

Call of the wild
 No two days are the same for Busch Gardens' senior veterinarian, who cares for 300 species.
page 6



October 2015 | Volume 46 | Number 10 | dvm360.com

Study will investigate suspected abuse cases

Massachusetts veterinarian aims to elevate awareness of animal harm. *By Katie James*

A new research study that began this summer is looking into suspected cases of animal abuse in the Boston, Massachusetts, area from a veterinary forensics standpoint.

Crimes Against Canines is the project of Martha Smith-Blackmore, DVM, president of the newly formed Forensic Veterinary Investigations, a coalition of experts dedicated to investigating animal cruelty. Supported by a grant from the Stanton Foundation, Smith-Blackmore will spend the next year investigating suspicious canine injuries and deaths with the expectation that her findings will contribute to animal welfare in the region.



Dr. Martha Smith-Blackmore

"I found myself thinking about my legacy and how I could do things that would have a lifespan beyond my lifetime. Most importantly, I was

See page 28>



>>> An Angels Vet Express team member assists a client. The not-for-profit clinic in Savannah, Missouri, cares for both rescued animals and pets in the community, providing low-cost spays and neuters and other veterinary services as well.

High-volume clinic slashes prices

Not-for-profit practice in Missouri neuters cats for \$20, serves approximately 100,000 animals per year. *By Matthew Kenwright*

A nonveterinarian's business philosophy—the best quality at the lowest cost—is what drives Angels Vet Express, an affiliate of M'Shoogy's Emergency Animal

Rescue in Savannah, Missouri, to treat approximately 100,000 animals a year.

Operating as a not-for-profit 501(c)(3), Angels Vet Express is a clear departure from the tradi-

tional veterinary clinic. Clients bring in approximately 60,000 patients annually, and the clinic treats another 40,000 animals at cost or for free with the goal of improving animal welfare in

See page 23>



4 takeaways on female leadership in veterinary medicine
page 10



Wacky names: Baron Von Furry Pants, Leonardo DiCatprio
page 16



Cornell wins legal battle against expelled student
page 18



Lower wages for women: Is clinical confidence a factor?
page 34

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



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- ⁵ Of dogs showing a preference in one study conducted, all dogs preferred HEARTGARD Plus Chewables to SENTINEL® SPECTRUM (milbemycin oxime/praziquantel/lufenuron) beef-flavored tablet; Executive Summary VS-USA-37801.
- ⁶ Opinion Research Corporation, Heartworm Prevention Medication Study, 2012. Data on file at Merial.
- ⁷ Data on file at Merial.

See brief summary on page 03



NEWS
6 | Veterinary headlines
Call of the wild at Busch Gardens

10 | 4 takeaways on female veterinary leadership

12 | Zealous declaw critics cut AVMF contest short

12 | Titer testing may decrease need for yearly rabies vaccine

14 | Cornell students to star in Nat Geo Wild show about vet school

16 | Baron Von Furrypants, Leonardo DiCatprio named wackiest pet names of 2015 by Nationwide

18 | Texas board finds veterinarian in violation in cat bow killing

18 | Cornell University wins legal fight against former veterinary student

20 | New York veterinarian stars in award-winning documentary

20 | Hartville Pet Insurance Group establishes partnership with Target

22 | USDA makes plans for avian flu outbreak recurrence

22 | Researchers develop new vaccine for lethal disease of pet parrots

COMMUNITY
30 | Feedback

For-profit veterinary schools have a legitimate role to play

31 | Practitioners, specialists should work together

31 | Bo Brock column about dog poop was in poor taste

ON THE COVER

High-volume clinic slashes prices

Cover, page 23

Study to investigate suspected abuse

Cover, page 28

SPECIAL CONTRIBUTORS

32 | The dilemma

Practice owner tests boundaries

Marc Rosenberg, *vmd*

34 | AVMA eye on economics

Gender gap: Is confidence a factor?

Yaoqin Shen, Ross Knippenberg, *PhD*, and Mike Dicks, *PhD*

37 | Can we talk?

Bringing life into focus

Mike Paul, *DVM*

40 | Letter of the law

Diving into partnership? Check

out these 9 FAQs first

Christopher J. Allen, *DVM, JD*

58 | Stampede

Playing tricks on an alleged pothead

Bo Brock, *DVM*

READER SERVICES

43 | Products

57 | Calendar

MEDICINE360

The small animal section begins after **page 42**.

M1 | Obesity

Getting the fat off skinny

Mindy Valcarcel

M5 | Regeneration

Cutting-edge stem cell cures

Ed Kane, *PhD*

EQUINE360

The equine section begins after **page 42**.

E1 | Orthopedics

A pioneering vision

Ed Kane, *PhD*

Heartgard®
(ivermectin/pyrantel) **Plus**

CHEWABLES

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

INDICATIONS: For use in dogs to prevent canine heartworm disease by eliminating the tissue stage of heartworm larvae (*Dirofilaria immitis*) for a month (30 days) after infection and for the treatment and control of ascarids (*Toxocara canis*, *Toxascaris leonina*) and hookworms (*Ancylostoma caninum*, *Uncinaria stenocephala*, *Ancylostoma braziliense*).

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

For customer service, please contact Merial at 1-888-637-4251.



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*The objective of the study was to evaluate the satisfaction of prescribing veterinarians and pet owners with the clients' use of Seresto® on their pets over an 8-month period. Clinics in various geographical locations in the US were selected based on their interest in participating in this study. Clients who presented with a flea and/or tick infestation were given the option to try Seresto® for dogs or cats. Over the course of the 8-month period, veterinarians and clients were asked to report their perceptions addressing their level of satisfaction with the product. Veterinarians received reimbursement for the three office visits and clients received compensation and free Seresto® collars for participation in the study.¹

[†]In month 8, veterinarians participating in the study were asked, "Overall, how satisfied are YOU with Seresto® for DOGS [CATS]?"^{††}

[‡]In month 8, clients participating in the study were asked, "How satisfied are you now with Seresto® for DOGS [CATS] after 8 months?"^{††}

^{**}In month 8, veterinarians participating in the study were asked, "How likely are you to recommend Seresto® to clients with DOGS [CATS] in the future?"^{††}

¹Data on file. Bayer HealthCare Animal Health.

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Buddying up to stress

Changing how you think about this alleged enemy can alter your physiology, according to one TED-Talker.

Confession: I write this column on the last day of our monthly magazine deadline—sometimes literally the day before we send the issue to the printer. Nothing like that looming cutoff to clarify your thought process.

This particular deadline has gone fairly smoothly, but last month was a different story. With some issues we editors fight it out at every step—the text and images don't fall together the way they should, and problems and changes seem to crop up endlessly, forcing us to redo work we'd thought was completed.

I imagine you have similar challenges in veterinary practice with difficult days and weeks or cases that just don't go the way they should. (Obviously with pets' lives sometimes in the balance, your stress takes on a whole different level of significance!)

Still, stress is stress, and after a particularly rough deadline I'm usually wasted and useless for several days afterward. The brain doesn't fire; conversation is sluggish; the body doesn't want to move. This time around, however, was different. Here's what happened.

On one of those final days of deadline (our print deadline is five business days leading up to the printer date), I had a meeting with my fellow channel directors in which we watched a TED Talk by psychology researcher Kelly McGonigal, PhD, titled "How to Make Stress Your Friend." In the video, McGonigal explains how stress has been linked with dozens of health problems over the years: heart disease, obesity, chronic pain and so on.

However, what researchers have come to realize recently,

according to McGonigal, is that these effects show up primarily in those who think of stress as a negative thing. Those who experience high amounts of stress but don't necessarily think it's ruining their lives have clear, wide arteries, low blood pressure and trim midsections.

The upshot? If you view stress as your friend rather than the enemy, it doesn't destroy your body—in fact, it gives you the energy and mental clarity to conquer the challenges in your life.

Well that was all very interesting, I thought, but I had to get back to work—deadline was calling! I plowed through the rest of the issue by the

sweat of my (and my team's) brow, got it sent to the printer and waited for the post-deadline hangover/coma to hit.

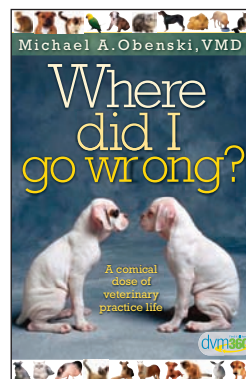
But you know what? It never did! I sailed right into the next phase of work and life with nary a moan. It was actually kind of spooky.

I had to wonder if merely receiving some new information about stress—even without consciously embracing or acting on it—had caused my body to respond differently to the stress I was experiencing.

So I'm just throwing it out there: Watch the TED Talk (a Google search of "McGonigal stress" will bring it up) and see if you don't react differently to your next crisis. **dvm360**



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Call of the wild

No two days are the same for Busch Gardens' senior veterinarian, who cares for about 300 species at the Tampa location. *By Donna Loyle, MS*

Imagine this itinerary: check-ups on a newborn wildebeest, 2-month-old giraffe and bouncing 6-month-old gorilla, a quick dental check on an adult hippo, and emergency surgery on a red fox. That's all in a day's work for the wildlife veterinarians at Busch Gardens Tampa, in Tampa, Florida, who care for more than 12,000 animals.

Senior veterinarian Peter Black, DVM, always dreamed of working with wild animals and has been doing so most of his career. After graduating from veterinary school, he performed wildlife rehabilitation at the Wildlife Center of Virginia and then served a

three-year residency at the St. Louis Zoo. He's worked at Busch Gardens since 2010. In addition, he's involved with the Sahara Conservation Fund, the American Association of Zoo Veterinarians and the Association of Avian Veterinarians.

dvm360: You've been working with wildlife since you graduated from the University of Minnesota College of Veterinary Medicine. What drew you to that branch of veterinary medicine?

Black: I've wanted to work with wild animals for as long as I can remember. My parents took me to zoos when I

was a little kid, and I was enthralled. I went into the undergraduate process knowing that I wanted to work with wild animals, but it wasn't until relatively late as an undergraduate that I decided to go the veterinary route. I guess the draw for me was the chance to work to save wild animals in a hands-on way.

dvm360: It must be difficult to specialize in approximately 300 species. How do you prepare yourself for such a wide variety of animal care?

Black: Being a zoo specialist is certainly the most wide-ranging special-



>>> Dr. Peter Black, senior veterinarian for Busch Gardens Tampa, performs an examination on a cheetah cub.



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ty. To get into that kind of medicine, you have to stay as current as possible with cutting-edge techniques and findings, since new discoveries are made all the time. You also have to be the type of person who enjoys the challenges of extrapolating from species or scenarios that you know onto ones that are unfamiliar to either you or potentially to veterinary medicine as a whole.

dvm360: How many veterinarians are employed by Busch Gardens, and what type of work do they do?

Black: At Busch Gardens Tampa, we have four clinical veterinarians who work exclusively here, as well as a pathologist whom we share with SeaWorld Orlando. We perform all the medical care for the animals that call Busch Gardens home and also provide veterinary services for roughly 400 wildlife cases a year—those mostly include raptors and sandhill cranes.

dvm360: What is a normal day at Busch Gardens like?

Black: We typically start the day early so we can do field procedures and “house calls” on patients in the park before the heat of the Florida sun takes effect. Midmorning into the early afternoon, we perform our hospital procedures, which are mostly routine exams, treatments, physical therapy sessions or wildlife surgeries. Our afternoons are usually taken up with meetings and entering medical records.

dvm360: Can you tell us about your most unusual case?

Black: That’s a hard one to pick! A rather bizarre one we had was the case of a chronic nasal discharge in a male white-cheeked gibbon. We were expecting to find a tooth-root problem or nasal infection, but were instead surprised to find he had somehow managed to get three segments of sawgrass stuffed up one of his nares. We were able to get them out using a small endoscope.

dvm360: What’s the most challenging aspect of your job?

Black: It’s pretty common that we need to find treatment methods that are feasible with any given species, even if those don’t match the textbook



>>> Black speaks to a group of children following a surgery at the park.

approach. For example, when we couldn’t find a commercially available anesthetic facemask that would fit some of our larger carnivore species, we created one. We all get pretty good at thinking outside of the box.

dvm360: Why did you get involved in the Sahara Conservation Fund, and what’s your role in the group’s work?

Black: Primarily I have been involved in its efforts to help save the North African subspecies of ostrich, the largest subspecies in the world. I became involved because they needed a zoo veterinarian who had the skills necessary to work on these exotic birds. Currently, we’re working to improve the facilities at a breeding facility in Niger, with the eventual goal of rereleasing these incredible birds back into the wild there.

dvm360: Is it fair to say you have a special affinity for ostriches?

Black: That would be a fair assessment. They are definitely in my top five. I’m not sure exactly how that developed. Their medical care is different from any other animal. They are amazingly tough animals to be able to survive in the environments they live in, and seeing them move is probably as close as we can come in modern times to seeing a theropod dinosaur in action.

dvm360: For a young veterinarian or veterinary student who wants to get into wildlife care, what advice would you offer?

Black: Don’t get discouraged by the naysayers. Also, get as much experience at different types of facilities as you can—you never know what might come in handy later in your career.

dvm360: I understand that you compete in triathlons with your wife in your off-hours. What’s your best time, and are you training for a triathlon now?

Black: The distances vary depending on the event, and my pace changes a lot depending on whether I’m pushing/pulling my kids along for the race or not. That said, my best paces are roughly 1:35/100 yards for the swim, 18 mph on the bike, and 8:00 minute/mile on the run. I’m toning down the training a bit for the summer, but I’m hoping to ramp it up again this fall and winter for an Olympic triathlon in the spring.

dvm360: What do you do to relax and recharge?

Black: I enjoy reading books, lifting weights and playing with my sons Adam, 5, and David, 3.

Donna Loyle, MS, is a Pennsylvania-based freelance writer who specializes in covering veterinary topics.



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4 takeaways on female veterinary leadership

A CVC forum hosted by *dvm360* and WLVDI tackles issues confronting women in the profession. *By Matthew Kenwright*

The challenges facing female veterinarians were explored during a session put on by the Women's Veterinary Leadership Development Initiative (WLVDI) and *dvm360* during CVC Kansas City in August. The forum was an exchange of ideas, personal experiences and research. Below are four highlights from the session:

1 Generational differences cause conflicts for women and men alike.

Doug Aspros, DVM, a member of WLVDI's board of directors, told attendees that many baby boomers are puzzled by younger associates who want more work-life balance—which usually means fewer hours. “How does that work? Like, ‘I’ve got a lot of debt; I’ve got to pay it off—and I want to work less,’” Aspros told the room full of practice owners, associates and team members. “Owners are really flummoxed about that.”

One attendee countered that it's easy to perpetuate a culture of overwork. “It's almost a rite of passage to work 60 hours a week and to never break down, and we pride ourselves on that,” she said. “We think, ‘Our younger people need to do it too, and they need to tough it out and why are we giving them a break?’ But we also need to realize that it's a different world and maybe those rites of passage aren't so necessary.”

2 Fear of risk holds back many women.

Fear of risk can hinder women, said Sarah Wooten, DVM, an associate veterinarian in Greeley, Colorado, who also presented during the session.

Wooten told attendees that being risk-adverse can inhibit personal progress. “In my personal life, I don't like uncertainty, but in my professional life I've learned to embrace it because risk taking is required for higher opportunities and growth,” she said.

Wooten cited an internal report by



>>> Dr. Sarah Wooten leads a discussion about women in the veterinary profession.

Hewlett Packard that found women would apply for a position only if they met 100 percent of the position's criteria. However, men would pursue it if they were 60 percent qualified.

One attendee suggested that men can compartmentalize risk's consequences while women anticipate possible problems and mentally exaggerate the far-reaching effects.

3 Negative labels discourage women.

Being described as “bossy,” “bitchy,” “witchy” or “begging for attention” is a common issue for women in power, according to many of the session's participants.

“It's a hard lesson to learn when you first come out because you think it's personal,” said one attendee. “And then you start to realize that if you have to be that person at that clinic and you happen to be the hardest worker and happen to be female, then that's the label you get.”

Wooten discussed a study by Harvard University that took a female entrepreneur's life story and presented it to two groups: once under Heidi's own name and once labeled with the name Howard—otherwise both reports were identical. While those who read the report had equal respect for the entrepreneur's accomplishments, the overwhelming majority said they

SOCIAL MEDIA Roundup

Highlighted tweets from the session

Below are four tweets from the WLVDI forum at CVC. Visit dvm360.com/WLVDItweets to see the full list of tweets.

@dvm360

Losing family time is the top reason women don't pursue #veterinary practice ownership, number 3 for men @womenveterinary #TheCVC

@dvm360

Overworking is a rite of passage for older #veterinary professionals, but changing times challenge tradition @womenveterinary #TheCVC

@dvm360

The Heidi/Howard Study showed people wanted to work for a man over a woman when they had the same resume @womenveterinary #TheCVC

@dvm360

“Witchy is a label women get when they work hard.” @womenveterinary #TheCVC

would rather work with “Howard” because Heidi didn't seem friendly.

4 Women should take time for themselves.

Karen Bradley, DVM, WLVDI president, said another study found that women consider doing household duties as part of their personal time, but men don't.

“We need to stop. We need to delegate,” Bradley said. “Say, ‘You know what, I'm not going to sweep the dust bunnies. I treat rabbits—I don't treat dust bunnies.’ Go to bed with the dishes dirty so you can read your kid a book or watch what you want to watch on TV or take your dog on a walk so we can take care of ourselves.” *dvm360*



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Zealous declaw critics cut AVMF contest short

Cyberbullying campaign targets 'America's Favorite Veterinarian' finalists.

The contest to name "America's Favorite Veterinarian" has been scrapped after a cyberbullying campaign antagonized some finalists.

All 20 participants will be recognized as "America's Favorite Veterinarians" after activists against cat declawing "disrupted and contaminated the final election process," according to a release from the American Veterinary Medical Foundation (AVMF).

"Apparently many of the so-called animal activists have no problem practicing cruelty to human beings," says John Brooks, DVM, chair of the AVMF board, in the release. "We have always respected the rights of others to have differing opinions, but to do so in a way that is personally destructive and disruptive is inexcusable. We ask all of the activist groups whose members and supporters engaged in such behavior to ask them to stop doing so immediately."

The declawing critics attacked the finalists who support the practice of onychectomy as a measure of last resort. Their efforts included calling



one veterinarian "a whore, a butcher, a mutilator, a hack, an animal hater, a disgrace to the profession." Others were the subject of negative advertisements and reviews, and some received threatening phone calls.

"We deeply regret that our contestants had to endure this abuse and intend to take proactive steps in the future to prevent this type of interference from impacting our activities," Brooks says. [dvm360](#)

Titer testing may decrease need for yearly rabies vaccines

K-State researchers' test may help prevent unnecessary vaccinations in at-risk pets by indicating when a booster will suffice.

Researchers at Kansas State University's Veterinary Diagnostic Laboratory have modified a test that measures an animal's immune response to the rabies virus, a change that could cost pet owners less money and could help reduce the number of yearly vaccines for pets, according to a university release.

