinarians, DuramuneLym .com and DuramuneLepto.com provide interesting information about Lyme disease and leptospirosis, associated risk factors for pets and how routine vaccination can help dogs stay disease-free. Veterinarians will also find information on vaccine safety, benefits and efficacy on the websites.

"These two diseases provide considerable health risks to pets. Transmission for leptospirosis can occur when a dog spends just a few minutes outside, regardless of the area—metro, suburban or rural—and dogs are easily exposed to ticks carrying Lyme disease during these short time periods," says Mark Kimsey, DVM, BIVI senior brand manager for canine biologicals. "Every year, dogs in rural, suburban and metro areas are infected with *Borellia* and *Leptospira*, yet much of the canine pet population remains unvaccinated."

DuramuneLyme.com provides information on canine Lyme disease and the importance of vaccine protection. The site offers information about the tick-borne disease, symptoms of infection and how to protect pets through proper vaccination.

DuramuneLepto.com features information on canine leptospirosis, transmission of the disease, potential carriers of lepto and information on BIVI's proven lepto vaccine, Duramune Max 5/4L.

Computer software, Web tools and educational materials



Petmobi

New app features

Petmobi announces new functionality in the latest release of its client communication app, which includes a major list of new features. The features include photo sharing, Facebook integration, commenting, notifications, connections with other pet lovers and the ability to accumulate points and rewards that can be redeemed for gift cards to major online shopping sites and donations to the American Society for the Prevention of Cruelty to Animals.

For fastest response, call petmobi.com

Zoetis

Equine parasite campaign

A new campaign for Strongid C and C 2X offers education about equine parasite risk factors and user testimonials from top riders who explain why they rely on these parasite-control solutions to ensure their horses are ready to perform. On the product's new website, horse owners can read testimonials and share stories about how Strongid C or C 2X has helped improve performance. Selected stories are featured on the home page along with the top rider testimonials.

For fastest response, visit StrongidC2X.com

Patterson Veterinary

Mobile app

Patterson Veterinary has released its latest smartphone app, ePetHealth Mobile. This app allows pet owners to review their animal's medical record, prescription history, health service reminders and other important information from their iPhone or Android device. Dosage alerts, appointment and refill requests, a mobile Pet ID Card and other features are also available.

For fastest response, call (888) 826-0935 or visit ePetHealth.com

Company news

FidoPharm to sell OTC fipronil-permethrin combination product at Walmart

FidoPharm, a subsidiary of Velcera, has released PetArmorPro Advanced, a topical parasite control product for dogs containing fipronil and permethrin. The parasiticide, designed to kill adult fleas and ticks and to repel fleas, ticks and mosquitoes, will be sold over the counter at Walmart.

The company is positioning the product as a less-expensive alternative to Merial's Frontline Plus, which is sold by veterinarians. "PetArmorPro Advanced is the ideal solution for pet parents who want to provide their dog with vet-quality flea and tick protection at a much more affordable price," says Alex Kaufman, president and CEO of FidoPharm, in a company release. "PetArmor's 'Protection Guarantee' promises to protect your dog as well as Frontline Plus or PetArmor will refund the purchase price."

The PetArmorPro Advanced products are currently available at Walmart and retail at $29 for a 3-month supply.

This announcement comes after a U.S. District Court declared in 2011 that FidoPharm's PetArmorPlus, along with other Velcera products combining fipronil and methoprene, infringed on the patent covering Merial's Frontline Plus—that although fipronil's patent had expired, the fipronil-methoprene combination was still protected. In June 2011, Judge Clay D. Land ordered Velcera to pull from U.S. inventory all products containing the protected combination and present it to Merial for destruction.

FidoPharm also garnered attention from the veterinary industry in March 2012 when it unveiled a generic heartworm preventive, PetTrust Plus (ivermectin-pyrantel), that is available by veterinary prescription only through Walmart and Sam's Club pharmacies.

Earlier this month, privately held Velcera was sold to Perrigo Co. for approximately $160 million in cash, according to a Velcera press release. Retail sales of the PetArmor franchise exceeded $100 million during calendar year 2012, the brand's first full year on the market, having launched in April 2011, the release states. According to Perrigo's website, Perrigo is the world's largest manufacturer of OTC pharmaceutical products for the store brand market.

