

In search of 'dognition'
Do dogs think? If so, what are they thinking *about*?
page M1



December 2015 | Volume 46 | Number 12 | dvm360.com

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**In search
of 'dognition'**
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page M1



December 2015 | Volume 46 | Number 12 | dvm360.com

New report pinpoints heavy veterinary shortage in Appalachia

75 percent of rural
counties underserved; data
could drive increased loan
forgiveness, analysts say.

By Kristi Reimer, Editor, News Channel Director

A report out of a newly launched veteri-
nary school in northeastern Tennes-
see makes the case that the need for
veterinarians in rural areas—specifically, in this
case, rural Appalachia—is much greater than
previously thought. What's more, officials say,
this report has the potential to increase federal
spending through the Veterinary Medicine Loan
Repayment Program (VMLRP).

The 2015 State of Animal Health in Appala-
chia report was released in mid-October during
a conference put on by the Center for Animal
Health in Appalachia (CAHA), a newly created
institution affiliated with the College of Veteri-
nary Medicine at Lincoln Memorial University
(LMU) in Harrogate, Tennessee.

Part of LMU's stated mission is to improve
the breadth and quality of healthcare services
in rural Appalachia, and two years ago univer-

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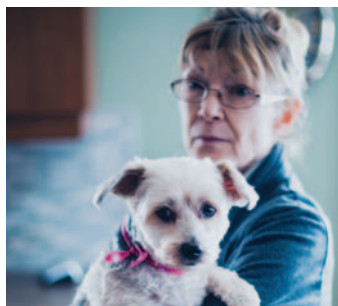
Bionic Burton



Hit by a car, this 4-year-old
Labrador retriever had facial
bones splintered from his
nose to his eye socket. Randy
Boudrieau, DVM, DACVS,
professor of clinical sciences
at Cummings School of
Veterinary Medicine at Tufts
University, took Burton's case,
employing similar techniques
used by human craniofacial
surgeons. During the five-
hour surgery, Boudrieau
inserted 10 titanium plates
designed to bend three-
dimensionally to successfully
reconstruct the dog's face.
Burton was eating soft foods
the next day. **See page 14**



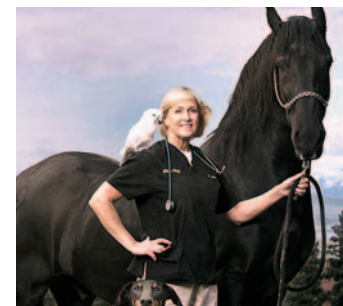
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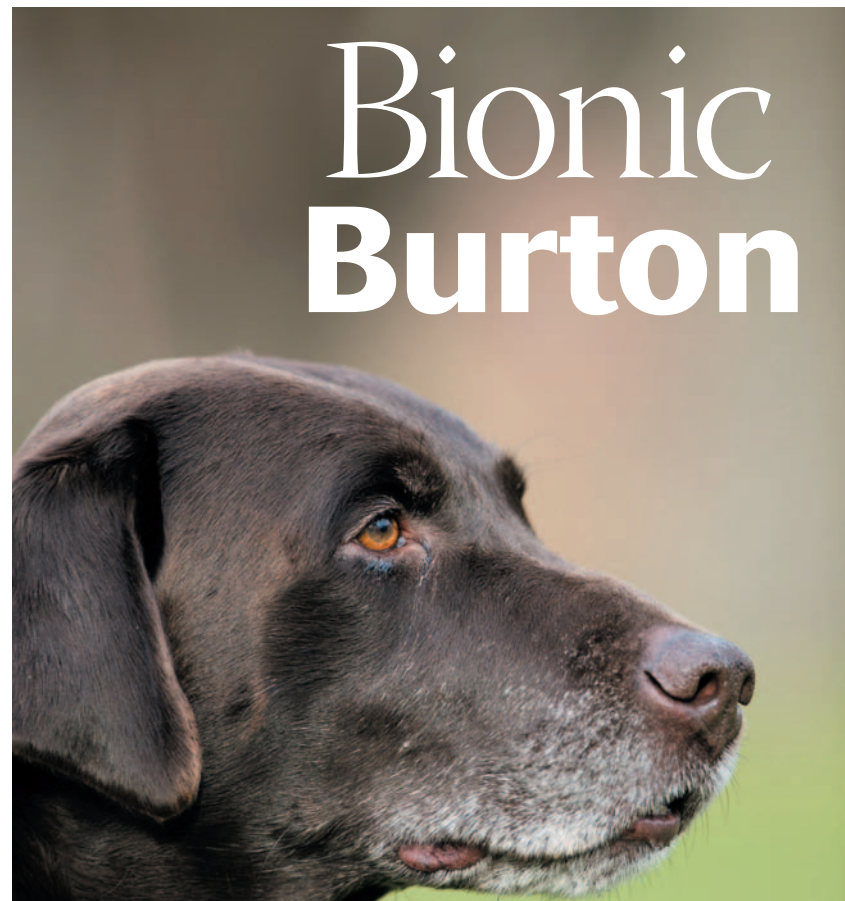
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EDITOR'S NOTE | Julie Scheidegger