The researchers say testing for titers—the antibodies capable of neutralizing rabies—is a valid indication of the animal's resistance to the rabies virus. A measurement of 0.5 international units per milliliter or higher would indicate that the

pet is protected and may only need a booster if exposed to the virus, depending on rabies regulations in the area, the release states.

All animals should be vaccinated with core vaccines and receive a yearly booster of those vaccines. But yearly vaccines can sometimes create other health concerns; for example, there is a link between yearly vaccinations and injection site sarcomas in cats. The K-State rabies titer test could keep a pet from experiencing an unnecessary injection at its yearly exam.

The test has not yet been accepted by national veterinary organizations

as a standard for indicating a pet's level of protection against rabies, but measuring titers is currently used for determining whether cats and dogs need a vaccination for other high-risk diseases, the release states.

"In both domestic cats and dogs, there is a positive correlation between rabies neutralizing antibody titers and the level of protection," says Rolan Davis, MS, a researcher in the Kansas State University Rabies Laboratory. "We are certainly not against vaccinations; we are against rabies. We are looking for the best ways to prevent rabies in animals and humans." [dvm360](#)

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Cornell students star in Nat Geo Wild show

Vet School premieres Sept. 19 on the network that airs *The Incredible Dr. Pol* and other veterinary programs.

Cornell University's College of Veterinary Medicine will be featured in a new television show premiering Sept. 19 on the Nat Geo Wild channel.

Vet School joins the list of veterinary shows on the network that includes *The Incredible Dr. Pol*, *Aloha Vet*, *Dr. K's Exotic Animal ER* and *Dr.*

Oakley, Yukon Vet. The new show stars seven first- and fourth-year veterinary students and records their trials and tribulations throughout the school year, according to a university release.

The show documents Hannah Brodlie, Cristina Bustamante and Dan Cimino as they adjust to the demands of veterinary school, and it follows Sam Dicker, Singen Elliott, Aziza Glass, and Aria Hill as they prepare to launch their careers.

The episodes cover the spectrum of the veterinary college experience. An ER evening shift, wrestling sheep to get a blood sample, a rambunctious donkey and a dog with congestive heart failure are among the highlights.

"We viewed this show as a fantastic opportunity to raise the profile of the veterinary profession and to help the public understand the rigorous education leading to a veterinary degree," says Lorin Warnick, DVM, PhD, interim dean of the veterinary college.

Vet School airs 10 p.m Eastern/9 p.m. Central on Nat Geo Wild. [dvm360](#)



>>> Millie, a bulldog with congestive heart failure, is in an episode.



>>> Aziza Glass, a fourth-year veterinary student at Cornell University, learns how to care for a donkey during an episode of *Vet School*.



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See brief summary on page 16

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References: 1. Trifexis[®] [product label]. Indianapolis, IN: Elanco; 2014.
2. Heartgard[®] Plus [product label]. Duluth, GA: Merial Inc; 2011.

* *A. caninum*.

† Prevents flea eggs from hatching; is not an adulticide.

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Baron Von Furry Pants, Leonardo DiCatprio are wackiest pet names of 2015

Nationwide releases annual list of top 10 most unusual pet monikers.

The results of Nationwide’s annual wackiest pet name contest are in and Baron Von Furry Pants and Leonardo DiCatprio have been crowned the wackiest names of 2015, according to a company release. After the company selected its top 10 funniest names, they were put to a public vote and Baron, as he’s called for short, and Leonardo DiCatprio emerged as the victors. Check out the crazy names of the top10 cats and dogs below and for more about how they got their names head to dvm360.com/dogs15 and dvm360.com/cats15. dvm360



1 Baron Von Furry Pants
Kathy Warren’s family finds the names of show-dog bloodlines entertaining so they decided it would be fun to create their own unique name. After studying his appearance they realized the fur on his back legs was longer than the front, making it appear he was wearing furry pants.



2. Artoo Dogtoo



7. Nutmeg Spice O’ Paris



3. Rosie Picklebottom



8. Abraham Lincoln Continental



4. Parker the Barker



9. Bizkit Au Chocolat



5. Abigail Carmichael Spartacus



10. Scuddles Unterfuss



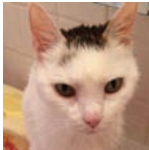
6. Smiley Cyrus



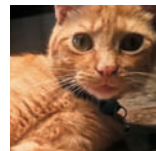
1 Leonardo DiCatprio
Baily Norton is a big fan of humorous puns, something she tries to tie into all of her pets’ names. When her newest cat had a lion-like face, she came up with the name Leo, and after brainstorming, the moniker Leonardo DiCatprio was born.



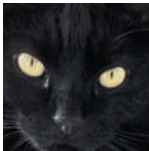
2. Fuzz Lightyear



7. Sophistikitty



3. Captain Pancake



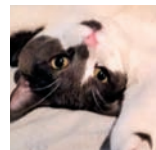
8. Cornelius McPudness Vandercat



4. Sir Nigel Meowmittens of Oselot Court



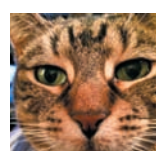
9. Sir Theodorable Purrsalot



5. Ziggy Ollyoxenfree



10. Star Wars Steve



6. Zelda Nacho



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Indications
SENTINEL® SPECTRUM® (milbemycin oxime/lufenuron/praziquantel) is indicated for the prevention of heartworm disease caused by *Dirofilaria immitis*; for the prevention and control of flea populations (*Ctenocephalides felis*); and for the treatment and control of adult roundworm (*Toxocara canis*, *Toxascaris leonina*), adult hookworm (*Ancylostoma caninum*), adult whipworm (*Trichuris vulpis*), and adult tapeworm (*Taenia pisiformis*, *Echinococcus multilocularis* and *Echinococcus granulosus*) infections in dogs and puppies two pounds of body weight or greater and six weeks of age and older.

Dosage and Administration
SENTINEL SPECTRUM should be administered orally, once every month, at the minimum dosage of 0.23 mg/lb (0.5 mg/kg) milbemycin oxime, 4.55 mg/lb (10 mg/kg) lufenuron, and 2.28 mg/lb (5 mg/kg) praziquantel. For heartworm prevention, give once monthly for at least 6 months after exposure to mosquitoes.

| Dosage Schedule | | | | |
|------------------|---|------------------------|---------------------------|---------------------|
| Body Weight | Milbemycin Oxime per chewable | Lufenuron per chewable | Praziquantel per chewable | Number of chewables |
| 2 to 8 lbs. | 2.3 mg | 46 mg | 22.8 mg | One |
| 8.1 to 25 lbs. | 5.75 mg | 115 mg | 57 mg | One |
| 25.1 to 50 lbs. | 11.5 mg | 230 mg | 114 mg | One |
| 50.1 to 100 lbs. | 23.0 mg | 460 mg | 228 mg | One |
| Over 100 lbs. | Administer the appropriate combination of chewables | | | |

To ensure adequate absorption, always administer SENTINEL SPECTRUM to dogs immediately after or in conjunction with a normal meal.

SENTINEL SPECTRUM may be offered to the dog by hand or added to a small amount of dog food. The chewables should be administered in a manner that encourages the dog to chew, rather than to swallow without chewing. Chewables may be broken into pieces and fed to dogs that normally swallow treats whole. Care should be taken that the dog consumes the complete dose, and treated animals should be observed a few minutes after administration to ensure that no part of the dose is lost or rejected. If it is suspected that any of the dose has been lost, redosing is recommended.

Contraindications
There are no known contraindications to the use of SENTINEL SPECTRUM.

Warnings
Not for use in humans. Keep this and all drugs out of the reach of children.

Precautions
Treatment with fewer than 6 monthly doses after the last exposure to mosquitoes may not provide complete heartworm prevention.

Prior to administration of SENTINEL SPECTRUM, dogs should be tested for existing heartworm infections. At the discretion of the veterinarian, infected dogs should be treated to remove adult heartworms. SENTINEL SPECTRUM is not effective against adult *D. immitis*.

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

Do not use in puppies less than six weeks of age.

Do not use in dogs or puppies less than two pounds of body weight.

The safety of SENTINEL SPECTRUM has not been evaluated in dogs used for breeding or in lactating females. Studies have been performed with milbemycin oxime and lufenuron alone.

Adverse Reactions
The following adverse reactions have been reported in dogs after administration of milbemycin oxime, lufenuron, or praziquantel: vomiting, depression/lethargy, pruritus, urticaria, diarrhea, anorexia, skin congestion, ataxia, convulsions, salivation, and weakness.

To report suspected adverse drug events, contact Virbac at 1-800-338-3659 or the FDA at 1-888-FDA-VETS.

Information for Owner or Person Treating Animal
Echinococcus multilocularis and *Echinococcus granulosus* are tapeworms found in wild canids and domestic dogs. *E. multilocularis* and *E. granulosus* can infect humans and cause serious disease (alveolar hydatid disease and hydatid disease, respectively). Owners of dogs living in areas where *E. multilocularis* or *E. granulosus* are endemic should be instructed on how to minimize their risk of exposure to these parasites, as well as their dog’s risk of exposure. Although SENTINEL SPECTRUM was 100% effective in laboratory studies in dogs against *E. multilocularis* and *E. granulosus*, no studies have been conducted to show that the use of this product will decrease the incidence of alveolar hydatid disease or hydatid disease in humans. Because the prepatent period for *E. multilocularis* may be as short as 26 days, dogs treated at the labeled monthly intervals may become reinfected and shed eggs between treatments.

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Texas board finds veterinarian in violation for cat bow killing

Final ruling in Kristen Lindsey case to be determined later this month.

Kristen Lindsey, DVM, the Brenham County, Texas, veterinarian accused of killing a cat with a bow and arrow and then bragging about it on social media, has been found in violation by the Texas Board of Veterinary Medical Examiners (TBVME), according to the *Bryan-College Station Eagle*.

A hearing was held on Aug. 28 at which Lindsey was found in violation; however, the details regarding what she violated and the punishment have yet

to be announced. Representatives from Alley Cat Allies and the Animal Legal Defense Fund spoke at the hearing, urging a harsher punishment for Lindsey, according to the group's Facebook pages. Lindsey also made a statement in front of the board, claiming she was defending her personal animals against a cat that she believed was rabid.

In June, an Austin County grand jury declined to indict Lindsey on charges of animal cruelty due to a lack of evidence proving when

or where the cat had been killed. However, the board can investigate the incident and suspend or revoke Lindsey's license separately from the criminal investigation.

When contacted by *dvm360*, TBVME public information officer Loris Jones declined to comment on the case, citing confidentiality. The next board meeting will be held on Oct. 13, and traditionally all actions are voted on at the board meeting immediately following the hearing. **dvm360**

Cornell University wins legal fight against former veterinary student

Disagreement over biting dog's aggression led to expulsion.

A federal judge in Albany, New York, has sided with Cornell University's College of Veterinary Medicine over its decision to expel a student in 2009.

Karen Habitzreuther, DVM, the former Cornell student, brought her rescued German shepherd, Shandor, into Cornell's Community Practice Service Clinic on July 11, 2006, because he had an ear infection, according to a court document. Shandor bit the student examining him, and the school's faculty board suspended Habitzreuther for two years for violating the school's honor code on the grounds that she knew about Shandor's history of biting and didn't disclose it when asked if the dog had an aggression problem. Habitzreuther has described the dog as "a playful puppy who was very protective ... a traditional alpha male," according to the document.

Habitzreuther was readmitted a year later in September 2007 on the condition that a final decision would be made in 2008. The faculty board wanted proof that Habitzreuther real-

ized "how [her] judgment as an aspiring professional was impaired" when she didn't reveal her dog's aggression, according to the document. After a hearing in December 2008, the board

breach of contract and fraudulent misrepresentation on the part of the veterinary school.

However, Judge Gary L. Sharpe ruled in federal district court that the breach

of contract claim was "inventive pleading" because the university had clearly communicated to Habitzreuther that the faculty board would issue a decision.

"We're grateful that Judge Sharpe approached the lawsuit with such care and are pleased with his carefully reasoned decision," Claudia Wheatley, senior public affairs officer for Cornell, tells *dvm360*.

After leaving Cornell, Habitzreuther went on to study veterinary medicine at the American University of Antigua (which closed the program in 2012) before getting her DVM degree from the Virginia-Maryland Regional College of Veterinary Medicine in 2014, according to her LinkedIn profile. Habitz-

reuther is now pursuing a master's degree in public health from Virginia Tech, according to LinkedIn.

Shandor has been euthanized, according to *The New York Times*. **dvm360**



>>> A German shepherd named Shandor (not pictured) bit another Cornell student, and his owner was expelled in the fallout.

told Habitzreuther that her petition to return to Cornell was denied.

Having lost three years of school credit, Habitzreuther sued Cornell in October 2014 for \$500,000, claiming

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New York veterinarian stars in award-winning documentary

The 15-minute film highlights the scope of Dr. John Charos' contributions to his profession and community. *By Matthew Kenwright*

Although 80 hours of filming over a period of several months was edited into a 15-minute film, the documentary *New York Vet* captures the dynamic experiences of a veterinarian working to improve animal welfare.

John Charos, DVM, president and CEO of Central Veterinary Associates in Nassau County, New York, is the subject of the short film that's directed by Megumi Smiros.

The documentary, which Smiros began as a Hofstra University student, was named the Best Short Documentary at the Metropolitan Film Festival of New York.

"I was originally planning to make a documentary about an animal emergency clinic," Smiros says in a hospital release. "Then I found information about Dr. Charos. I visited the clinic and left him a message. He gave me a call and said that he was willing to be the subject of my film."

"I was amazed at the job she did," Dr. Charos tells *dvm360*. "We all as veterinarians take for granted the work that we get to do every day. It's not the norm of what people expect of the profession."

New York Vet follows Dr. Charos as

he interacts with his team members, clients and patients. It also details his efforts as a volunteer investigator for the Suffolk County and Nassau County Societies for the Prevention of Cruelty to Animals and the Nassau



>>> Dr. John Charos (left), Patti Charos (center) and Megumi Smiros attend a screening of the film.

County Police Department.

Charos says audience feedback suggests the film is insightful for viewers. "It was the work that we do behind the scenes, the work that we do every day and the giving back to the community," Charos says. "One of the things that would be in my heart is to get out there the cruelty that takes place with animals, with the cock-fighting and the pitbull fighting."

The film addresses the difficult emotions that people in the profession experience. Patti, Charos' wife, describes conversations with her husband after he participates in raids on sites of animal abuse.

Charos is frank about the emotional burdens the profession can impose, and he emphasizes that veterinary professionals need to balance work with their personal lives.

The documentary also details how Charos spent seven weeks at Ground Zero in the wake of the 9/11 attacks.

Charos helped treat more than 400 search and rescue dogs that were suffering from fatigue, burns, cuts and debris in their eyes and ears.

For the first time in more than a decade, Charos reviewed photos of himself working in the aftermath. It was a bittersweet experience because of his memories of the good that was done and the reality that some of his clients lost loved ones in the terrorist attacks, he says.

Hofstra is paying to enter *New York Vet* into film festivals, Charos says. The documentary has been accepted into The New York City International Film Festival and The Long Island International Film Expo. **dvm360**

Hartville Pet Insurance Group establishes partnership with Target

Retailer will offer a variety of pet health insurance plans on website.

Hartville Pet Insurance Group has entered a new strategic partnership with mass retailer Target to offer Hartville pet insurance plans, which are underwritten by United States Fire Insurance Co., on the Target.com website, according to a company release. A variety of plan, coverage and pricing options—includ-

ing those for wellness, behavioral and alternative therapies—will be available. Target customers interested in purchasing pet insurance will be redirected to a new "Hartville Pet Insurance presented by Target" website.

"This partnership presents an exciting opportunity and serves as a new route to helping pet parents

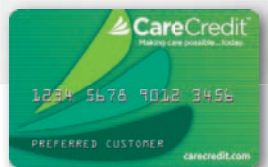
better understand the benefits of pet health insurance and how it helps promote long-term wellness and financial stability," says Dennis Rushovich, senior vice president of Hartville Pet Insurance, in the release. "The alliance is unique in our industry, and we feel certain that it will produce positive results." **dvm360**

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USDA plans for avian flu outbreak

The United States Department of Agriculture's Animal and Plant Health Inspection Service (USDA-APHIS) is making preparations for a potential recurrence of the highly pathogenic avian influenza virus this fall, according to an agency release.

The virus affected more than 48 million birds in more than 200 poultry facilities earlier this year. One step is to examine the potential use of a vaccine to help prevent illness and interrupt the spread of the disease. In part, APHIS is issuing a request for propos-

als (RFP) for vaccine doses to equip the National Veterinary Stockpile.

Though APHIS has not approved the use of the vaccine to respond to an outbreak to date, it wants to make sure the vaccine will be available if the government decides to use it. The agency is looking to stockpile the vaccine for the Eurasian H5 (EA H5) strain that has affected domestic poultry, according to the release.

APHIS will also publish an assessment evaluating the potential environmental impact of using the vaccine in the event of an outbreak, the release states. The assessment will look at two scenarios: approving vaccine use and targeting EA H5 viruses, or taking no action.

Vaccine manufacturers interested in supplying a variety of EA H5 vaccines in sufficient quantities to establish the emergency stockpile can be found the on the fbo.gov site by searching "avian influenza vaccines." [dvm360](#)

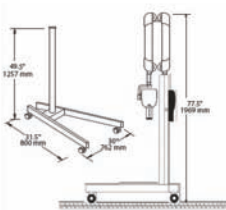
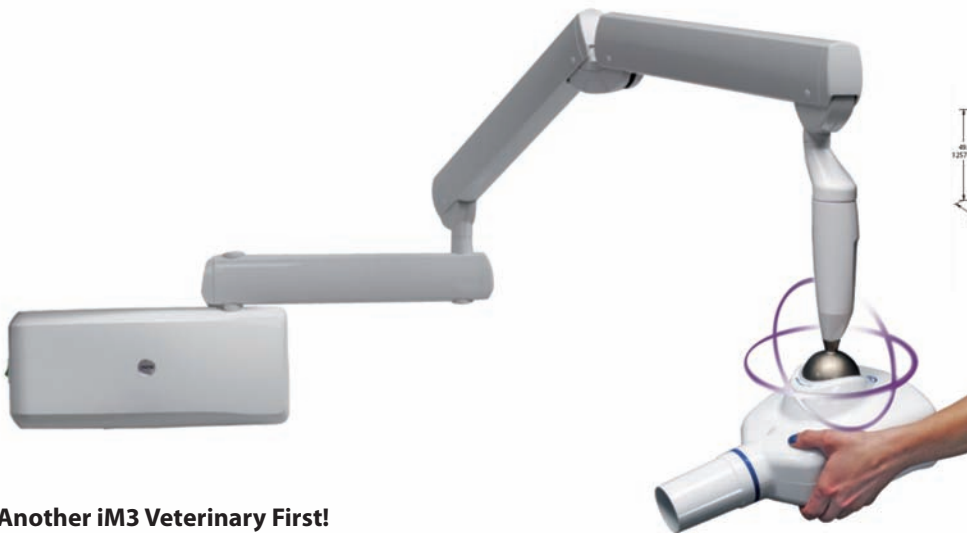
Researchers develop new vaccine for lethal disease of pet parrots

Researchers at the Texas A&M College of Veterinary Medicine and Biomedical Sciences (CVM) have developed a highly effective vaccine against a lethal disease that affects captive parrots, according to a university release. The disease, called proventricular dilation disease (PDD), is caused by the avian Bornavirus. The disease causes heart failure, blindness or intestinal blockage.