Company news

Virbac recalls six lots Iverhart Plus Flavored Chewables

Virbac Animal Health voluntarily recalled six lots of Iverhart Plus Flavored Chewables March 29. According to a letter the company sent to veterinarians and their staffs, product testing revealed that the ivermectin potency failed to meet stability specifications during the life of the product.

The result is that recalled lots may not fully protect dogs in the upper third of each weight range against heartworms. No adverse heartworm-related reactions or illnesses have been reported to date in regard to this recall, but Virbac Animal Health requests that those practices in possession of Iverhart Plus Flavored Chewables immediately examine inventory, isolating all recalled lots to prevent further distribution. Veterinarians should communicate directly with distributors on how to dispose of affected product. Veterinarians are also requested to fill out a recall response form for distributors. Those affected by the recall can receive a credit or replacement product through their distributor.

Virbac Director of Technical Services Frank S. Hurtig, DVM, says in a release that Virbac veterinarians and veterinary technicians are available to address questions and concerns regarding the recall and testing recommendations for potentially affected pets. Call Virbac Technical Services at 800-338-3659, ext. 3052, after filling out the recall response form.

Boehringer Ingelheim lauches horse education website

Boehringer Ingelheim Vetmedica, Inc. (BIVI), announces the launch of jointhealthmanagement.com, a website dedicated to educating horse owners on the importance of equine joint health management. Joint health is critical to every horse's well-being. The impact that stress, injury (acute trauma), everyday use and natural effects of aging can have on a horse's joints can be quite dramatic.

"We know that taking care of horses' joints is essential to their quality of life," says Dwana Neal, brand manager, equine pharmaceuticals, "and injuries, regardless of the cause, can lead to degenerative joint disease or osteoarthritis. Our goal with jointhealthmanagement.com is to provide horse owners a place to find out more about equine joint health and how to recognize problems and take appropriate action to manage disease."

Jointhealthmanagement.com is an educational website that provides information on the causes, symptoms, treatment options and the importance of managing disease.

"Our hope is that horse owners will learn more about early detection, prevention, proper treatment, disease management and how it can help maintain the health, longevity and soundness of the horse," says Neal. "BIVI is dedicated to the health of the horse; the joint health management website helps illustrate our passion and commitment to the industry."

For more information, please visit jointhealthmanagement.com.

HomeAgain pet recovery receives Petfinder honor

HomeAgain Pet Recovery Service was recently honored with the Seal of Approval by Petfinder, the largest online, searchable database of animals that need permanent homes. HomeAgain is one of only four companies to receive this distinction, which recognizes organizations with a strong commitment to making a positive impact on the welfare of animals.

"We are honored by the recognition and are proud to partner with such a worthy organization," says Gary MacPhee, director and general manager of HomeAgain. "PetFinder is well known for its mission to find homes for animals and reunite pets and owners, and we will continue to work with this group to help ensure the safety and welfare of animals throughout the country."

HomeAgain is a comprehensive pet recovery service that has been helping reunite lost pets with their owners since 1996.

PetFirst announces new CFO Kristina Merrill

PetFirst Healthcare has announced that Kristina Merrill, CMA, CPA, will join the PetFirst executive team as the chief financial officer.

Merrill will be responsible for all accounting and financial aspects of PetFirst, including legal duties. Prior to joining PetFirst, Merrill held controller and chief financial officer positions for more than 10 years in various industries including: veterinary, industrial construction and entertainment. Merrill specializes in process improvements, strategic positioning, business sales, acquisitions and growth initiatives.

Merrill holds a bachelor's degree from McKendree University and is a Certified Public Accountant, Certified Management Accountant and Certified Six Sigma Black Belt.

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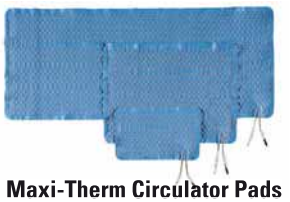

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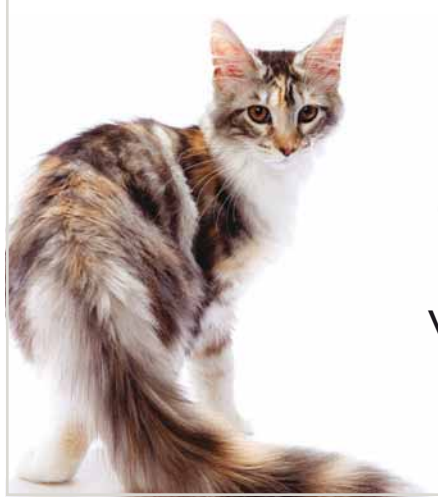