The *worst* day

The role of journalists when I'm the last person you want to talk to.

There have been times when some of you reading this have picked up your phone to hear my voice on the other end. It was your worst day, worst week or, for that matter, worst year. You had just endured a night of rioting in Ferguson, Missouri; Superstorm Sandy had wrecked the world around you; you narrowly missed the violence unleashed at the finish line of the Boston marathon; or a disgruntled client threatened to gun down your clinic with an AK-47.

It may not have been easy to talk to me at that time, but reporting bad news serves the public and hopefully promotes understanding. And bad news is often compelling because as humans our humanity—or lack of it—is often revealed when times are tough.

So, for those of you who have answered my call on your worst day, you know: If it's the right time, we talk. We may talk for an hour or for a brief minute. If needed, I call back—when there aren't a million things to be done, when you've had time to process. When it comes to worst days, as a journalist, as a member of a profession that absolutely requires a social conscience, I really do care about telling your story—and telling it right.

When it came to Dianne Bracelin, the receptionist at Scroggins Animal Hospital in Moore, Oklahoma, we talked every day for days on end. From a seconds-long conversation during the first day of chaos after the deadly EF-5 tornado devastated the town, to a quick check-in the next day and the day following. Each call, Dianne shared updates and stories. We talked enough that she knew my voice when I'd call. Eventually, she offered me her cell number and we talked for an hour or more

while she smoked cigarettes on her back patio after another exhausting post-tragedy workday. I spoke several times with her coworkers as well. The stories they shared with me were ones of tragedy, but also of their individual resilience and strength and that of their clinic family as well. I was honored to tell the story of their worst day.

If you hear my voice on your voice mail and delete it (or you threaten that I'll regret digging into a story you're involved in), I get it. You're a reality show veterinarian slapped with yet another administrative complaint and you just don't want to talk about it. You're a veterinary board vice president embattled in an ugly, controversial standoff with your state's nonprofit clinics. I get it. But

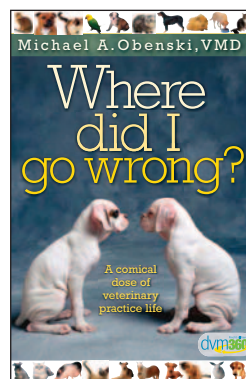
I wouldn't be doing my job if I didn't ask you the questions that need to be asked and offer you the opportunity to share your perspective, even on your worst day, and when you find me most annoying.

For those of you I've spoken to over the years, I know our conversations have built trust. Some of us are now on a first-name basis; we check in with each other from time to time. Trust is the lifeblood of my profession, just as it is in yours.

So from a journalist, whose profession has been devalued, criticized and is so often misunderstood (maybe that sounds familiar, huh?), I hope you'll consider sharing your story with me—or any deserving journalist—even on your worst day. **dvm360**



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Veterinarians could lose access to ketamine if drug is reclassified

WHO is mulling international control of veterinary anesthetic, categorization as highly abused substance.

Ketamine hydrochloride is in the spotlight again as the World Health Organization (WHO) was scheduled to discuss the drug during a committee meeting Nov. 16-20 in Geneva. Currently a schedule 3 drug in the United States under the Controlled Substances Act, ketamine could be changed to schedule 1 internationally, which designates high risk for abuse and no acknowledged therapeutic value. The American Veterinary Medical Association (AVMA) considers ketamine critical to the practice of veterinary medicine and is lobbying for continued use by members of the profession.