The use of the vaccine has prevented the development of disease in captive birds with no obvious adverse effects, the release states. The research was performed by Ian Tizard, BVMS, BSc, PhD, DACVM, Jianhua Guo, DVM, PhD, Susan Payne, PhD, and Samer Hameed, graduate student, who all work at the Schubot Exotic Bird Health Center at the CVM.

The next step in developing the vaccine is to seek licensure from the United States Department of Agriculture and then manufacture it commercially, the release states. [dvm360](#)

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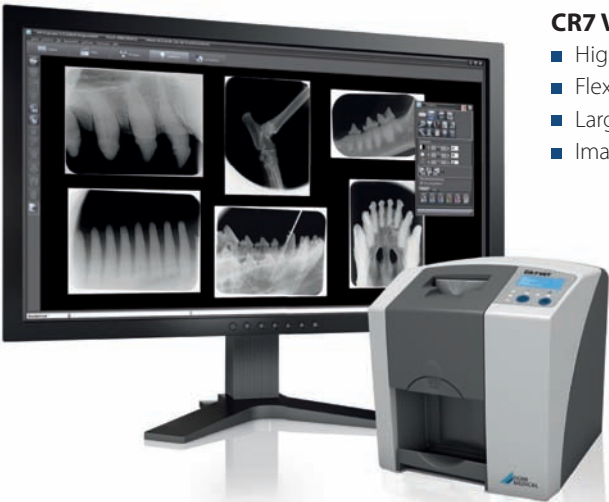
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High-volume clinic slashes prices

> Continued from the cover

the region, says Gary Silverglat, a local entrepreneur who started the clinic with his wife, Lisa.

The appeal of Angels Vet Express to pet owners is simple—it offers low-cost services. Spaying a pet cat costs \$35, and neutering costs \$20 (the procedures for strays brought in by members of the community cost \$25 and \$15, respectively). Spaying a dog starts at \$45 and neutering at \$30, depending on size. The treatment for heartworm infection runs \$180 to \$350. The clinic will spay a cat, give rabies and feline leukemia vaccinations, and deworm it for \$67, Silverglat says.

The Angels Vet Express clinic is not a business venture, Silverglat tells *dvm360*. It was started in 2002 as a division of M'Shoogy's (a variation on Yiddish slang for "crazy"), a no-kill animal sanctuary founded by the Silverglats 30 years ago. Originally, Angels Vet Express was intended to treat rescued animals at M'Shoogy's and offer low-cost spays and neuters for the community.

But Silverglat says he soon recognized that many people were unhappy with the veterinary profession because of cost. "People started coming and coming and coming because we had low prices for spays and neuters. ... We started realizing that we could do more with a veterinary clinic than we ever could just rescuing animals," Silverglat says. "You could have 10,000 animals next door [at M'Shoogy's] and not make a difference in the animal world, so we realized that we could [spay and neuter] as many animals as we possibly could and provide all these services because people couldn't afford all these services."

The majority of clients visit from the Kansas City metro area, Silverglat says, which is slightly below national income levels. Kansas City's median household income from 2009-2013 was \$45,275, and 19 percent of its population was below the poverty line during the same period, according to census.gov. Those figures compare to \$53,046 and 15 percent nationally.

The veterinary clinic has grown 3,000 square feet every two years, and it adds approximately 1,000 new clients a month, Silverglat says. It expects to run 24,000 heartworm tests and

perform 10,000 spay and neuter procedures this year. The clinic has approximately 30 employees with five full-time veterinarians and two part-time. Its staff members make an average of 30 to 40 exam room visits a day. The clinic has four small exam rooms for routine care, four larger exam rooms for additional services, a pharmacy, an

isolation ward, three workup rooms with wet tables for small nonsurgical procedures, and two surgery suites.

Silverglat designed the clinic's aesthetics to evoke a rustic Ozarks atmosphere. The waiting area plays bluegrass music, and red mailbox flags mark occupied exam rooms. "We don't want you coming into a vet clinic,"



Gary Silverglat



Hear it from them

Watch the co-founder of Angels Vet Express detail the clinic's role in the profession and listen to the head veterinarian explain the clinic's value by visiting dvm360.com/AngelsInterviews.

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Silverglat says. “We want you to come into a fun place.”

The clinic provides care for approximately 40 animal rescues in the area and aids with the city of Cameron’s animal control efforts. Approximately 1,000 animals a year are adopted from the clinic, Silverglat says.

Angels Vet Express uses its high

volume as leverage with distributors to get better bargains on products. “If they’re getting our business and making a profit off us, they’re going to give us a better deal because we’re doing all of this good work,” Silverglat says.

The clinic hasn’t broken even since it opened in 2002 because it provides some of its services for free or at cost,

but 2015 could be the first year it does, Silverglat says. “The cause here isn’t to make a lot of money,” he says. “The cause here is to take care of and save animals.” The clinic receives some donations but is intended to be self-supporting, Silverglat says.

The clinic aims to keep paying its doctors and staff well, but it must maintain its high volume in order to meet employment and overhead costs. “All we try to do here at the clinic is break even. Just break even,” Silverglat says.

The clinic’s popularity hasn’t come without backlash. It has been the subject of rumors that it didn’t employ real veterinarians, Silverglat says, and a website hosted on angelfire.com titled “The Real M’Shoogy’s” makes allegations that associate Silverglat with drug



>>> Patients at Angels Vet Express.

use and suggests poor conditions for animals on the property. Silverglat says these are unfounded attacks by veterinarians who lose business to the clinic. The site is state-inspected, employees are constantly cleaning and the public is invited to visit and take tours, he says.

Veterinarians at traditional practices often suspect that high-volume clinics cut corners or jeopardize patient safety for efficiency, and Angels Vet Express is no exception to these suspicions. Silverglat insists patient care is the clinic’s top priority. “If a person paid \$1,000, they couldn’t get a better spay or neuter than we do,” he says.

The clinic takes a long time (sometimes as long as a year) to hire a new veterinarian and interviews up to 200 candidates to find the right fit, Silverglat says. Compassion is the key quality he says he searches for in applicants. “It’s not a job, really. It’s a cause. They want to be a part of it,” Silverglat says.

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“They get the freedom of practicing veterinary medicine uninhibited. They get to do whatever they want to do. If they need something, we do it.”

The clinic features digital radiography, applanation tonometry, blood pressure monitoring, eight isoflurane machines and heated surgery tables. The clinic uses eight autoclaves and

ultrasonic cleaning so it can use a separate surgical pack for every procedure.

Stacy Hoffman, DVM, Angels’ head veterinarian, says she joined the clinic three years ago because she was attracted to the high-volume model. Growing up in New York, she was accustomed to pet owners paying for expensive care and didn’t know how

many people didn’t have the luxury of paying large veterinary bills. “I realized that a lot of people weren’t able to keep their animals as healthy as they want them to be simply because they didn’t have that much money,” Hoffman says. “When I came here to interview, one of the things that attracted me to it was that we could treat animals with high-quality medicine at a discounted price.”

Having once logged 82 exam room visits in a day, Hoffman holds the practice’s record. The staff saves time by tailoring questions for the client according to the pet’s history and function. “Based on the repetition and the amount that you see here, the doctors get very good at condensing what they’re going to say,” she says.

However, Hoffman says it’s a misconception that her practice rushes clients. “We always give them the time that they need. That’s what a lot of our clients love about us. They don’t mind waiting that time because they know they’re going to get handled properly,” she says. “It’s not that we move them in and out and push them out like cattle.”

Although critics of the high-volume model may argue that it edges out traditional veterinary practices, Angels Vet Express is not immune to competition. “We’re not just facing doctors around here locally,” Silverglat says. “We’re facing 1-800-PetMeds and stuff like that. It’s a real threat to the whole veterinary business.”

But no one is guaranteed the right to succeed in business, he says, and competition is inevitable. “You better be trying to be the best and try to fight for your customers because someone is going to try and put you out of business,” Silverglat says.

Silverglat, whose background includes retail and cattle buying, says he thinks many professionals in veterinary medicine are not suited for business. “Most veterinarians are doctors—they haven’t been trained in business,” Silverglat says. “They just think they open the door and put a sign out, and they can get by and people are going to just come because they see a doctor, and they’ll make a lot of money.”

Although the high-volume model isn’t the norm in the profession, the success of Angels Vet Express demonstrates that veterinary medicine faces a changing landscape as clients enjoy more choices when seeking care for their animals. [dvm360](#)

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ACHIEVE MORE TOGETHER

Study will investigate suspected animal abuse

> Continued from the cover

frustrated by the current animal protection paradigm and wanted to help create change,” she says.

Smith-Blackmore hypothesizes that a lack of knowledge and services at the ground level prevents animal abuse cases from being identified and elevated to the criminal justice system. Those that do come to light are just the tip of the iceberg, she suspects, and if expert veterinary evaluation were more widely available, more widespread awareness of animal abuse would develop—along with prosecution and potential solutions.

To dig into this theory, Smith-Blackmore will provide no-cost live-dog exams or necropsies to any agency that requests them in Massachusetts for the next year. She will also be collaborating with the Massachusetts chief medical examiner’s office, Cummings School of Veterinary Medicine at Tufts University, and the forensics programs at Boston University School of Medicine.

Smith-Blackmore hopes to help the public understand how pervasive animal abuse is and to encourage them to advocate for their communities to be equipped and trained to investigate it. “Humane societies have historically taken on the role of investigating animal cruelty, but they’re underresourced as well,” she says. “Being a felony crime, every police department has a responsibility to take on these cases.”

Smith-Blackmore became interested in veterinary forensics as a child after witnessing animal abuse and feeling powerless to do anything about it. An interest in scientific inquiry and a hate of injustice also influenced her path.

Prior to her involvement with Forensic Veterinary Investigations, she worked in shelter medicine, where she found it highly rewarding to assist law enforcement officers with their animal cruelty investigations. As her career trajectory took her away from caring for animals and into shelter administration, she found herself wishing she were contributing to animal welfare in a more concrete way.

That’s where Forensic Veterinary Investigations and Crimes Against Canines came into play. “I decided to find a way to focus on work that would be more impactful for protecting animals and people,” Smith-Blackmore says.

A forensic veterinary investigation can include a wide variety of tasks, she says—visiting a scene with police

officers, performing a clinical exam or necropsy, reviewing a veterinary record, or studying photographs for signs of abuse. A veterinarian investigating a case might also conduct specialized tests or consult forensic scientists from other fields like entomology or toxicology. He or she might collect, package and preserve trace evidence such as fibers

or DNA and then track it through the chain of custody, Smith-Blackmore says.

She particularly wants her fellow veterinarians to be aware that every exam is potentially a forensic exam. “Forensic means ‘before the court,’ so any case where a disgruntled owner wants to claim malpractice, or in any contentious divorce where there is a dispute

over animal ownership, the medical record could end up in court,” she says.

One case specifically affected Smith-Blackmore deeply, driving her desire to create change in the animal welfare field. In the case of “Puppy Doe,” a dog was found unable to walk in the woods next to a park with no collar, tag or other identifying information. She was

Q&A on New Pain Management Guidelines

In May 2015, the American Animal Hospital Association (AAHA) and the American Association of Feline Practitioners (AAFP) issued new pain management guidelines for dogs and cats. Zoetis, maker of SIMBADOL™ (buprenorphine injection), asked Dr. Michael Petty, DVM, of Arbor Pointe Veterinary Hospital in Canton, Michigan, and one of the authors of the new guidelines, about what’s new in the updated guidelines and about surgical pain management for cats.

Q How do the new guidelines address pain management for cats?

A Dogs and cats can exhibit pain in different ways. For example, dogs limp, but cats rarely do. Pain in cats is often exhibited by a change in behavior, such as an unwillingness to jump, use the litter box or interact with people.

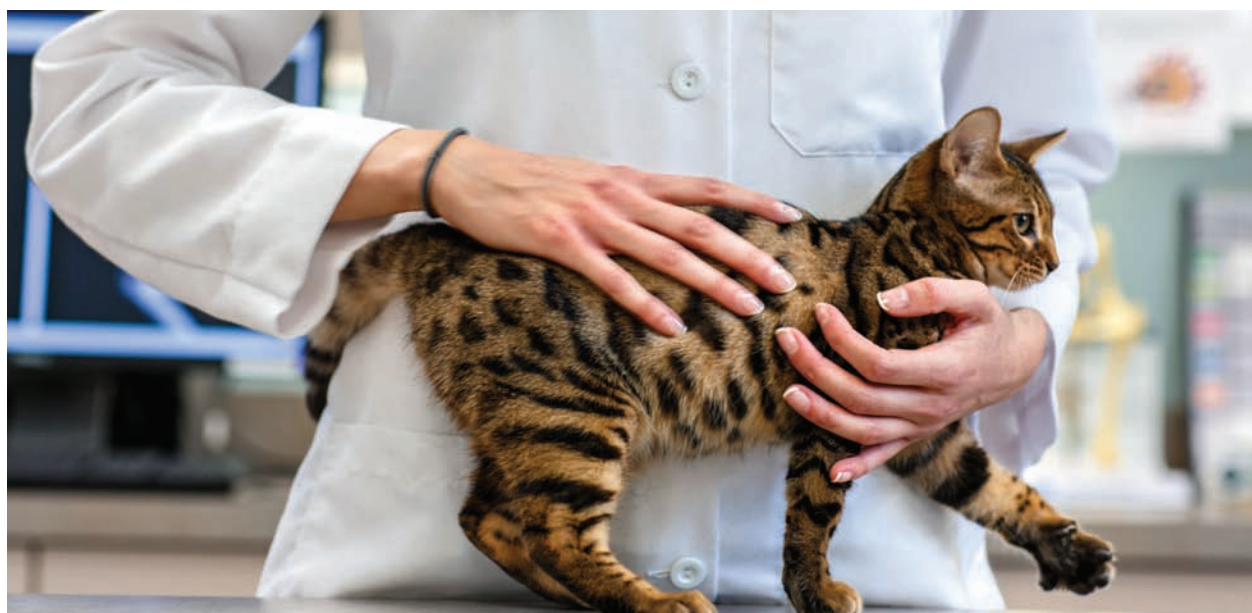
A lot of older cats are seen as cranky, but they wouldn’t be cranky if they weren’t in pain. We treat the pain, and suddenly the owners have a happy cat again.

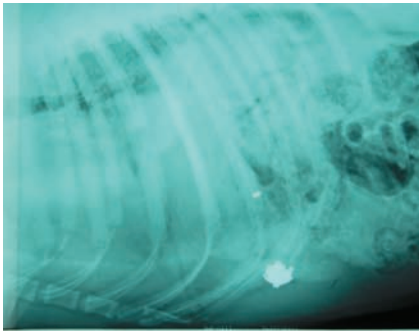
Q Why was there a need to update the pain management guidelines for dogs and cats?

A The last guidelines were published eight years ago, and since 2007 the profession has developed a much better understanding of pain medications and how they are used in veterinary medicine. The new guidelines also give much more specific information on uses, doses and indications for the pain medications available to veterinarians.

Q Looking specifically at surgery, what do you see as the most significant change in surgical pain management for cats over the past few years?

A When I was in veterinary school, we were told never to use opioids in cats. Since then, there has been a lot of research presented in the literature and it has become an accepted practice. Also, the guidelines approach pain management with a multimodal view and provide information on what drugs are safe to use in combination.





>>> A 40-caliber bullet in a mastiff.



>>> A broken bone from an animal abuse victim.

taken to a local shelter and then to a veterinary hospital.

Even without diagnostic imaging it was obvious that the dog had been badly injured, but she didn't present like a typical hit-by-car patient. The animal control officer didn't have a budget for diagnostics or treatment, so Puppy Doe was humanely euthanized.

The veterinarian realized the dog's injuries were not consistent with accidental injury, so she reported the case to local police. Smith-Blackmore performed a necropsy and found profound injuries that were anthrogonic in origin. She declined to provide more details since the case is still being investigated.

"This case was just the most shocking case I encountered. Before her, there were dozens of dogs found dead: floating in harbors, submerged in crates in the river, wrapped in tablecloths on public park land or the side of the road, dumped in garbage bags on the side of the river, buried in shallow graves near the department of public works," she says. "I examined all of these dogs."

Some were shot, Smith-Blackmore continues. Some were starved. Some had been hit by a car and died without receiving veterinary care. Some were dogfighting victims. "But none of them were investigated by local police with the vigor that the Puppy Doe case was," she says.

Partly because of cases such as Puppy Doe's driving awareness, response to Smith-Blackmore's work has been positive, with people highly interested in learning more. "Most people are surprised to learn that abandonment of dead dogs is as pervasive as it is," she says. They also don't realize that most cities are severely short of resources for investigating cases of harmed animals—they lack both the budget and training necessary.

This is partly because the field of veterinary forensics is still relatively new and growing, Smith-Blackmore says. In some cases a veterinary-specific forensic investigator may not be available in the area. If so, Smith-Blackmore suggests that veterinarians contact a local shelter colleague who may have experience or training in animal abuse investigation. Additional resources can be found on vetinvestigator.com.

Veterinarians and other professionals in Massachusetts who are interested in requesting a forensic examination through the Crimes Against Canines study can submit an inquiry through the "Contact us" form on vetinvestigator.com or call Smith-Blackmore directly. The scope of her research includes cases submitted by veterinarians, police departments, animal control officers, prosecutors and city officials. dvm360

PHOTOS COURTESY OF DR. MARTHA SMITH-BLACKMORE

& Feline Surgical Pain with Dr. Mike Petty

Q Are there particular points that veterinarians should take into account when considering surgical pain management for cats?

A Veterinarians can re-evaluate their anesthesia protocols, and if they are not addressing pain appropriately, then I suggest that they start out slowly with one analgesic, such as SIMBADOL. It's such a no-brainer of a drug; give it once, and it lasts for 24 hours with very good pain control. Once a doctor is comfortable, add in NSAIDs or local anesthetics.

Q Are there any other important points regarding surgical pain management in cats that veterinarians should consider?

A Practitioners should consider employing a pain management scale for each and every cat they see. Just looking at a cat isn't enough. You have to measure it. You can't know if the cat is running a fever without a thermometer, and you can't tell if a cat is in pain without using a pain scale.

Q What medications would you recommend a veterinarian have in his or her "toolkit" for managing surgical pain in cats? Why are these medications important?

A I recommend SIMBADOL because I know through personal use how effective and safe it is; plus, it is the only long-lasting opioid approved for cats.



I also suggest meloxicam because of its strong anti-inflammatory effects as well as local anesthetics because they are so safe, easy to use and block 100 percent of the pain. If veterinarians are using those three things, they are doing a great job of managing feline pain.