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This state of the art boarding kennel, in Booming Bismarck, ND can provide a HUGE return on your investment! There are so many opportunities with this property, just use your imagination. Over 100 enclosures, over 80 indoor kennels, also set up for a grooming facility with doggie washer, drying kennels, etc. Excellent opportunities for a Veterinary Clinic, Doggie Day Care and others. Has a fully functional, full size crematory. The main reception and office area, with 3 rooms for expansion of the business model, is 60'x60'. Attached to this is a 20'x200' kennel area and a 20'x40' shop area with overhead garage door that also houses the crematory. Everything is first class construction and equipment. This is a multiple service facility on 5.65 acres of land. Broker is one of property owners. Price: $1,990,000. Offered by Schweitzer Realty, Bismarck, ND 701-220-1508. For more information contact Danny Weigand 701-400-3707. View online at: http://bismarckmandanhomes.com/mls_detail?mls_number=319544

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Words to the wise

A monthly collection of quotes and citations

By Carl A. Osborne, DVM, PhD, DACVIM

Conscience

» It is not enough to possess (the) truth. The truth must possess us.

Maurice Maeterlinck

» We should remember that although the truth may hurt, it is the lie that scars us.

R.L. Wysong

» Fraud and falsehood dread examination. Truth invites it.

Thomas Cooper

» A Bible-trained conscience serves to guide our intentions so that we can best act conscientiously.

Carl A. Osborne

» God's will is that all...come to an accurate knowledge of the truth.

1 Timothy 2:1,3,4

» Can you trust your conscience? The answer largely depends on how well it is trained.

Carl A. Osborne

» A good conscience fears no witness.

Seneca

» If your conscience is clear, you'll have little to fear, when it's time to rest at night. What strength it can give, when striving to live, according to what is right.

Carl A. Osborne

» Hold a good conscience; then if men speak against you...they will become ashamed of themselves for falsely accusing you when you have only done what is good.

1 Peter 3:16

Please send contributions to Dr. Carl A. Osborne:
fax: (612) 624-0751
e-mail: osbor002@tc.umn.edu
mail: 2585 Cohansey Street
Roseville, MN 55113.

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For a full listing of events in 2013, visit dvm360.com/calendar

Aug. 21–26
CVC Kansas City
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www.thecvc.com

Oct. 31–Nov. 3
CVC San Diego
(800) 255-6864, ext. 6
www.thecvc.com

CVC unconventional

National Meetings

June 2
Tufts Goes West: Hot Topics in Veterinary Medicine
Springfield, MA
tufts.edu/vet/ce
(508) 887-4723

June 12-15
American College of Veterinary Internal Medicine Forum
Seattle, WA
ACVIMForum.org
(303) 231-9933

June 14-19
Jackson Hole Veterinary Rendezvous
Jackson Hole, WY
jhvr.org
(208) 922-9431

June 20-23
Pacific Veterinary Conference
Long Beach, CA
pacvet.net
(800) 655-2862

June 20-23
International Symposium on Non-Surgical Contraceptive Methods of Pet Population Control
Portland, OR
ACC-D.org

June 23-25
128th Annual Maryland VMA Mid-Atlantic State Conference
Ocean City, MD
mdvma.org
(443) 507-6500

June 24-27
Penn Executive Veterinary Leadership Program
Philadelphia, PA
pennvetleadership.com
(215) 898-1776

June 26-30
Emerald Coast Veterinary Conference
Destin, FL
alvma.com
(334) 395-0086

June 29
Veterinary Interventional Radiology Summit
Las Vegas, NV
acvim.org
(650) 327-5000

Local Meetings

May 30-June 2
Flexible and Rigid Endoscopy
Las Vegas, NV
oquendocenter.org/veterinary
(702) 443-9246

June 1-Aug. 15
Mixed Practice Acupuncture
Online
tcvm.com
(800) 891-1986

June 3-July 11
Anesthesia for Companion Exotic Small Mammals
Online
vin.com/ce

June 6
The DC Academy of Vet Med - Anesthesia
Fairfax, VA
DCAVM.org
(703) 733-0556

June 6-9
Parker University Animal Chiropractic Module #4
Dallas, TX
parker.edu/ce
(800) 266-4723