IMPORTANT SAFETY INFORMATION

WARNINGS, PRECAUTIONS and CONTRAINDICATIONS: Due to serious human safety and abuse concerns, including physical or psychological dependence, life-threatening respiratory depression and additive CNS depressant effects, read the full prescribing information before using this drug, including the complete Boxed Warning. Not for use in humans. Hospital staff should be trained in the handling of potent opioids and should avoid accidental exposure. For subcutaneous (SQ) injectable use in cats. Opioid excitation has been observed up to 8 hours after anesthetic recovery. Use with caution in cats with impaired hepatic function. SIMBADOL has not been evaluated in breeding, pregnant, or lactating cats, in cats younger than 4 months of age or moribund cats. Do not use in cats with known hypersensitivity to buprenorphine hydrochloride or any of the components of SIMBADOL, or known intolerance to opioids.

ADVERSE REACTIONS: In two controlled field studies, the most frequent adverse reactions with SIMBADOL were hypotension, tachycardia, hypothermia, hyperthermia, hypertension, anorexia and hyperactivity. Less frequent but serious adverse reactions included two deaths following apnea and two reports of presumptive post-anesthetic cortical blindness. See the full prescribing information for a complete list and additional details of adverse reactions for each field study.

See full Prescribing Information on page XX, including the complete Boxed Warning for human safety.

Dr. Petty is a consultant for Zoetis.

See brief summary on page 30

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For-profit veterinary schools have a legitimate role to play

Graduates enhance diversity of profession. I write because I am troubled by the publication of Dr. Robert Marshak’s commentary against “vocationally

oriented” colleges (as well as similar diatribes seen on vin.com or elsewhere on the Internet). I would like to see a publication defend not the schools themselves but the graduates of such programs who enrich and contribute to veterinary medicine on a daily basis.

I too would like to see change in the system by which students are educated, but is the blame solely on for-profit veterinary colleges? A significant population of my 2013 graduating class at Ross were either Puerto Rican, Asian American or some other minority who didn’t necessarily have the means to enter a nonprofit in the United States.

My colleagues in Massachusetts are predominantly white and were able to graduate from nonprofit schools (namely Tufts, Penn and Cornell) without significant debt burdens due in part at least to their wealthy families. How can a person working for a nonprofit, especially a dean, suggest that all changes that need to occur are external? Perhaps the profession should call for an internal reevaluation of how veterinary medicine has evolved over the past several decades and how much further it needs to go. The system still does not allow for equality of pay or benefits to women or minorities despite major strides by all. I would argue that working together as professionals would be the best solution to a mutual problem.

The article also fails to mention the intense clinical training that all students must undertake. If a student is from a for-profit such as myself, he or she completes the same rigorous training that a nonprofit student undertakes. The main difference is we have been transplanted away from family, friends and any support system we may have developed to fight against prejudice and ignorance from many (not all) clinicians at nonprofit teaching hospitals. In some ways, being able to achieve success through these difficult situations helps us become valuable members of the community in ways that students at nonprofits may never undergo.

Name withheld

 
(buprenorphine injection)

1.8 mg/mL

For subcutaneous use in cats

BRIEF SUMMARY: Before using SIMBADOL, please consult the full prescribing information, a summary of which follows.

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

HUMAN SAFETY WARNING

Abuse Potential
SIMBADOL contains buprenorphine (1.8 mg/mL), an opioid agonist and Schedule III controlled substance with an abuse potential similar to other Schedule III opioids. Buprenorphine has certain opioid properties that in humans may lead to dependence of the morphine type. Abuse of buprenorphine may lead to physical dependence or psychological dependence. The risk of abuse by humans should be considered when storing, administering and disposing of SIMBADOL. Persons at increased risk for opioid abuse include those with a personal or family history of substance abuse (including drug or alcohol abuse or addiction) or mental illness (suicidal depression).

Life-Threatening Respiratory Depression
Respiratory depression, including fatal cases, may occur with abuse of SIMBADOL.

Additive CNS Depressant Effects
SIMBADOL has additive CNS depressant effects when used with alcohol, other opioids, or illicit drugs that cause central nervous system depression.

Accidental Exposure
Because of the potential for adverse reactions associated with accidental injection, SIMBADOL should only be administered by veterinarians or veterinary technicians who are trained in the handling of potent opioids.

See Human Safety for detailed information.

INDICATION: SIMBADOL is indicated for the control of postoperative pain associated with surgical procedures in cats.

DOSAGE AND ADMINISTRATION: The dosage of SIMBADOL is 0.24 mg/kg (0.11 mg/lb) administered subcutaneously once daily, for up to 3 days. Administer the first dose approximately 1 hour prior to surgery. Do not dispense SIMBADOL for administration at home by the pet owner (see Human Safety).

CONTRAINDICATIONS: SIMBADOL is contraindicated in cats with known hypersensitivity to buprenorphine hydrochloride or any of the components of SIMBADOL, or known intolerance to opioids.

WARNINGS: For subcutaneous (SQ) injectable use in cats.

Human Safety: Not for use in humans. Keep out of reach of children. Because of the potential for adverse reactions, hospital staff should avoid accidental exposure and contact with skin, eyes, oral or other mucous membrane during administration. SIMBADOL contains buprenorphine, a mu opioid partial agonist and Schedule III controlled substance with an abuse potential similar to other Schedule III opioids. SIMBADOL can be abused and is subject to misuse, abuse, addiction and criminal diversion. SIMBADOL should be handled appropriately to minimize the risk of diversion, including restriction of access, the use of accounting procedures, and proper disposal methods, as appropriate to the clinical setting and as required by law. Abuse of SIMBADOL poses a hazard of overdose and death. This risk is increased with concurrent abuse of alcohol and other substances including other opioids and benzodiazepines. Buprenorphine has been diverted for non-medical use into illicit channels of distribution. All people handling opioids require careful monitoring for signs of abuse. Drug abuse is the intentional non-therapeutic use of a prescription drug for its rewarding psychological or physiological effects. Abuse of opioids can occur in the absence of true addiction. Naloxone may not be effective in reversing respiratory depression produced by buprenorphine. The onset of naloxone effect may be delayed by 30 minutes or more. Doxapram hydrochloride has also been used as a respiratory stimulant.

PRECAUTIONS: Hyperactivity (opioid excitation) has been observed up to 8 hours after anesthetic recovery (see ADVERSE REACTIONS). Safety has not been evaluated in moribund cats. Use in such cases should be based on the risk-benefit assessment of the veterinarian. Use with caution in cats with impaired hepatic function. The use of SIMBADOL has not been evaluated in breeding, pregnant, or lactating cats, or in cats younger than 4 months of age.

ADVERSE REACTIONS: In two controlled field studies, the following adverse reactions were reported.

| Adverse Reactions in Two Field Studies | | | | |
|--|-----------------------------|---------------|-----------------------------|---------------|
| Adverse Reaction ^a | SIMBADOL (N = 224) | | Control (N = 226) | |
| | During Surgery ^b | After Surgery | During Surgery ^b | After Surgery |
| Hypotension ^c | 68 (30.4%) | 51 (22.8%) | 60 (26.5%) | 40 (17.7%) |
| Tachycardia ^d | 55 (24.6%) | 73 (32.6%) | 30 (13.3%) | 44 (19.5%) |
| Hypothermia (≤98.0°F) | 38 (17.0%) | 1 (0.4%) | 47 (20.8%) | 0 |
| Hyperthermia (≥103.0°F) | 1 (0.4%) | 91 (40.6%) | 0 | 33 (14.6%) |
| Hypertension ^e | 10 (4.5%) | 40 (17.9%) | 17 (7.5%) | 18 (8.0%) |
| Anorexia | 0 | 40 (17.9%) | 0 | 35 (15.5%) |
| Hyperactivity | 0 | 26 (11.6%) | 0 | 11 (4.9%) |
| Reduced SpO ₂ (≤90%) | 8 (3.6%) | 1 (0.4%) | 11 (4.9%) | 0 |
| Bradycardia (≤90 beats/min) | 5 (2.2%) | 1 (0.4%) | 4 (1.8%) | 1 (0.4%) |
| Tachypnea (≥72 breaths/min) | 0 | 5 (2.2%) | 1 (0.4%) | 6 (2.7%) |
| Arrhythmia | 1 (0.4%) | 1 (0.4%) | 2 (0.9%) | 0 |
| Blindness | 0 | 2 (0.9%) | 0 | 1 (0.4%) |
| Apnea/Death | 1 (0.4%) | 1 (0.4%) | 0 | 0 |
| Ataxia | 0 | 1 (0.4%) | 0 | 0 |
| Hyperesthesia | 0 | 1 (0.4%) | 0 | 0 |

- a. Cats may have experienced more than one type or occurrence of an adverse reaction. Cats experiencing the same reaction both during and after surgery are presented in both time periods.
- b. During surgery is the time from the administration of the anesthetic induction agent until discontinuation of the gas anesthetic.
- c. Hypotension is defined as a mean blood pressure of ≤60 mmHg during surgery and ≤90 mmHg after surgery.
- d. Tachycardia is defined as a heart rate of ≥180 beats per minute during surgery and ≥200 beats per minute after surgery.
- e. Hypertension is defined as a mean blood pressure of ≥120 mmHg during surgery and ≥160 mmHg after surgery.

To report suspected adverse events, contact Abbott Animal Health at 1-888-299-7416, FDA at 1-888-FDA-VETS or FDA online at <http://www.fda.gov/AnimalVeterinary/SafetyHealth>.

EFFECTIVENESS: The effectiveness of SIMBADOL was demonstrated in two randomized, masked, placebo-controlled, multi-site field studies involving client-owned cats of various breeds. A descriptive, interactive pain assessment system was used by the trained assessor over the 72-hour post-operative period to determine pain control, and treatment success was defined as a cat that completed the 72-hour post-operative period without rescue analgesia. A statistically significant difference (P ≤ 0.005) in the number of successes in the treatment group over the placebo control group was observed. The results of two field studies demonstrate that SIMBADOL is effective and has an acceptable safety margin for the control of postoperative pain in cats.

HOW SUPPLIED: SIMBADOL (buprenorphine injection) is supplied in a carton containing one 10 mL amber glass vial. Each multidose vial contains 1.8 mg/mL of buprenorphine.

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Practitioners, specialists should work together

Rosenberg's column damages already strained relationships.

Dr. Marc Rosenberg's August column, "Referral Interrupted: GP faces resistance from veterinary oncologist," brings to the fore a disturbing and escalating trend that we are seeing in veterinary medicine. Reading that article, it is easy to second-guess, misinterpret and prevaricate over what occurred. The truth is that internal battles between primary care veterinarians and veterinary specialists do nothing except erode public confidence in the entire profession.

The private practitioner-specialist relationship should not be one of competition. It's imperative the two entities collaborate for the benefit of the pet and the pet owner. In Dr. Rosenberg's column, there seemed to be a turf battle going on between the primary care veterinarian hoping to provide care to a client's dog, and the board-certified oncologist who felt the need to protect his intellectual property. As a profession, we need to figure out how to cooperate to provide optimal care for companion animals. Had that happened, the patient, the client, the specialist and the generalist would have all benefited. When that becomes our norm, the veterinary profession will be stronger and more highly regarded.

Whether a consultation takes place with an oncologist, surgeon, cardiologist or any other specialist, the ultimate goal is patient outcome. Communication, collaboration, cooperation, unity—we really need all of these right

now for both the financial benefit and the future of the entire profession.

The Veterinary Specialists Outreach and Awareness Project (VetSOAP) was started in 2013 and seeks to address concerns similar to those highlighted in Dr. Rosenberg's article. VetSOAP promotes a mutually beneficial partnership through the triad of health-care: the pet owner, the primary care veterinarian and the specialist. We believe that when clients are educated about all the options available to them, the conversation shifts from finances to optimal care. If the opinion of the specialist in consultation with the primary care veterinarian is that the ongoing treatment should be continued with the specialist, this should be explained to the client. If the best decision is to follow up with the primary care veterinarian, then that should be explained as well.

We all entered veterinary medicine to provide the finest care to our patients, and our options to provide this care have grown exponentially. Ultimately, the client makes the final decision, but with a trusting and committed partnership between the specialist and the primary care veterinarian, we can truly provide the best options for that pet.

Dr. Rosenberg's article highlights an unfortunate interaction that demonstrated a missed opportunity for communication and cooperation between a veterinary specialist and general practitioner. Open, clear and honest communication is the best tool we have to prevent misunderstanding and conflict between individuals and groups including veterinary specialists and primary care practitioners. These two groups

are often at perceived cross-purposes. However, our belief is that this perception is not based on fact but is actually more of differing perspectives.

*Julie D. Smith, DVM, DACVS, CCRT, MBA
Board of Directors, Veterinary Specialists
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Bo Brock column about dog poop was in poor taste

I have just finished reading this disgusting article in the August issue of *dvm360* by Dr. Bo Brock detailing the 32.5-inch dog turd. I have practiced since 1982, starting with two years of mixed practice and the past 31 years in small animal practice. I have enjoyed reading the often-funny writings of Drs. Obenski, Miller and even James Herriot. Often some matter of

excrement was involved in the story, but it was tastefully woven into the story. Dr. Brock's article is just gross. I suggest a fault in his judgment as well as that of the editorial staff. I find this article offensive and embarrassing. Please pay more attention to editing and find a different writer.

*Thomas A. Koenig, DVM
Washington State University, 1982*

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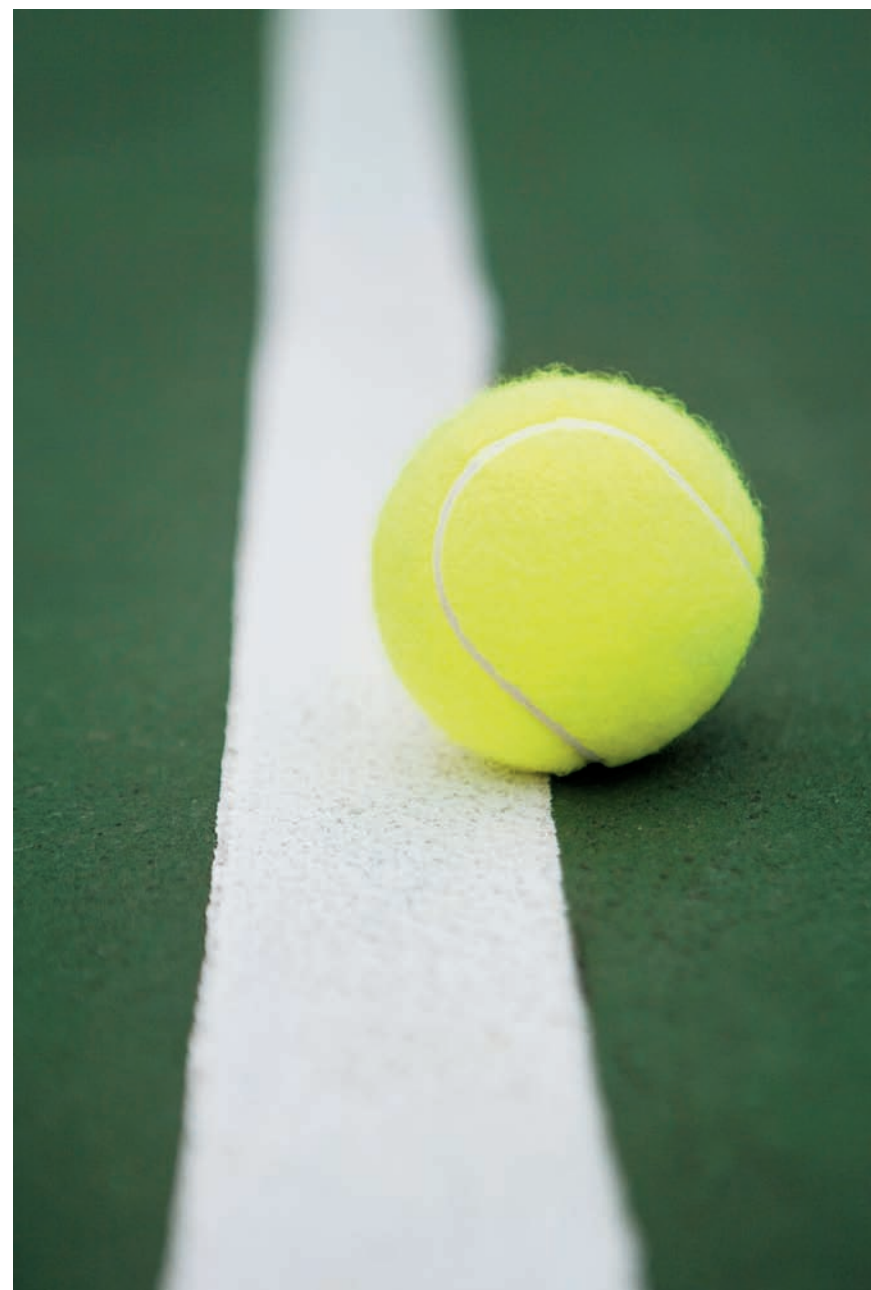
A well-intentioned boss oversteps his medical expertise with an employee and strains their work relationship.

Dr. Sam Kane was 64 years old and had been practicing veterinary medicine for almost 40 years. As the sole practitioner, he was always available to clients and used relief veterinarians only when he was ill. He was a kind, dignified man and beloved by his entire staff—five technicians, four receptionists and a bookkeeper. If they needed a loan, he helped. If they needed his counsel, he gladly offered it. In a nutshell, he was well-respected by staff and clients alike.

June Whitlock was a 43-year-old technician who had worked for Dr. Kane for six years. He was her boss, mentor and occasional father figure. Recently, June had been getting headaches at work. She thought they might be due to the new germicidal solution the team was using to clean the exam tables. June consulted Dr. Kane. He said he would go back to the old solution and recommended that she take some ibuprofen that was available in the hospital pharmacy. He kept the 600 mg size on hand and advised June that if her head was really bothering her, this strength would give her more relief.

A couple of weeks later, June received a minor cat bite. It's a common occurrence in many veterinary facilities, but Dr. Kane insisted she go to the emergency room for treatment. As he said, "Even simple cat bites can cause a lot of trouble." June went to the ER, received treatment and was given a script for the antibiotic Augmentin.

She returned to work and described her treatment to Dr. Kane and her coworkers. Dr. Kane told her, "Between you and me, Augmentin is exactly the same drug as the Clavamox that we use for the pets. You didn't hear it from



me, but Clavamox is much cheaper and will do the same thing as Augmentin."

June appreciated the tip and followed Dr. Kane's veiled recommendation. The Clavamox cost her half the pharmacy price, and the strength

prescribed was easily obtained by using two 375 mg tablets.

On the second day of using the Clavamox, June experienced an upset stomach. Her husband, in an attempt to assist her, noted the medication

she was using and its veterinary-use label. He asked why she was taking “dog medicine.” She recounted her discussion with Dr. Kane—and it didn’t go over well.

“He’s not a doctor; he’s a vet!” June’s husband shouted. “Thanks to him, you have an upset stomach and God knows what else.”

He demanded that they see their family physician. The doctor advised June to stop taking the medication and said her symptoms would disappear. He also told her not to take any prescription medications not prepared by a physician or pharmacist.

June’s husband called Dr. Kane to advocate for his wife. He said Dr. Kane’s medication recommendation had been unprofessional and illegal. He also said Dr. Kane was lucky he didn’t report him to the state veterinary board. Dr. Kane responded that he only meant to be helpful and never intended to endanger June’s health.

After the incident, things weren’t the same between Dr. Kane and June. Dr. Kane didn’t feel he’d overstepped his bounds. All he’d done was try to help, and his gesture had resulted in a verbal attack and a threat. He maintained that Clavamox and Augmentin were the same drug and that recommending ibuprofen to a coworker was not a crime.

Do you agree with Dr. Kane, or do you think he was out of line giving medical advice to his employee?

Rosenberg’s response

Veterinarians spend endless hours using and dispensing drugs from their pharmacies. A large percentage of these medications are crossover human medications. Cephalexin, amoxicillin and diazepam are commonly used medications that are prescribed and dispensed daily by veterinarians.

Unfortunately, there’s a tendency to become complacent when discussing minor ailments with veterinary coworkers. People are not pets, and a veterinarian must not offer medical advice to clients or coworkers in the execution of his or her clinic duties. The veterinarian is viewed as a member of the overall medical community, and as such has medical credibility beyond that of a layperson. This makes it even more important that the veterinarian not offer medical advice to people.

Dr. Kane was absolutely wrong.

He advised his subordinate to take a prescription-level dose of ibuprofen and then encouraged the use of prescription veterinary medication for a person. Fortunately, the consequences were minimal. This is a cautionary tale for all practitioners who, although well-intentioned, often mimic Dr. Kane’s behavior. **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. Although many of his scenarios in “The Dilemma” are based on real-life events, the veterinary practices, doctors and employees described are fictional.

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The gender wage gap: *Is clinical confidence* a factor?

Short answer? No. Female veterinarians perceive themselves as highly competent medically—and still earn almost 9 percent less.

By Yaoqin Shen, Ross Knippenberg, PhD, and Mike Dicks, PhD

Veterinarians are always questioning those of us in the American Veterinary Medical Association (AVMA) Economics Division about the factors that contribute to differences in salaries. Of these differences, one big topic of interest is that of the so-called gender wage gap. Many factors affect differences in income by gender, and this article discusses whether confidence in clinical skills is one of those factors.

Salary and confidence in the general U.S. population

According to the U.S. Bureau of Labor Statistics (BLS), the national median for weekly full-time job earnings in the first quarter of 2014 was \$791.¹ Women had median weekly earnings of \$716, while men had \$867. This simple difference represents a 17.4 percent wage gap.

One hypothesis for the wage gap is that confidence plays a role in job performance. Previous research has shown that women tend to demonstrate less confidence and less competitiveness than men. On the other hand, if a job is female-oriented, men show less confidence than women.² Another study also suggests that social evaluation has more impact on confidence for women than for men³ and that women tend to feel they have less influence in a group.⁴ We considered that these concepts, if true for the general U.S. population, might also help explain the wage gap for veterinarians.

Salary and confidence among veterinarians

Data for this article comes from the 2015 AVMA Employment Survey. The survey, which inquired about 2014 earnings, was sent to every veterinarian who graduated one year previously and five years previously. In 2014, according to the survey, the national



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mean annual earnings for veterinarians who graduated in 2009 and 2013 was \$74,253. Among them, women had mean annual earnings of \$71,714, while men had mean annual earnings of \$83,538. This difference amounts to a wage gap of 16.5 percent.

Because there are many factors other than gender that contribute to this wage

gap—graduation year, age, board certification, additional degrees held, whether the respondent served an internship, practice type, hours worked per week, and region—we had to control for these before examining the factors that affect only the gender wage gap. When we controlled for these factors, the gender wage gap was reduced to 8.6 percent.

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Occasionally, cephalosporins have been associated with myelotoxicity, thereby creating a toxic neutropenia¹. Other hematological reactions observed with cephalosporin therapy include neutropenia, anemia, hypoprothrombinemia, thrombocytopenia, prolonged prothrombin time (PT) and partial thromboplastin time (PTT), platelet dysfunction, and transient increases in serum aminotransferases².

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There were increases in alanine aminotransferase (ALT) in the 110 mg/kg three times a day group and in the 22 mg/kg twice a day group that increased in a dose-dependent pattern. There was an increase in sorbitol dehydrogenase (SDH) in the 110 mg/kg three times a day group compared to the controls. These changes were minimal and the values remained within expected historical control ranges. There were several decreases in total protein (in the 110 mg/kg three times a day group) and/or globulin (in the 22, 66, and 110 mg/kg three times a day groups) compared to the controls. These changes resulted in occasional increases in albumin/globulin ratios. Although a drug effect cannot be ruled-out, these changes were not clinically relevant.

A mild prolongation in prothrombin time (PT) was observed in the 22 mg/kg three times a day group. This was not considered clinically relevant due to the small change that remained within the reference ranges.

One dog in the 110 mg/kg three times a day group had moderate amounts of bilirubinuria at the Week 8 and Week 12 samplings. No clinical significance was noted.

Cephalexin was not present in any Day 1 samples prior to dosing or in any control animals. After dosing, cephalexin was well absorbed into systemic circulation of the treated dogs. Within gender and dosage level, Week 8 mean trough concentrations were generally higher than the Week 4 and 12 mean trough concentrations (between a 0.9 and 3.6-fold difference). The geometric mean plasma cephalexin trough concentration following three times daily administration of the 110 mg/kg dose was 11.2 μ g/mL compared to 2.6 μ g/mL and 8.7 μ g/mL following 22 mg/kg and 66 mg/kg, respectively at Week 12. Geometric mean plasma cephalexin trough concentrations following administration of 22 mg/kg twice daily were 0.7, 1.3, and 1.0 μ g/mL at Weeks 4, 8, and 12, respectively.

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References: 1. Birchard SJ and Sherding RG. *Saunders Manual of Small Animal Practice*, 2nd edition. W.B. Saunders Co. 2000: p. 166. 2. Adams HR. *Veterinary Pharmacology and Therapeutics*, 8th edition, 2001, p. 825.

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See brief summary on page 34

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AVMA EYE ON ECONOMICS | Mike Dicks, PhD

TABLE 1

Clinical competencies by gender

| Self-rated clinical proficiency (scale of 1-5) | Men | Women |
|---|------|-------|
| Physical examination | 4.08 | 4.31 |
| History taking | 4.13 | 4.40 |
| Diagnosis of lameness | 3.50 | 3.54 |
| Diagnosis/treatment of parasitic disease | 3.70 | 3.95 |
| Anesthesia | 3.75 | 3.84 |
| Fluid therapy | 3.73 | 3.84 |
| Intravenous injection | 4.06 | 4.30 |
| Development/adaptation of vaccination protocols | 3.62 | 3.86 |
| Advising clients on nutrition | 3.01 | 3.26 |
| Developing diagnostic plans for difficult cases | 3.70 | 3.83 |
| Investigation of potential toxin exposure | 3.17 | 3.31 |
| Prescribing medication | 3.85 | 4.01 |

Source: AVMA Veterinary Economics Division

The question we posed is this: What portion of this wage gap, if any, may be explained by differences in confidence between the genders? The AVMA Employment Survey included a section on self-reported clinical competencies. We used this information to measure the respondents' confidence in their own clinical skills. The summary statistics for those questions are shown in Table 1. Compared to male veterinarians, female veterinarians reported significantly higher scores in physical examination, history taking, diagnosis and treatment of parasitic disease, intravenous injection, development of vaccination protocols and advising clients on nutrition. Men, on average, failed to self-report any competency at a higher level than women did. So confidence in one's clinical veterinary competencies does not explain the gender wage gap.

Discussion

Some studies show that the wage gap between genders is declining, especially in countries with large and advanced social welfare systems.⁵ But for the time being at least, women in veterinary medicine are making about 8.6 percent less than their male counterparts when relevant variables are accounted for, and they show an overall higher self-reported confidence in clinical skills.

The wage gap is a real economic phenomenon in the profession, and according to our research, lack of clinical confidence among women can't explain it. For quantitative, economically viable answers, we'll have to keep looking. [dvm360](#)

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Further reading

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Yaoqin Shen is an extern in the American Veterinary Medical Association's Veterinary Economics Division. Dr. Ross Knippenberg is an economic analyst and Dr. Mike Dicks is director of the Veterinary Economics Division.



Bringing *life* into **focus**

Goals help us determine what is and isn't fulfilling in our lives.

Recently I gave a presentation to veterinarians about setting personal and professional goals. I asked attendees to write down what was and wasn't working in their personal and professional lives and what they would like to change. The intent was to point out areas they needed to work on to achieve their desired balance. Attendees made up the following four lists during the exercise:

- > What's not working for me in my personal life?
- > What can I do to make things better for myself?
- > What is not working in my career life?
- > What can I do to make things better in my career?

The list of issues was particularly interesting in light of recent surveys of personal and professional satisfaction of veterinarians. Concerns were virtually interchangeable among participants, and the solutions were also similar.

Personal issues

In regard to their personal lives, virtually every respondent mentioned an imbalance between work and family and a lack of personal time with spouses or partners as frustrations. A lack of "me time" and focus on health were the next highest. Also common was feeling out of shape and not having time for personal interests and growth.

Professional issues

In the professional arena, attendees at my session focused on issues involving inconsistency and lack of focus. They expressed a desire for

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clear expectations from veterinary employers and coworkers. Many were also dissatisfied with their level of compensation and staff support. Other comments included working too hard and an inability or unwillingness to delegate. A few shared a lack of professional confidence and practice organization.

What to do next

To paraphrase my hero, Jimmy Buffet, the answers are the easy part—the questions make it hard. Interestingly, once we identified the issues, solutions seemed to fall into place and were actually fairly simple. Focus on better communication with employers, partners and spouses. Make it a priority regardless of what other goals are. Let others know you’re going to make some changes to benefit everyone.

Stop wasting time

Schedule blocks of time during the workday, but also schedule personal time. Take control of your time. Be more organized so less of your valuable time is wasted. As management consultant and Harvard Business Review blogger Greg McKeown has said, “If you don’t prioritize your life, someone else will.” Develop confidence to express what you want and need.

It was apparent for a number of folks that it wasn’t that they didn’t know what they wanted—they were afraid to ask for it because someone else might think less of them. Many workplace frustrations are staff-related and must be resolved or you can’t move ahead to other issues. Set boundaries, learn to delegate and say no.

We are not all so different as we are the same.

I don’t want to imply that all members of the profession struggle with the same issues. People who attend CE courses or read about personal growth topics have likely been preselected on some level. But it is almost certain that we all have similar frustrations and most of us have failed to take steps to address and change the changeable.

My suggestion is that you sit down in a quiet place at a quiet time and make similar lists. At the same time, create a list of what’s really great about your professional and personal life and ask, “How can I have more of what I love in my life?”

The things that give you fulfillment and bliss are the same things that make you less than happy if they’re missing or out of balance. These are things like relationships, personal time, personal growth, a sense of professional accomplishment and security.

There is no doubt that our work is

The things that give you fulfillment and bliss are the same things that make you less than happy if they’re missing or out of balance. These are things like relationships, personal time, personal growth, a sense of professional accomplishment and security.

important—vitaly important—to all of us. But as I’ve stated in the past, no definition of success is complete without personal happiness and fulfillment.

Steps you can take

Take action to bring solutions to your life’s problems, such as: > Recognize and acknowledge where your life is out of balance.

> Make a pledge to yourself to strive for a shift. Decide what’s most important in your life’s plan and see to it that your priorities get rearranged so you put “first things first”—family, faith, self-development and professional growth—with a plan.

> Visualize and voice what you want and what you need from others. You may need to readjust your job description or time commitment.

> Don’t keep your plan a secret. Share it with your partner, your family, your work associates and your friends. > Plans are amendable and flexible, but keep your priorities in view. > Find a mentor or counselor who can help you keep on track. **dvm360**

Dr. Michael Paul, @mikepauldvm on Twitter, is a nationally known speaker and columnist and the principal of Magpie Veterinary Consulting. He lives in Anguilla in the British West Indies.

NexGard® (afoxolaner) Chewables

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

Description: NexGard® (afoxolaner) is available in four sizes of beef-flavored, soft chewables for oral administration to dogs and puppies according to their weight. Each chewable is formulated to provide a minimum afoxolaner dosage of 1.14 mg/lb (2.5 mg/kg). Afoxolaner has the chemical composition 1-Naphthalenecarboxamide, 4-[5-[3-chloro-5-(trifluoromethyl)-phenyl]-4, 5-dihydro-5-(trifluoromethyl)-3-isoxazoly]-N-[2-oxo-2-[(2,2,2-trifluoroethyl)amino]ethyl].

Indications: NexGard kills adult fleas and is indicated for the treatment and prevention of flea infestations (*Ctenocephalides felis*), and the treatment and control of Black-legged tick (*Ixodes scapularis*), American Dog tick (*Dermacentor variabilis*), Lone Star tick (*Amblyomma americanum*), and Brown dog tick (*Rhipicephalus sanguineus*) infestations in dogs and puppies 8 weeks of age and older, weighing 4 pounds of body weight or greater, for one month.

Dosage and Administration: NexGard is given orally once a month, at the minimum dosage of 1.14 mg/lb (2.5 mg/kg).

Dosing Schedule:

| Body Weight | Afoxolaner Per Chewable (mg) | Chewables Administered |
|--------------------|---|------------------------|
| 4.0 to 10.0 lbs. | 11.3 | One |
| 10.1 to 24.0 lbs. | 28.3 | One |
| 24.1 to 60.0 lbs. | 68 | One |
| 60.1 to 121.0 lbs. | 136 | One |
| Over 121.0 lbs. | Administer the appropriate combination of chewables | |

NexGard can be administered with or without food. Care should be taken that the dog consumes the complete dose, and treated animals should be observed for a few minutes to ensure that part of the dose is not lost or refused. If it is suspected that any of the dose has been lost or if vomiting occurs within two hours of administration, redose with another full dose. If a dose is missed, administer NexGard and resume a monthly dosing schedule.

Flea Treatment and Prevention: Treatment with NexGard may begin at any time of the year. In areas where fleas are common year-round, monthly treatment with NexGard should continue the entire year without interruption.

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

Tick Treatment and Control: Treatment with NexGard may begin at any time of the year (see **Effectiveness**).

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

Warnings: Not for use in humans. Keep this and all drugs out of the reach of children. In case of accidental ingestion, contact a physician immediately.

Precautions: The safe use of NexGard in breeding, pregnant or lactating dogs has not been evaluated. Use with caution in dogs with a history of seizures (see **Adverse Reactions**).

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

Over the 90-day study period, all observations of potential adverse reactions were recorded. The most frequent reactions reported at an incidence of > 1% within any of the three months of observations are presented in the following table. The most frequently reported adverse reaction was vomiting. The occurrence of vomiting was generally self-limiting and of short duration and tended to decrease with subsequent doses in both groups. Five treated dogs experienced anorexia during the study, and two of those dogs experienced anorexia with the first dose but not subsequent doses.

Table 1: Dogs With Adverse Reactions.

| | Treatment Group | | | |
|-----------------------------------|-----------------|-----------|---------------------|-----------|
| | Afoxolaner | | Oral active control | |
| | N¹ | % (n=415) | N² | % (n=200) |
| Vomiting (with and without blood) | 17 | 4.1 | 25 | 12.5 |
| Dry/Flaky Skin | 13 | 3.1 | 2 | 1.0 |
| Diarrhea (with and without blood) | 13 | 3.1 | 7 | 3.5 |
| Lethargy | 7 | 1.7 | 4 | 2.0 |
| Anorexia | 5 | 1.2 | 9 | 4.5 |

¹Number of dogs in the afoxolaner treatment group with the identified abnormality.
²Number of dogs in the control group with the identified abnormality.

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

To report suspected adverse events, for technical assistance or to obtain a copy of the MSDS, contact Merial at 1-888-637-4251 or www.merial.com/NexGard. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VEIS or online at <http://www.fda.gov/AnimalVeterinary/SafetyHealth>.

Mode of Action: Afoxolaner is a member of the isoxazoline family, shown to bind at a binding site to inhibit insect and acarine ligand-gated chloride channels, in particular those gated by the neurotransmitter gamma-aminobutyric acid (GABA), thereby blocking pre- and post-synaptic transfer of chloride ions across cell membranes. Prolonged afoxolaner-induced hyperexcitation results in uncontrolled activity of the central nervous system and death of insects and acarines. The selective toxicity of afoxolaner between insects and acarines and mammals may be inferred by the differential sensitivity of the insects and acarines' GABA receptors versus mammalian GABA receptors.

Effectiveness: In a well-controlled laboratory study, NexGard began to kill fleas four hours after initial administration and demonstrated >99% effectiveness at eight hours. In a separate well-controlled laboratory study, NexGard demonstrated 100% effectiveness against adult fleas 24 hours post-infestation for 35 days, and was ≥ 93% effective at 12 hours post-infestation through Day 21, and on Day 35. On Day 28, NexGard was 81.1% effective 12 hours post-infestation. Dogs in both the treated and control groups that were infested with fleas on Day -1 generated flea eggs at 12- and 24-hours post-treatment (0-11 eggs and 1-17 eggs in the NexGard treated dogs, and 4-90 eggs and 0-118 eggs in the control dogs, at 12- and 24-hours, respectively). At subsequent evaluations post-infestation, fleas from dogs in the treated group were essentially unable to produce any eggs (0-1 eggs) while fleas from dogs in the control group continued to produce eggs (1-141 eggs).

In a 90-day US field study conducted in households with existing flea infestations of varying severity, the effectiveness of NexGard against fleas on the Day 30, 60 and 90 visits compared with baseline was 98.0%, 99.7%, and 99.9%, respectively.

Collectively, the data from the three studies (two laboratory and one field) demonstrate that NexGard kills fleas before they can lay eggs, thus preventing subsequent flea infestations after the start of treatment of existing flea infestations.

In well-controlled laboratory studies, NexGard demonstrated >97% effectiveness against *Dermacentor variabilis*, >94% effectiveness against *Ixodes scapularis*, and >93% effectiveness against *Rhipicephalus sanguineus*, 48 hours post-infestation for 30 days. At 72 hours post-infestation, NexGard demonstrated >97% effectiveness against *Amblyomma americanum* for 30 days.

Animal Safety: In a margin of safety study, NexGard was administered orally to 8 to 9-week-old Beagle puppies at 1, 3, and 5 times the maximum exposure dose (6.3 mg/kg) for three treatments every 28 days, followed by three treatments every 14 days, for a total of six treatments. Dogs in the control group were sham-dosed. There were no clinically-relevant effects related to treatment on physical examination, body weight, food consumption, clinical pathology (hematology, clinical chemistries, or coagulation tests), gross pathology, histopathology or organ weights. Vomiting occurred throughout the study, with a similar incidence in the treated and control groups, including one dog in the 5x group that vomited four hours after treatment.