June 7-8
Top Ten Soft Tissue Surgical Procedures
Las Vegas, NV
oquendocenter.org/veterinary
(702) 443-9246

June 12-Sept. 14
Advanced Topics in Feline Medicine
Online
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(800) 700-4636

June 13-14
Vermont VMA Summer CE Program
Burlington, VT
Vtvets.org
(802) 878-6888

June 14-15
Orthopedics of the Rear Limb
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June 18-Aug. 2
Blood banking
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(800) 700-4636

June 20-Aug. 25
ABVP Systems
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vin.com/ce
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June 21-24
Mixed Practice Acupuncture Spring Class Session 5
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tcvm.com
(800) 891-1986

June 21-24
Equine Acupuncture Spring Class Session 5
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(800) 891-1986

June 21-24
Small Animal Acupuncture Spring Class Session 5
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tcvm.com
(800) 891-1986

June 21-23
Comprehensive Surgical Management of Sifle Disease
Las Vegas, NV
oquendocenter.org/veterinary
(702) 443-9246

June 23-25
Montana VMA Summer Meeting
Kalispell, MT
mtvma.org
(406) 447-4259

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How do we even FUNCTION?

I really worry about some of my clients. And I know lots of people worry about me.

Would calling the veterinarian be your first thought if a mouse came running across the floor of your house?

Apparently that's how my clients' minds work. My phone rang at 9 o'clock the other night and the woman on the other end had just spotted a beady-eyed critter. She wanted me to come over to her house and catch it. She sounded like she was in her 60's and I'm thinking, "How do you get that old and not know how to do something so simple?"

And what did she think I was going to do? Lasso it and turn it loose in the field? What's even stranger is that she wasn't sure what a mousetrap looked like, nor where to get one. I went over how to set the trap with cheese and warned her not to let it snap back while she was preparing it. She kept telling me to slow down, like maybe she was taking notes or something.

At least that situation had an easy fix—can't say the same for every case. For example, I wasn't sure what to do when another client showed up at the clinic. The presenting complaint was that the horse couldn't see—that was the history given when the client made the appointment. So that's what I expected when the horse came lumbering out of the trailer.

Much to my surprise, the horse came out with his head up, looking all around. His eyes looked perfectly normal and he didn't seem a bit uncomfortable in his surroundings. The man led him toward the clinic past a bucket and two rolled-up garden hoses—the horse sidestepped all of them.

I got the horse in the stocks and started my exam. The eyes were clear and responded normally to light. He followed motion and blinked when you moved a hand quickly toward the eye. This is about all us veterinarians have to go by—as you know, there aren't any charts with big letters or hard black plastic devices with multiple lenses for the horses to look through.

> *"I did it once and my grandma made me lie on the couch for an hour with potato slices on my eyelids. I'm not sure why, but that was the only medical treatment I had ever seen or heard of for looking at a weld too long."*

"I think he can see just fine," I said. "What makes you think he can't see?"

"Well, I'm building some pens at the farm and we're using some pipe I got from the oil field," the client responded. "We put in the corner posts first and then we started putting it all together. This horse is in the pen right next to where we have been working and for the last two days he has been standing there watching us weld. I think he looked at it too long and now his eyes are damaged."

This guy was a city slicker who had moved to the country to pursue his lifelong dream of owning land—just like Oliver Douglas on *Green Acres*. I call it the "Mr. Douglas syndrome." We see it a lot and it often brings questions like this.

Now he had me wondering. I've been around pen building with metal pipe all of my life, but I'd never once worried about the horse standing there staring at the weld until he couldn't see. Do you think a horse would do that? I did it once and my grandma made me lie on the couch for an hour with potato slices on my eyelids. I'm not sure why, but that was the only medical treatment I had ever seen or heard of for looking at a weld too long.

I started to tell the horse's owner to go slice a potato just to see how he would get the slices to stay in place, but then I decided I'd better give the horse some ointment and a giant pair of sunglasses that I snagged at the fair about 20 years ago.

Not really. Instead, I called the veterinary school and talked to the ophthalmologist to see if the horse's eyes could actually be damaged. After laughing at me on the other end of the phone for about five minutes, he finally assured me that there was nothing to worry about. The horse would be just fine. He went on to say, "I just wonder how some veterinarians can actually function in society when they ask questions like that. How do you practice that long and not know something so simple?" **dvm360**

Dr. Bo Brock owns Brock Veterinary Clinic in Lamesa, Texas.