In a well-controlled field study, NexGard was used concomitantly with other medications, such as vaccines, anthelmintics, antibiotics (including topicals), steroids, NSAIDs, anesthetics, and antihistamines. No adverse reactions were observed from the concomitant use of NexGard with other medications.

Storage Information: Store at or below 30°C (86°F) with excursions permitted up to 40°C (104°F).

How Supplied: NexGard is available in four sizes of beef-flavored soft chewables: 11.3, 28.3, 68 or 136 mg afoxolaner. Each chewable size is available in color-coded packages of 1, 3 or 6 beef-flavored chewables.

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See brief summary on page 38



¹Data on File at Merial.

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IMPORTANT SAFETY INFORMATION: For use in dogs only. The most common adverse reaction is vomiting. Other adverse reactions reported are dry/flaky skin, diarrhea, lethargy, and anorexia. The safe use of NexGard in pregnant, breeding, or lactating dogs has not been evaluated. Use with caution in dogs with a history of seizures.



Diving into a partnership? Check out these 9 FAQs first

Templates make the business paperwork easy, but the catch is knowing where to look for problems before they bite you.

Partnership is experiencing a renaissance in veterinary practice ownership. And although partnerships can run into unanticipated problems, they can also work well. As is the case in any complicated relationship, the odds favor partnerships whose participants think, plan, brainstorm and cooperate with a flexible outlook from the very start. If you're pondering shared ownership of a veterinary clinic, here are answers to some of the more frequently asked questions I receive:

1 Why is partnership popular again? There are a number of possible reasons: (a) Veterinary science has become more sophisticated, requiring greater startup costs for equipment and supplies. It's easier to gather capital and obtain financing if a practice is started or purchased by two or more DVMs. (b) The complexity of the science tends to make recent graduates want to have a second doctor to share the heavy lifting of client and patient care. (c) In areas not served by an emergency practice, partnership cuts on-call duty in half.

2 Is partnership a good way to practice? It depends on your goals as a veterinarian. If your main objective is to limit your management headaches and be fairly certain of consistent income, you might be better off joining a corporate-owned chain of practices or negotiating a long-term associate contract for yourself. However, if you aim to transform hard work and long hours into equity that can someday help fund your retirement, partnership is one route.

3 Does a friend or classmate make a good partner? Possibly. The problem with partnering with friends is that it's difficult to be objective in assessing the business prowess and personal spending/saving philosophy of someone close to you. Often, the best partners are those who recognize a shared goal of building a high-quality practice that's consistently profitable. Enjoying someone's company is not a persuasive reason to go into business with that individual. And business disagreements turn personal quickly when friendship is in the mix.

4 Isn't it easier and cheaper for our practice to operate as a general partnership? Very rarely, and alternatives don't need to be costly. In a general partnership, all partners are legally liable for all obligations of the partnership. Limited-liability companies (LLCs), C-corporations and S-corporations limit participant liability, and they don't need to be expensive to form or maintain.

5 How can we save money forming a business entity? LLCs and corporations each have their unique costs of formation; the key is knowing where to spend your money in the formation process. Creating a business entity should not be expensive, and I often recommend that DVMs do the formation work themselves rather than spending lots of money on legal fees. Companies such as BizFilings.com and LegalZoom do a great job filing the paperwork necessary to form a veterinary LLC. Their fees are far lower than a typical attorney's. They also may be able to act

as the business's registered agent if it's required by state law.

6 Where should we spend our money in forming our LLC or corporation? Even if you go online to use a corporation-forming company to file the partnership formation documents, I strongly recommend that you and your partners use a qualified attorney or business consultant to assist in creating the document that forms the "constitution" of the business entity: the operating agreement (in an LLC) or the bylaws and shareholder agreements (in a corporation).

These documents are the "constitution" because they lay out the precise steps involved in decision-making and decision execution (both when the partners are in agreement and when they're not). The operating agreement or corresponding corporate documents provide the rules that determine "control."

Consider this example: Three veterinarians each put \$50,000 into a fledgling practice. The leasehold improvements, supplies and basic equipment end up costing approximately \$100,000, so there's still \$50,000 in the bank. Dr. A wants to leave the cash there in case revenue is occasionally weak, so that payroll will have a cushion. Classmates B and C each love diagnostic imaging and think the practice should buy a \$50,000 piece of equipment—they'll worry about payroll if a problem comes up.

If their LLC requires unanimity in order to make large expenditures, the money remains in the bank. If the LLC does not address the issue, all B and C need to do is vote together and

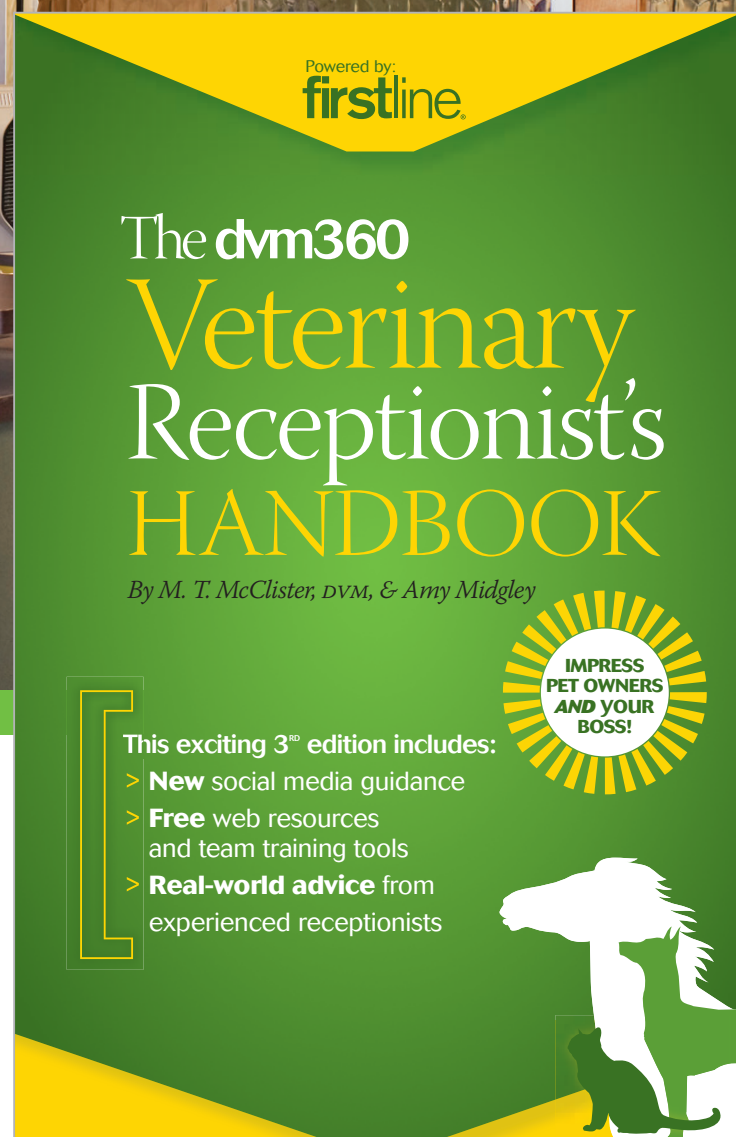


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use their majority to mandate that the purchase be made.

7 How can we prepare for common problems? The “constitution” of the business entity needs to be hammered out before the doctors commit financial capital, whether that capital is cash, equip-

ment, inventory or a building. Once the capital is contributed, it can be tough to get it back in an expeditious manner if negotiations among the partners stall or collapse.

If the partnership seeks out solid legal or business consulting advice simultaneously with creating the LLC or corporation, no time is lost and all

goals can be achieved. The clinic space can be negotiated, supply accounts established, bank financing obtained and other key details pursued as the partners address the control structure of the new veterinary business. This way, the clinic is on track to open as soon as the operating agreement or bylaws/shareholder agreements are finalized.

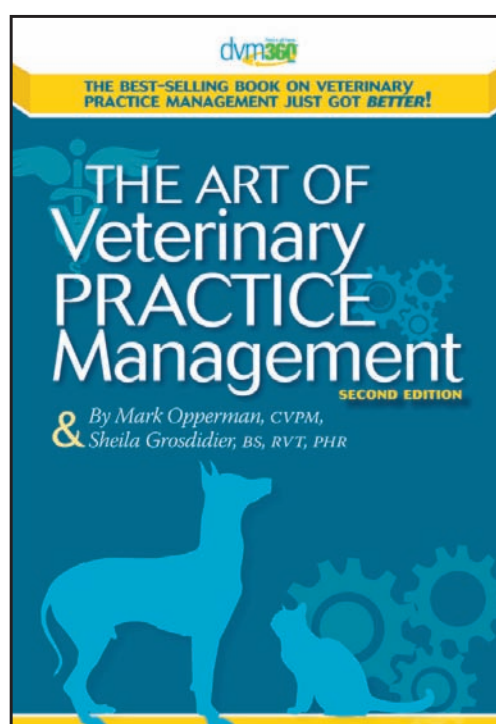
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8 What will a consultant or lawyer do for the partners during negotiations?

The fill-in-the-blank forms supplied by companies like BizFilings.com are great, but they are only a starting point. It's nearly impossible for a typical veterinarian to understand all the boilerplate language in these forms. Most of it is template, pure and simple. Yet buried in there are spots where important information needs to be included. The LLC or corporate advisor should force the partners to come to grips with decisions such as these:

- > Can partners be required to pony up extra money if payroll is short?
- > Which partners will have check-writing authority?
- > Will the big checks require multiple partner signatures?
- > If a partner dies, does his or her family get to vote that partner's shares? If there are no veterinarians in the family, can they sell to a licensed stranger?
- > How many partners are required to approve hiring an associate?
- > Will partners be allowed to borrow against their equity in the LLC?

9 Are these decisions so important that we risk killing the partnership at the start?

My belief has always been that if partners can't face difficult decisions at the beginning of their relationship, there is not much hope for them to do so amicably when money is short, a partner dies or one of the owners demands that the veterinary clinic hire his or her deadbeat sibling.

Partnering to own a veterinary practice can be fraught with possible downsides, but you can sidestep some of these problems with anticipation and preparation. [dvm360](http://dvm360.com)

Dr. Christopher Allen is president of Associates in Veterinary Law PC, which provides legal and consulting services to veterinarians. Call (607) 754-1510 or e-mail info@veterinarylaw.com.

EQUINE | Orthopedics

A pioneering vision

C. Wayne McIlwraith looks back on a career dedicated to equine orthopedic research. *By Ed Kane, PhD*

The name C. Wayne McIlwraith may be familiar to you. Co-author of six textbooks, along with more than 400 textbook chapters and refereed publications, McIlwraith has also given approximately 600

presentations and workshops during his long and distinguished career in veterinary academia, where his research grants have totaled more than \$21 million.

McIlwraith, BVSc, PhD, DSc, is chair

of orthopedics and director of the Orthopedic Research Center at Colorado State University's (CSU) College of Veterinary Medicine and Biomedical Sciences. An award-winning academician and equine surgeon, he is one of



>>> C. Wayne McIlwraith, BVSc, MS, PhD, DSc, FRCVS, DACVS, DECVS, DACVSMR, is a university distinguished professor, Barbara Cox Anthony University Endowed Chair in Orthopedics, and director of the Orthopedic Research Center at Colorado State University's College of Veterinary Medicine and Biomedical Sciences.



NEWS

Purdue moving forward on new equine center

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E6

the pioneers in some of the orthopedic practices widely used by today's veterinarians, and his research into joint disease is world-renowned.

While he has been working at CSU for the past 35 years, his climb to the top of his profession actually started on the other side of the globe.

From the mountains of New Zealand

Raised in the town of Oamaru on the South Island of New Zealand, McIlwraith spent his childhood among horses. "I didn't have a horse, but my uncle and aunt had a high-country sheep station, and I used to ride horses there," he recalls. "My aunt was also into show jumping and taught me to ride."

He also became fascinated with horseracing. "Since it was considered a gambling sport, my mother didn't approve of it, but I sneaked up to the racetrack on my bicycle just to look at the horses," McIlwraith says.

Instead of medical school, McIlwraith at the last minute decided to pursue a career in veterinary medicine at Massey University. After earning his BVSc in 1970, he spent two years in a mixed country practice in New Zealand. About that same time he developed a passion for alpine climbing, and in 1973 he led an expedition to the Andes in South America.

McIlwraith then moved to England. Always interested in veterinary surgery, he worked at T.G. Yarrow, Forest Gate, London, a small animal practice that performed many surgeries. At the time, he recalls, veterinary surgeons were just beginning to successfully perform surgery to relieve colic in horses.

Just before Christmas 1973, McIlwraith met a veterinarian who would influence his career dramatically. His London mentor described training programs where one did a clinical specialty, internship and residency. "He called me on New Year's Day, 1974, and said I've got an application form for an internship at the University of Guelph's School of Veterinary Medicine," McIlwraith says.

Though the application deadline was January 1, administrators at the Ontario college waited for McIlwraith's application. They were offering two large animal surgery internships, and McIlwraith secured one of the slots. (The other went to James Moore,



>>> McIlwraith performing arthroscopic surgery for osteochondritis dissecans of a femoropatellar joint.

DVM, now at the University of Georgia's College of Veterinary Medicine.) The two headed to Guelph.

"We were taught a great deal by a number of people, including Rich Owen, Don Horney and Frank Milne," McIlwraith says. "I was hooked. I knew what I wanted to do—equine surgery." The focus on orthopedics would come later.



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To the plains of America

After his internship, McIlwraith secured a surgical residency at Purdue's School of Veterinary Medicine. Seeing Indiana for the first time, McIlwraith, still an avid mountain climber, was startled at the flatness of the American Midwest. But the residency, he says, was exciting. He was given a research project on joint disease: arthritis in the horse. "That project became pivotal to me," McIlwraith says. "As I did this project for my master's thesis, I read about the arthroscope. I thought this would be a good way to follow the synovitis [inflammation] we were creating in the joint."

About that time, McIlwraith learned that orthopedic surgeon Lanny Johnson, MD, was giving a course at Michigan State's medical school on



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>>> Drs. McIlwraith and Valerie Moorman doing arthroscopic surgery on a traumatic injury to the medial femorotibial joint.

diagnostic arthroscopic surgery of the human knee, a procedure still in its infancy. “I called him to say I was a veterinary surgery resident, but I’d like to come to his course. He said, ‘I’d love to have you, won’t charge you registration, and come on up.’ I learned how to do diagnostic arthroscopy of the human knee along with the orthopedic surgeons taking the course. At that stage they didn’t have MRI, and surgical procedures were done through arthrotomy based on clinical symptoms alone. After that, Purdue bought an arthroscope, and as a resident, I started doing diagnostic arthroscopy on equine knee joints.”

McIlwraith’s career ultimately diverged along two complementary pathways. First, he worked on developing arthroscopic techniques in equine joints using clinical cases while he was at Purdue. Second, Dr. David Van Sickle, a joint researcher working with both

dogs and humans, invited McIlwraith to pursue a PhD. “I saw a great opportunity, as there was very little literature in joint disease in horses, and none in arthroscopic surgery,” McIlwraith says.

He and Van Sickle demonstrated that synovitis alone, without any instability, could produce osteoarthritic change. At that time the literature discussed osteoarthritis as an iatrogenic condition in humans in which inflammation was produced secondarily by debris from the worn cartilage (often associated with instability).

“We showed that if you take a normal, intact joint and create inflammation, you’ll get early osteoarthritis and loss of articular cartilage,” McIlwraith says. That set him on the research pathway of joint disease.

Home in the Rockies

McIlwraith was due to finish his PhD in 1979 and was considering moving

back to the mountains of New Zealand when he got a call to interview at Colorado State University. Thirty-five years later, he’s still there—in veterinary academia and in the mountainous terrain he loves.

For the first 15 years at CSU he worked primarily as a surgeon in the clinic, doing various types of surgery but focusing especially on equine arthroscopic surgery. His colleague Simon Turner was also doing arthroscopic surgery. “Simon and I cowrote two textbooks, one on basic techniques in large animal surgery and one on advanced techniques in equine surgery,” McIlwraith says. “He was a critical partner in those early years. We started seeing arthroscopic surgery cases from the 10 surrounding states, as we were the only institution doing it at that time.” Indeed, he recalls having a large caseload: 400 to 500 a year.

McIlwraith also taught courses in

arthroscopic surgery, first at CSU and then in Orange County, California, where he met his wife, Nancy Goodman, DVM. (McIlwraith retains a private referral practice in California.) Soon he was being called overseas, by clients in France, England and Ireland, to perform surgeries. In 1984 he traveled to Miami to operate on Spend A Buck, who went on to win the 1985 Kentucky Derby by six lengths. McIlwraith believes his work on the equine champion helped boost the credibility of arthroscopic surgery among trainers, owners and veterinarians.

Working with surgical residents at CSU, he continued developing arthroscopic techniques in other joints. "In 1984, there was demand for the diagrams and pictures we used in the training courses, so I published them in the first edition of the book *Diagnostic and Surgical Arthroscopy in the Horse*," McIlwraith says. The book is now in its fourth edition.

Mission: Develop the best orthopedic research center in the world

Also in 1984, McIlwraith started the Orthopedic Research Center at CSU. At first the research initiatives were small in scale, because McIlwraith was spending most of his time working in the clinic. But he had several promising graduate students, including Chris Kawcak and David Frisbie, who started a small biochemistry laboratory for joints.

In 1994, Jim Voss, then dean of CSU's College of Veterinary Medicine, asked McIlwraith to take over the equine science program, which included the equine reproductive laboratory, the equine science program and the growing Orthopedic Research Center.

"He wanted me to develop the best orthopedic research center in the world, and he gave me tools to potentially achieve that. He gave me a tenure-track research position, as well as a research technician and an assistant, and that's when the program started growing," says McIlwraith.

The center received funding from the Stavros Niarchos Foundation, for which McIlwraith still consults today. Other donations started coming in as well.

From that trio of Kawcak, Frisbie and McIlwraith, the center has certainly grown. Today it includes 15 faculty members; a team of research associates,

"We showed that if you take a normal, intact joint and create inflammation, you'll get early osteoarthritis and loss of articular cartilage."

—C. Wayne McIlwraith, BVSc, MS, PhD, DSc, FRCVS, DACVS, DECVS, DACVSMR

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Recognition for a lifetime of achievements

Over the years, McIlwraith's work has garnered widespread recognition. For example, he was inducted into the University of Kentucky's Equine Research Hall of Fame, and he has received several prestigious awards, including:

- > Founders Award for Career Achievement from the American College of Veterinary Surgeons
- > Eclipse Award from the National Thoroughbred Racing Association
- > Markowitz Award from the Academy of Surgical Research
- > Marshall R. Urist, MD, Award from the Orthopedic Research Society
- > American Association of Equine Practitioners Distinguished Life Member.

including a clinical trials manager and a laboratory manager; residents in both surgery and sports medicine; and veterinary students, graduate and undergraduate students. Moreover, funding from equine extramural sources—and, more recently, human industry and the National Institutes of Health (NIH)—have followed. The center also has added a new sports medicine program, as well as and the first residency in equine sports medicine and rehabilitation. “Certainly what the research center has evolved into makes me proud, but we’ve still got to keep moving forward,” McIlwraith says.