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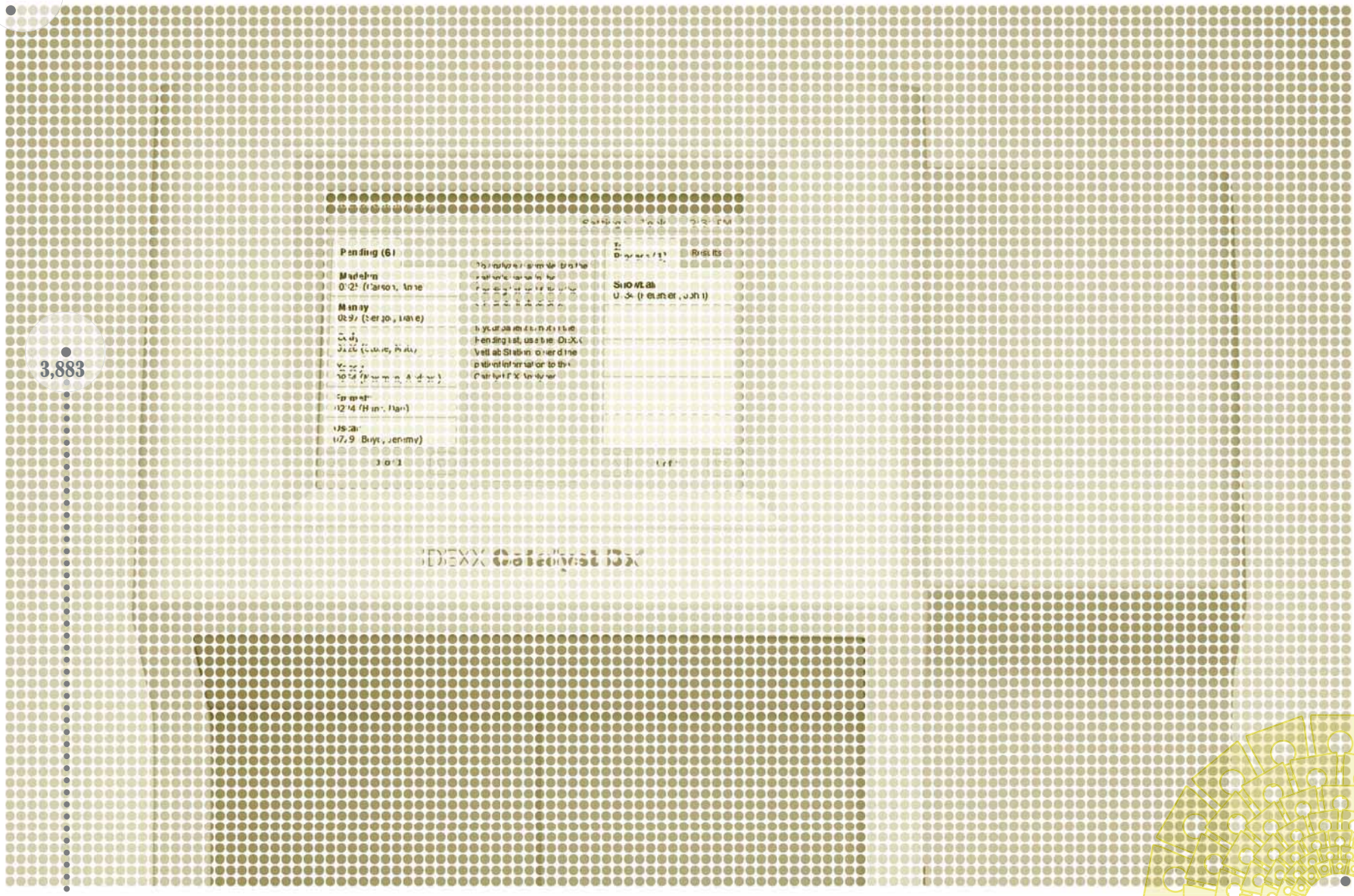

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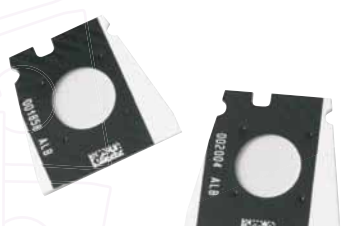
Reference:
1. Data on file at IDEXX Laboratories, Inc., Westbrook, Maine USA.



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