The Institute of Biologic Translational Therapies

The center has become one of the premiere equine orthopedic research centers in the world. Now it has an opportunity to progress to a whole new level.

“We’ve done quite a bit of work translatable to human medicine, with both industry and NIH grants, using our equine cartilage repair models,” McIlwraith explains. A recent and generous gift from John and Leslie Malone undoubtedly will help. (John Malone is the billionaire chairman of

Liberty Media Corp. Leslie Malone is a major supporter of the U.S. Olympic Dressage Team.) The Malones support a position in the new specialty of equine sports medicine and rehabilitation. And John Malone is interested in stem cell therapy, which fostered the idea of the Institute of Biologic Translational Therapy—“with translation to equine musculoskeletal problems and to human musculoskeletal problems,” explains McIlwraith.

The research will focus on the continued development of biologic therapies, including stem cells, platelet-rich plasma and autologous conditioned serum (IRAP used clinically in horses). The plan is to build a \$65 million, 100,000-square-foot building to conduct research and teach courses in biology and biochemistry. “The new institute will allow us to do more with not only equine practitioners, but with human physicians and orthopedic surgeons, primarily in musculoskeletal work, our forte,” states McIlwraith.

The new institute will be a part of the Orthopedic Research Center, and it will be adjacent to the new Equine Veterinary Teaching Hospital, as well as other additions being developed. “There are plans to have a new rela-

tionship with the Western Stock Show Center in Denver, and part of it will be a new sports medicine and rehabilitation clinic under the auspices of CSU,” McIlwraith says. “To further our work in human translational research, we have a number of MD orthopedic surgeons and researchers committed to being part of the new institute. We also have had a number of great collaborations in human orthopedic research with the University of Pittsburgh, MIT, Stanford University and Indiana University.”

McIlwraith has spent his entire career helping and healing horses, and now with the help from some very generous horse-interested donors, the challenge to make CSU's Orthopedic Research Center the finest in the world will become a lifelong reality.

Not a bad ride for that boy who developed his love of horses on his uncle's New Zealand farm those many years ago. [dvm360](#)

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.

Purdue moving forward on new equine center

The Purdue University Board of Trustees earlier this year approved moving forward on plans for the Purdue College of Veterinary Medicine's \$8.8 million Centaur Regional Equine Diagnostic and Surgical Center, which will be located in Shelbyville, Indiana, near Indiana Grand Racing and Casino.

The trustees voted to request assistance from the Purdue Research Foundation to assume responsibility for design and construction. The

state-of-the-art facility will provide health services to horses and serve as a working laboratory to support the College of Veterinary Medicine's student learning and research.

“This is an exciting partnership that will provide expanded training opportunities for our future equine specialists,” says Willie Reed, dean of Purdue's College of Veterinary Medicine and professor of veterinary anatomic pathology, in a university release. “We will have a cutting-edge

facility to facilitate groundbreaking research and administer emergency medical services in a location near Indiana Grand.”

The new equine center will be built on land purchased by the Purdue Research Foundation with \$2.3 million in support from Shelby County and the city of Shelbyville.

Centaur Gaming, which owns and operates Indiana Grand Racing and Casino, has pledged \$3.1 million to name the facility. [dvm360](#)

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MEDICINE | Obesity

Getting the **FAT** off Skinny

How a 41-pound feline shrunk to 19 pounds—and how his success can help your overweight patients. *By Mindy Valcarcel*

When Skinny the cat first entered the life of Brittney Barton, DVM, he could barely stand on his feet for three seconds. That was all he could handle as 41 pounds overtook his feline frame.

Stop a second and think about that—41 pounds?! A quick Internet search shows several things that weigh about 41 pounds: a typical 3-year-old child, a five-gallon bucket of water, an

average microwave, 3 stone (if you're a Brit). But a cat?

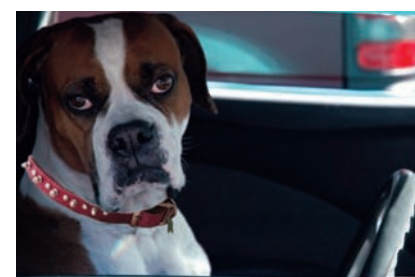
You may have seen Skinny in the media, likely the most famous overweight cat. Videos of Skinny have gone viral, earning him international media attention ranging from a *Good Morning America* cameo, a satellite interview with a show in Australia and a mention in the German magazine *Closer*.

Even The Associated Press has followed Skinny through his weight loss journey, most recently with a story on how he has lost half his size—he's currently at 19 pounds, a 22-pound weight loss.

That kind of weight loss is impressive for any species. However, it is especially critical to veterinary medicine where the obesity epidemic in our pets keeps growing.



>>> **Sitting pretty:** Skinny shows off his 22-pound weight loss.



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Skinny's start

Barton says much about Skinny's backstory is a mystery. Skinny was surrendered to the Richardson Animal Shelter in Richardson, Texas, for care with no clue as to who had previously owned him or how he came to weigh 41 pounds.

The Richardson Animal Shelter chose his oxymoron of a name and quickly identified the serious need for immediate and consistent veterinary assistance to help Skinny lose weight safely. They transferred his care to the East Lake Pet Orphanage in Dallas, where Barton volunteered to help oversee Skinny's medical care and weight loss program.

Barton and a team of volunteers worked to create a healthy environment that focused not only on weight loss, but on environmental enrichment and appropriate hygiene, as well. After worrying over Skinny for months and eventually fostering Skinny in her home, Barton and her family were smitten. They adopted Skinny in early 2013.

Skinny's weight loss journey has continued for the last 30 months. Barton says, "He is naturally a larger feline, and had he not gained so much extra weight, he would have easily been a healthy 17-pound cat. The goal was to help Skinny lose on average



>>> Dr. Brittney Barton and Skinny when he was at his heaviest: 41 pounds.

one pound of weight per month to avoid fatty liver disease and drop him to a safer weight.”

The positive side of a voracious appetite

Skinny is incredibly food-motivated, and this trait is what helped Barton and her team achieve such marked weight loss. Barton opened her own practice in Dallas in 2013—HEAL Veterinary Hospital—Health, Enrichment, Advocacy and Longevity. This is where most of Skinny's weight loss has taken place.

Quick tip from Dr. Barton

Don't have a treadmill? Ask clients to try moving their cats' food bowl around to encourage "hunting" for their meals. You can also ask clients to try feeding their portly feline with a treat ball to further encourage movement.

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In her practice, Barton embraces all aspects of pet care—from traditional medical treatments to a robust physical rehabilitation program and even acupuncture. Skinny's successful weight loss can be attributed to this more integrative approach.

His weight loss regimen has included walking on an underwater treadmill and a regular treadmill, jumping through hula hoops, feeding through treat puzzles and more. Barton also used acupuncture to help improve Skinny's comfort level at the beginning of his weight loss journey.

How do you get a cat to walk on a treadmill, uphill at that? Here's where the voracious appetite comes in. Skinny is so food-motivated that if you place a couple of morsels of food at the end of a treadmill, he will walk to get them, devour them as he rides to the back of the treadmill and then walk right up again to get the next bit of food.

A rare case as an ideal illustration

In a time when fat pets are almost revered on the Internet, Skinny stands as an example of how too many pounds is not something to promote. Dr. Barton says fans on Skinny's Facebook page give him credit for inspiring them to seek help for their pets and even themselves. You, too, can use Skinny's story to help motivate pet owners to help their pets shed some pounds.

What are the keys to weight loss as Barton sees it? She says that the concept for pets is the same as for people—calories in, calories out. It's

In a time when fat pets are almost revered on the Internet, Skinny stands as an example of how too many pounds is not something to promote.

paramount to measure how much pets are fed. Once owners start to see how much their overweight pets are really receiving daily, they finally understand that they have been feeding too much.

Treat replacements are a great help as well. "I recommend frozen blueberries or frozen green beans for dogs and using food as treats for the food-motivated cats," says Barton.

"But we can't just fix it with food," says Barton. "Daily activity is important. I have clients keep activity and food journals." These journals help clients get in touch with what their pets are—and aren't—doing at home, along with how much they are really eating throughout the day.

"I also encourage owners to use activity tracking apps to identify how far and how long they are walking with their pets," says Barton. "Coupling this information with a calculated appropriate daily calorie intake is a great first step to developing a weight loss program."

Barton has patients on a weight loss plan come in monthly for reassessment. Seeing the number on the scale decline is great reinforcement for clients that what you are suggesting is actually working. Barton says it is also important to emphasize that the process takes time. "We're in it for the duration," she says. "It's about quality of life and health, not just getting results."

Truly skinny Skinny

As for the now skinny Skinny, the future is bright. The 7- to 8-year-old cat, as Barton estimates him to be, has been stable at 19 pounds for several months. The goal is to maintain this weight, but a little more slow weight loss could still occur.

Barton says that Skinny may still look overweight, but he actually has a good body condition score for his frame. It's the extra skin that stretched from his extreme weight gain that disguises his svelte form.

When asked about future skin removal surgery, Barton says, "Unless there is a true medical issue that could be remedied with surgical intervention, there is no reason to consider it. Skinny is happy the way he is right now."

Skinny has become the HEAL clinic cat, spending his days welcoming all of the clients and patrolling the halls to make sure all is well. And he gets to go home monthly to spend some time with Barton's family.

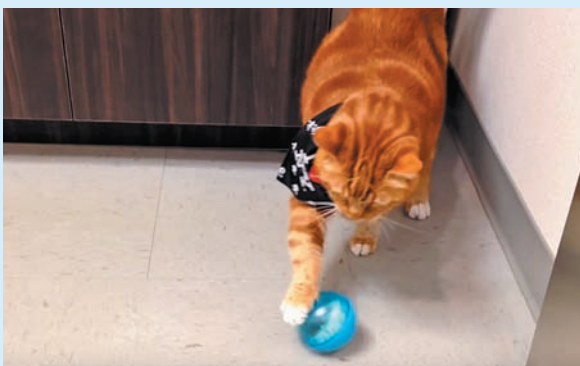
Barton's goal is to keep Skinny active and stimulated, with a good amount of relaxation time mixed in. After all his media attention, he probably needs it. dvm360

Mindy Valcarcel is the editor of Veterinary Medicine and medicine channel director for dvm360.com.



Skinny in action

Watch slimmed down Skinny nimbly play with his treat ball at dvm360.com/skinnyplay.



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- > Exploring the causes and consequences of canine obesity
- > Feline obesity: Behavioral solutions
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Debilitating diseases beware: New technologies on the way to stop you in your tracks

A variety of new products are in development to halt the morbidity and mortality associated with cancer, arthritis and much more. *By Mindy Valcarcel*

At the 2015 Animal Health Investment Forum, held Tuesday, Sept. 1, in Kansas City, several companies presented their ideas for new products and technologies for animal health. These new ideas may be a few years from the shelves but signal possibilities for great strides in fighting disease.

> **Elias Animal Health**, Olathe, Kansas, is developing an immunotherapy cancer treatment, ECI, for dogs that involves creating personalized T cells, dubbed “killer T cells,” from an excised tumor taken from the patient and vaccinating that animal to attack any remaining cancer cells. A trial for treating osteosarcoma is in progress, and one to treat lymphoma will start soon.

> **Emmyon**, Coralville, Iowa, is investigating the compounds urosolic acid (found in apples and other edible fruits and herbs) and tomatidine (found in tomatoes) to increase muscle strength and mass while also decreasing fat. Applications include treating muscle atrophy as well as obesity in companion animals.

> **FreeStride Therapeutics**, Ann Arbor, Michigan, is developing PowerGait, a small molecule for

treating joint and bone disease. The aim of the product, available as a tablet for dogs and a paste for horses, is to prevent further bone degeneration and revert tissue to normal. Applications include osteoarthritis and orthopedic stress-related injuries.

> **GeneQuine Biotherapeutics**, Hamburg, Germany, has used gene therapy to create an intra-articular injection that inhibits the inflammation and cartilage degeneration as well as pain associated with osteoarthritis. The disease-modifying product, an interleukin-1 receptor antagonist, is being investigated in horses and dogs.

> **LMI-Vet**, Freehold, New Jersey, wants to address the shortage of intravenous fluids by bringing to market an intravenous solution that contains dextran and liposome. The product, called Dexsome 510, has oxygen-carrying properties, provides nutrients to cells and can be used in cases in which you’d use a crystalloid or a colloid.

> **OmniOX**, San Carlos, California, is developing an intravenous infusion, ZOx, that will release oxygen only to hypoxic cells and injured tissue, continue to facilitate oxygen uptake from these tissues, and avoid the effects of over-oxygenation in healthy tissue. In initial studies, the infusion has also been shown to increase the effectiveness of radiotherapy for canine cancer.

> **Willowcraft Pharm**, Denver, Colorado, is developing an injectable product, Laminil, that stops the inflammatory cascade of laminitis in horses. The product is a mast cell stabilizer that inhibits calcium ion activation, stopping inflammatory mediators in mast cells. The product is administered via distal limb perfusion.

Additional companies that presented at the investment forum were:
—Anivax, Tucson, Arizona—a misting and water delivery vaccine for *Cam-*

pylobacter jejuni in chickens.

—EcoPlanet, Bozeman, Montana—a natural-source oral electrolyte and nutritional supplement to address dehydration associated with scours in livestock.

—Elevated Health Systems, Wichita, Kansas—an automated ultraviolet-C germicidal light for environmental sanitation and infection control.

—iNOVOTEC Animal Care, St. Louis, Missouri—a pH and temperature sensor inserted into a cow’s rumen to track herd health and evaluate their feed programs.

—Integrated Animal Health, Lawrence, Kansas—a variety of feed inclusion products to combat mastitis, scours and flies and ticks in cattle.

—Magnomics, Cantanhede, Portugal—a “lab-on-a-chip” on-site DNA test to identify common bacteria in milk to combat bovine mastitis, as well as identify antimicrobial resistance.

—Precision Animal Solutions, Manhattan, Kansas—a remote detection system to identify calves with bovine respiratory disease based on their activity levels in feedlot situations.

—Quantified Ag, Lincoln, Nebraska—sensor tags that provide behavioral and biometric data to detect sick calves in feedlot situations.

—TekWear, Norcross, Georgia—a hands-free, voice-interaction system to capture insights and data in the field.

—VetStem Biopharma, Poway, California—stem cell therapy products for canine osteoarthritis, feline chronic kidney disease and potentially equine osteoarthritis.

All of these products are still under development and will take some time to come to the market. **dvm360**

Mindy Valcarcel is the editor of Veterinary Medicine and medicine channel director for dvm360.com.

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>>> Dr. Amir Kol (left), a postdoctoral student, and Naomi Walker, a research associate, work in the lab at the Veterinary Institute for Regenerative Cures at UC Davis.

Cutting-edge stem cell cures

UC Davis' Veterinary Institute of Regenerative Cures is working to develop new therapies for both humans and animals. *By Ed Kane, PhD*

The Veterinary Institute for Regenerative Cures (VIRC), housed at the veterinary school of the University of California, Davis, is working at the leading edge of stem cell research and therapy by developing and then integrating regenerative medical discoveries into clinical practice.

Founded in 2007, VIRC has developed teams of basic researchers, clinicians, students and technical staff to translate discoveries into treating specific disease targets. The program focuses primarily on developing and conducting relevant clinical trials in naturally occurring diseases of animals and translating those research

findings into clinical practice.

"We now have the infrastructure and a collaborative, scientific, like-minded group of people to begin the work," says Dori Borjesson, DVM, MPVM, PhD, DACVP, director of the institute and professor and chair of pathology, microbiology and immunology.

VIRC has partners in the UC Davis School of Medicine and the departments of Biomedical Engineering and Animal Sciences. It also has teams that develop large animal models of disease for preclinical human trials. Those faculty work closely with counterparts in the School of Medicine Institute of Regenerative Cures at UC Davis.

A truly integrative approach

"We convert all that we learn in the lab into the clinical practice," Borjesson says. "We look at how the stem cells work in the lab, and then how the cells work with cells within the body—the immune system—and how the cells work in the context of inflammation and different types of clinical lesions. We then try to identify diseases that have similar immune cell and inflammation profiles that we hope will respond to stem cell treatment.

"We're most successful when we integrate our work with functional and engaged clinical teams to explore stem



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>>> Dr. Dori Borjesson, VIRC's director

cell therapy further in the clinical setting to help cure diseases," she explains.

VIRC has both small and large animal disease teams working on myriad diseases. For example:

> **The neurologic disease team** is working on spinal cord injury and spina bifida in dogs and equine neurologic disease. One member of the team is a clinician and is board-certified in equine medicine and neurology; another is a professor of surgery and radiology.

> **The ophthalmology team** is working on keratoconjunctivitis sicca (dry eye) in dogs and recurrent uveitis in horses.

> **The inflammatory disease team** works on feline oral inflammation (i.e., cats with chronic gingivostomatitis), and a group is studying the use of stem cells for inflammatory bowel disease in dogs. One member of this team is a staff veterinarian from the Pathology, Microbiology and Immunology Department.

> **The orthopedic group** works with stem cells as potential treatment for problems with tendons, ligaments, joint lesions, and lesions of the feet and hooves of horses.

> **The dentistry and oral surgery team** looks at jawbone regeneration by using a tissue engineering approach (scaffolding combined with a bone growth promoter called bone morphogenetic protein). This collaborative team includes tissue engineers from the Biomedical Engineering Department.

The researchers at VIRC are working toward developing biomarkers—critical to determining how stem cells work—to help inform clinical trials, rather than using stem cells to treat every disease. "We're trying to figure out if we can predict which animals may respond

to therapy and how the stem cells are working," says Borjesson. "That's a major area of interest, both for horses regarding lesions of the hoof, as well as oral lesions in cats. As we try to treat them, we're attempting to figure out what the stem cells are doing so we can best focus on those diseases that might respond."

In conjunction with the research and clinical programs, VIRC is developing standard protocols for quality assurance and quality control. "There are a lot of different products in the marketplace, variably characterized," Borjesson explains. "We're trying to move forward on how best to apply stem cell therapy, working toward personalized medicine, getting a relatively standard product out there. We'll be working with the FDA on trying to conform to its new guidelines on cell-based products for animal use."

In addition to research, VIRC focuses on establishing an educational program. "We have a group interested

ease and so on. We're trying to leverage what we learn in the lab and clinic in animals to help similar human diseases. This has worked really well for us."

Feline disease. The disease for which VIRC has received most attention is feline chronic gingivostomatitis, which affects about 1 percent of cats seen in clinical practice. It's a painful, severe, chronic inflammatory lesion of a cat's gingiva and the moist tissue that lines its oral cavity.

Cats with the disease chronically salivate, don't eat properly due to the pain of the oral inflammation, and lose weight. There's no ideal treatment for this disease. The current protocol is to extract all teeth. If the cat doesn't respond to this therapy, it often will have to undergo lifelong therapy with corticosteroids and antibiotics.

"Stem cells have been effective in treating this disease, with results that vary from clinical cure to substantial improvement in about 70 percent of

"Stem cells have been effective in treating chronic feline gingivostomatitis, with results that vary from clinical cure to substantial improvement in about 70 percent of patients."

—Dori Borjesson, DVM

*Veterinary Institute for Regenerative Cures
University of California, Davis*

in developing curricula and educating undergraduates, veterinarians and others via continuing education on regenerative medicine and its impact in veterinary medicine, so that's another one of our goals. We want to educate future leaders in veterinary regenerative medicine," says Borjesson.

Stem cell therapy of specific disease of cats, dogs and horses

VIRC's other focus is to treat animals with naturally occurring diseases. "We look at the disease, how we can best characterize it, treat animals under clinical protocols, and then monitor their response to therapy," Borjesson states. "We try to develop stem cell protocols to help animals with a variety of diseases, but we also try to focus on diseases and protocols that can inform human clinical trials in inflammatory disease, spinal cord injury, ocular dis-

these patients," Borjesson notes. "We treat these cats with two doses of intravenous stem cells. We've noticed that the stem cell therapy is a very potent anti-inflammatory, so we get resolution of the oral inflammation. Along with that we see concomitant changes in the inflammatory biomarkers in the blood.

"We're working to optimize that stem cell protocol," Borjesson continues. "We think the stem cells are modulating the immune response, altering T-cell activation."

The work in Borjesson's lab focuses on how stem cells interact with T lymphocytes and how they alter T-cell function and phenotype. "Our work with cats suffering from gingivostomatitis has been an excellent model of how stem cells work and is a success story regarding stem cell therapy. We can also sample blood and oral tissues to learn about how stem cells function in a living animal."



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Borjesson's lab receives funding from the National Institutes of Health to continue work on cats as a model of human oral diseases (e.g., oral lichen planus, stomatitis, pemphigus) that are similar to the feline disease. They are working with Nasim Fazel, MD, associate professor of dermatology at the UC Davis School of Medicine. Fazel is a board-certified dermatologist and dentist who routinely treats human patients with these chronic oral inflammatory diseases.

Canine disease. Currently underway are clinical investigations of the use of stem cells in inflammatory bowel disease, spinal cord injury and keratoconjunctivitis sicca in dogs.

VIRC is recruiting dogs with spinal cord injury that have no deep pain perception. As part of the study, the dogs will undergo surgery and concurrent stem cell therapy, imbedded in a gel matrix, at the site of lesion. The objective is to improve the outcome for these patients with severe disease. Assessment will include gait analysis over time and physiologic parameters, as well as complete neurologic examinations to determine safety and efficacy of the stem cell therapy to treat spinal cord injury in dogs.

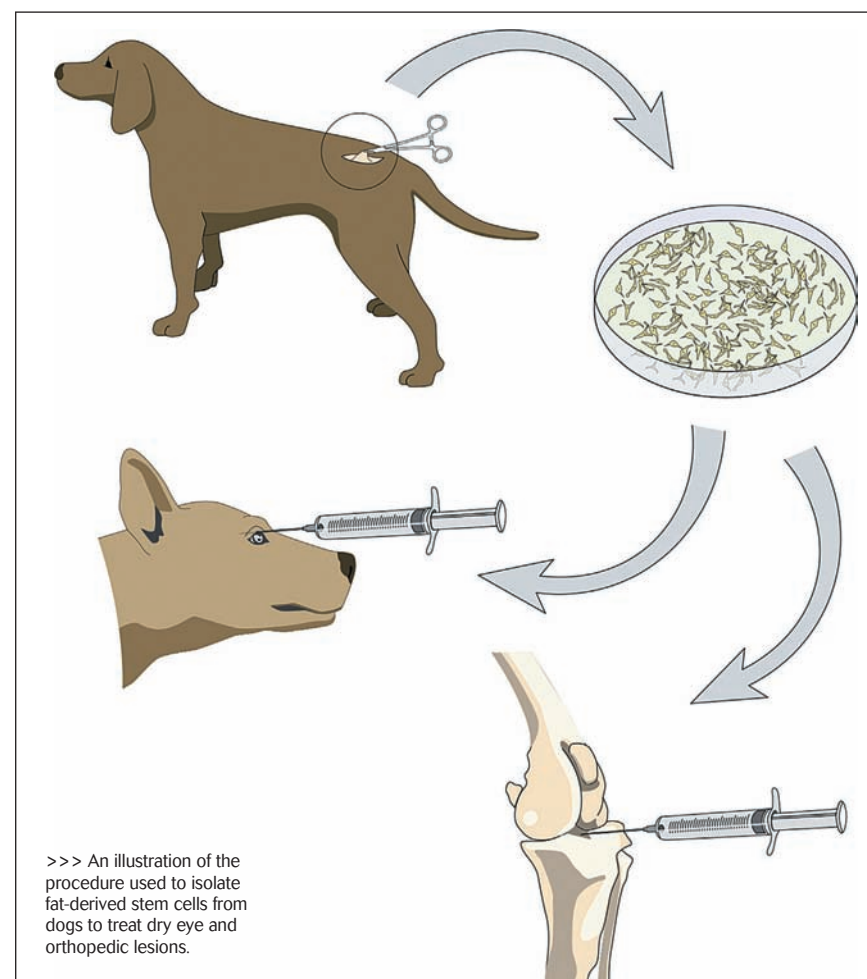
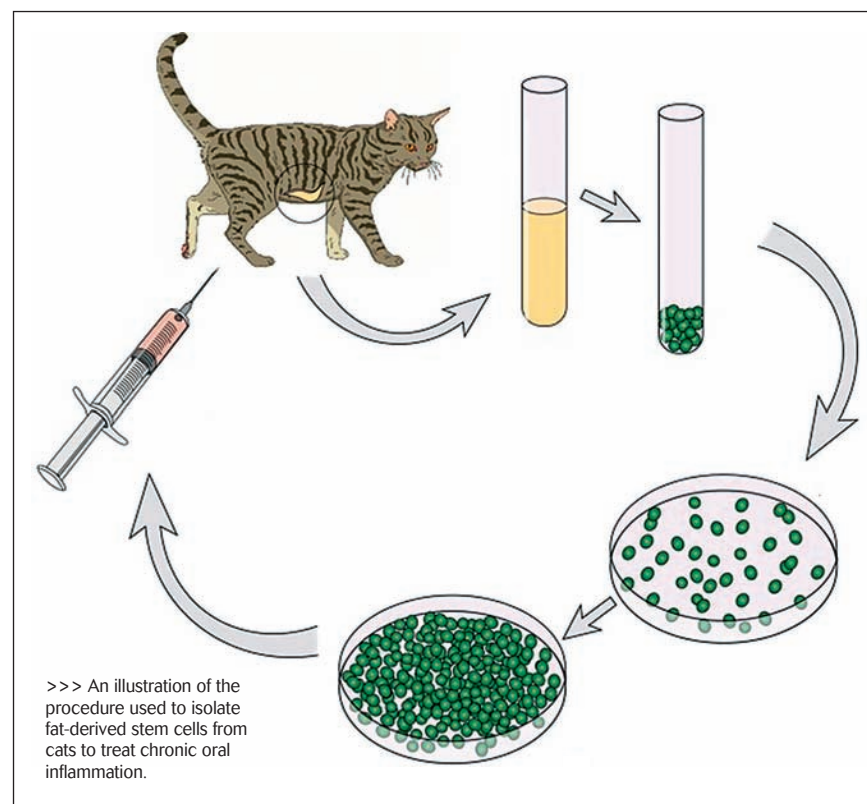
"Our goal is to enroll dogs for stem cell therapy that have a fairly poor prognosis with surgery alone, with the hope that stem cells, and their ability to assist in neural repair, will promote recovery," says Borjesson.

Equine disease

For equine patients with neurologic disease, the VIRC team will inject stem cells intrathecally, or into the spinal canal. "We're going to track the cells, as we also have a stem cell imaging team that labels stem cells and sees where they go," Borjesson says. "We'll start, as we normally do, with a safety study in normal horses."

After that, the team will look at using stem cells for the chronic inflammatory sequela of equine protozoal myeloencephalitis, as well as for wobbler syndrome (cervical vertebral instability, cervical spondylomyelopathy, and cervical vertebral malformation).

The idea behind the use of therapy for these diseases is that stem cells have a basic neuroregenerative and neuroprotective function. "Once we're assured of safety, we'll enroll a few animals with either of those equine



neurologic diseases," states Borjesson. "Animals to be enrolled are those individuals that don't have a lot of other options, either because they have severe disease, might be considered unsafe, or may otherwise be euthanized. We'll begin with such individuals, and if we see safety and efficacy, we will then move stem cell therapy to

client-owned animals with more moderate neurologic disease." **dvm360**

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.



Elanco Otitis medication

Elanco Animal Health has launched Osrnia (florfenicol-terbinafine-be-tamethasone acetate), a treatment for canine otitis externa. The product has the potential to help improve compliance in treating canine otitis externa because it is formulated in a gel and has an administration schedule that calls for two doses, one week apart. It is administered in a premeasured, easy-to-use single-dose tube with a flexible, soft tip that is meant to be gentle on a dog's ears. The gel formulation squeezes out of the tube and spreads with gentle massage.

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Zoetis Equine influenza vaccine

Fluvac Innovator vaccines help protect against contemporary equine influenza viruses (EIV) and equine herpesvirus (EHV) types 1 and 4. A recent study shows that the vaccines are cross-reactive with three emerging influenza viruses, including Ayrshire 2013 (AY/13) a European Clade 2 isolate, Kentucky 2014 (KY/14), and Texas 2012 (TX/12) recent North American Clade 1 isolates. The products also contain both EHV-1 and EHV-4 to help protect against rhinopneumonitis. The vaccines demonstrated at least 97.4 percent cross-reactivity to these three recent EIV isolates.

For fastest response visit
FluvacInnovator.com



Zoetis Feline pain management drug

Zoetis has announced that Simbadol (buprenorphine injection) is available for clinic use with feline patients. Simbadol is approved by the U.S. Food and Drug Administration (FDA) for cats and offers 24 hours of postoperative pain control in one dose. Zoetis acquired the product as part of its purchase of the assets of Abbott Animal Health in February.

For fastest response visit simbadol.com



Veterinary Products Laboratories Nutraceuticals for inflammation

Veterinary Products Laboratories has launched two additions to the Duralactin brand portfolio: Duralactin Feline + Fatty Acids Soft Chews to help manage inflammation in cats and support healthy skin and a newly reformulated Duralactin Canine Joint Plus Soft Chews to help manage inflammation while maintaining healthy joints and cartilage. The products contain an ingredient called MicroLactin that has been shown to help manage inflammation by stopping neutrophil migration during the inflammatory process.

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Assisi Animal Health Pain management device

Assisi Animal Health's Assisi Loop 2.0 uses patented targeted pulsed electromagnetic field (tPEMF) technology that has been demonstrated through laboratory testing to have a proven effect on the known biochemical and cellular mechanisms of action related to inflammation, with results published in peer-reviewed journals. The product is used treat orthopedic injuries, degenerative neurological issues, postsurgical pain and swelling, inflammatory conditions and wounds. It comes in two sizes, 20 cm diameter and 10 cm.

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Kinetic Vet Sterile solution

Kinetic Vet announces the immediate availability of Compass, enabling veterinary surgeons to normalize joint fluid following arthrotomy. Compass is a 10-ml sterile solution that contains both 50 mg sodium hyaluronate and 500 mg polysulfated glycosaminoglycan (PSGAG).

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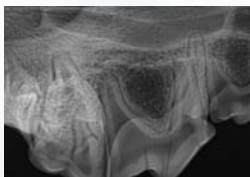
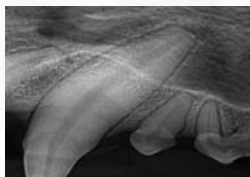


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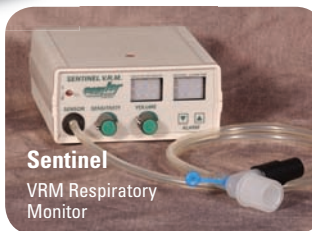
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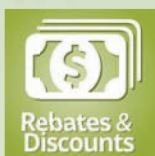


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FT or P/T associate veterinarian needed for well established small animal practice in Bloomington, IN. Our hospital is equipped and includes Surgical laser, Therapeutic laser, Ultrasound, Digital radiography, and in-house laboratory testing. Ideal candidate must be customer service oriented, with strong communication skills and self motivated. Experience and/or interest in exotics a plus. No after-hour emergency calls. Our goal is to give our clients and patients an experience that will be personal and enjoyable with focus on practical, quality medicine. New grads encouraged to apply. Check out our website www.combsclinic.com. Salary & Production Bonus, with Benefit Package. E-mail Resume to Combsvet@gmail.com

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December 3-6
CVC San Diego
(800) 255-6864, ext. 6
thecvc.com/sd



May 12-15, 2016
CVC Virginia Beach
(800) 255-6864, ext. 6
thecvc.com/vb



unconventional

National and international meetings

October 7
Becoming the Indispensable Associate
Clackamas, OR
(800) 883-6301
aaha.org/associate

October 10-11
Practical Hands-On Surgical Procedures for Private Practitioners
Athens, GA
(706) 540-4073
vet.uga.edu/ce/calendar

October 11
Veterinary Dentistry and Radiology for the Veterinarian and Technician
Atlanta, GA
(941) 276-9141
veterinarydentistry.net/vet-dental-course-atlanta-georgia-2

October 14-15
Canine Dentistry
Orlando, FL

(941) 276-9141
veterinarydentistry.net/canine-dentistry-course

October 16-20
Medical Acupuncture for Veterinarians—Small Animal and Exotics
Fort Collins, CO
(303) 318-0447
onehealthsim.org/medical-acupuncture-for-veterinarians-2

CanWest Veterinary Conference
Banff, AB, Canada
(780) 489-5007
abvma.ca/Continuing-Education.asp?month=10

October 17-20
American Holistic Veterinary Medical Association Conference
Augusta, GA
(410) 569-0795
ahvma.org

October 24-25
Determining the Cause of Laminitis
North Grafton, MA
(844) 870-6097
vetpd.com/courses-list.php

Small Animal Medicine
Athens, GA
(706) 540-073
vet.uga.edu/ce/calendar

October 27-28
Diagnostic Techniques for Equine Practitioners
Littleton, CO
(844) 870-6097
vetpd.com/courses-list.php

October 30-31
Practical Neurology for Equine Practitioners
Ringoes, NJ
(844) 870-6097
vetpd.com/courses-list.php

October 12-15
Atlantic Coast Veterinary Conference
Atlantic City, NJ
(908) 281-5108
acvc.org

October 16-18
NYS Fall Veterinary Conference

October 29 - November 1
29th Annual Veterinary Dental Forum
Monterey, CA
(208) 461-9045
veterinarydentalforum.com

November 9
Flexible GI Endoscopy
Fort Collins, CO
(970) 297-1273
csu-cvmb.colostate.edu/academics/clinsci/Pages/continuing-education.aspxlist.php

November 10-11
Introduction to Small Animal Laparoscopy
Fort Collins, CO
(970) 297-1273
csu-cvmb.colostate.edu/academics/clinsci/Pages/continuing-education.aspxlist.php

Ithaca, NY
(607) 253-3200
vet.cornell.edu/nysvc

October 18-21
2015 SCAV Annual Conference
Isle of Palms, SC
scav.org/scav-annual-conference

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STAMPEDE | Bo Brock, DVM



Playing **tricks** on an alleged **pothead**

If you're running an adult daycare, you might as well have some fun.

One of my friends recently compared running a veterinary practice to being the principal of an adult daycare. I thought that was hilarious. And I agreed with him as I dealt with an interesting situation with a staff member.

About one o'clock on a Monday, one of the people who works outside cleaning horse stalls came to me and began telling on one of the others who works in the same area. They don't like each other and take every chance they get to try and get the other in trouble.

I never know if they're telling the truth or just trying to get the other in

The tattler's story was that the other fella had gone home for lunch, smoked some pot and come back to work high.

trouble in any way possible. It drives me crazy. Today's story was that the other fella had gone home for lunch, smoked some pot and come back to work high. The tattler was telling me the story and pointing over at the acclaimed weed smoker who was raking a horse lot with his headphones and dark sunglasses on.

He finished his tattling and turned and walked off, giving me a look suggesting that if I didn't go do something, I was a terrible boss. As I stood there, I began watching the alleged pothead. It was a busy morning and I had been working up a tough lameness case. Now I had to stop concentrating on my patient to deal with an accusation that

may—or may not—have been true.

It occurred to me as I watched the employee rake that I wouldn't know what someone high on weed even looked like. I thought they laughed a lot and ate Cheetos. This guy was doing neither. But he was moving mighty slow. He looked like a three-toed sloth trying to rake that lot. But then again, he always moved that slowly. I considered going and getting a urine cup and making him submit a sample, but then it occurred to me that I don't even know if that's how to test for marijuana.

I really didn't have time for this. I had clients all over the place who needed help and now this. I decided to go over and talk to him and see if this would give me a clue. I opened the stall and went in, and he didn't even look up. I could hear the music playing in his earbuds from 12 feet away. This is one of my pet peeves. I decided I would see how he responded to a little subliminal torture—maybe that would answer my question.

I stood there waving my arms until he finally noticed the motion and looked up. I began talking vigorously and pointed to the barn just north of us, except as I moved my lips, I made no sound with my voice. He took off the blaring headphones to tell me he couldn't understand what I had said.

Couldn't understand me? I'll say. He couldn't understand me because the music was so loud he couldn't hear me. I rolled with it. I began adamantly pointing to the north barn and acting like I was talking with no sound coming out of my mouth. I even changed expression several times, from a smile to a serious look

and finally to a look of surprise. All the while making no noise.

He turned the volume down on his headphones, even though they weren't in his ears. He again said he couldn't understand me and twisted his expression into a concerned look that seemed to indicate that he didn't want to make me mad.

So I went through the exact same silent tirade again, only this time I raised my eyebrows and added a momentary stern expression. I pointed with great animation to the north barn and then stopped and breathed out heavily.

The employee shifted his eyes from left to right, and I could see that he was trying to decide if he could hear anything at all. When he saw the tractor running in the alley to his right and confirmed that he could hear the sound it was making, he suddenly became even more confused.

I was interested to see what he would do next so I just stood there looking. Several different emotions crossed his face, and then he said, "I think I'm losing it, man!" He walked off and started raking a pen in the north barn at an equally slow pace. Only this time he left the headphones off.

I have no idea if this guy had been smoking weed that day or not. But I do know that if he had been, he now believes that it causes him selective hearing loss—it kicks in only when I'm yelling at him to get something done. He never wears the headphones anymore, and he's also quit wearing the dark sunglasses.

All in a day's work. **dvm360**

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

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*Source: Among veterinary brands. Survey conducted in February 2014 of small animal veterinarians who recommended oral joint health supplements.



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