Earlier this year, China proposed to the United Nations (U.N.) that ketamine be placed in schedule 1 of the international Psychotropic Convention, according to a release from the AVMA. “The AVMA advocated against this change, working with the World Veterinary Association and the World Medical Association, and the proposal was amended to

suggest a schedule 4 designation,” the release states. Schedule 4 drugs are the least restricted of controlled substances. The U.N. then postponed deliberation of the proposal and requested the WHO’s input, according to the AVMA.

During the last several weeks, the AVMA has collected comments from the veterinary profession and submitted them to the U.S. Food and Drug Administration (FDA), emphasizing the role of the drug as a key component in veterinary anesthetic protocols. The FDA was planning to submit its recommendations to the WHO in advance of the mid-November meeting. The AVMA says it has received differing opinions from the FDA and U.S. Drug Enforcement Administration on whether a more stringent international scheduling of ketamine would impact the U.S. classification.

The scrutiny surrounding ketamine results from its use as a recreational drug, often referred to as “Special K.” Here’s a description from

the University of Maryland’s Center for Substance Abuse Research:

There are certain reactions to ketamine that make it appealing to illicit users. In some circumstances, ketamine has been known to produce illusions or hallucinations that are enhanced by environmental stimuli—this may be one reason that the drug has become increasingly popular in the past few years. The most frequent—and sometimes only way—to obtain ketamine is through the diversion or theft of legal pharmaceuticals. There have also been reports of veterinary clinics being robbed for their ketamine supplies. Ketamine has over the past few years been thought of as a “club drug” (this term is used for a number of illicit drugs, primarily synthetics, that are most commonly encountered at nightclubs and “raves”).

The WHO has reviewed ketamine several times before, but the drug has always remained outside of international control. [dvm360](#)

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CLARO™ should be administered by veterinary personnel. Administration is one dose (1 dropperette) per affected ear. The duration of effect should last 30 days. Clean and dry the external ear canal before administering the product. Verify the tympanic membrane is intact prior to administration. Cleaning the ear after dosing may affect product effectiveness. Refer to product label for complete directions for use.

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See brief summary on page 06

Pharmacy board recommends pharmacies keep veterinary reference materials on hand

Human pharmacies should have access to at least one current reference text, according to updated model practice act.

The National Association of Boards of Pharmacy (NABP) has amended its Model State Pharmacy Act to require human pharmacies that dispense veterinary drugs to have at least one current reference on veterinary drugs, such as *Plumb's Veterinary Drug Handbook*, according to the American Veterinary Medical Association (AVMA). The NABP Model State Pharmacy act provides state boards of pharmacy with model language for developing laws and rules that help protect public health.

The change was prompted by an NABP resolution calling for pharmacists who dispense medications for veterinary patients to have the competence and access to the resources necessary to dispense appropriately and provide patient care, according to the the NABP's September newsletter. "To fulfill the mandate of the resolution, the Committee on Law Enforcement/Legislation added a facility requirement for a veterinary drug therapy reference for pharmacies that



engage in veterinary drug dispensing," the newsletter reads.

A second resolution was adopted that encourages the development of veterinary pharmacology education at schools and colleges of human pharmacy, in collaboration with veterinary medicine schools.

This move by the national pharmacy board could be a step in the right direction for the veterinarian-pharmacist relationship. Veterinar-

ians have long felt frustration after finding out that pharmacists who filled their patients' prescriptions had changed doses or even given different medications entirely. In 2012, the Oregon Veterinary Medical Association asked its members to tally the number of mistakes they encountered in human pharmacy-filled prescriptions, the results of which indicated that these were not isolated incidents. [dvm360](#)

The **12 days** of veterinary clinic Christmas

Take a minute from the hustle for a chuckle and lot of help to get through the holiday season at your veterinary clinic

Here at [dvm360](#), we know the holiday season can be, well, not quite as nice as all those treats sitting in the break room. At least we know those thoughtful treats are available for stress eating after the long, demanding days leading up to Dec. 25. The "12 Days of Veterinary Clinic Christmas"

offers the resources you'll need to get through the most wonderful time of the year. Don't miss your favorites, like 12 bordetella vaccines, eight demands for an over-the-phone diagnosis, and three soft tissue traumas. Find tips, tricks and client handouts, along with the rest of the 12 days at [dvm360.com/12days](#). [dvm360](#)



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Morris Animal Foundation makes strides in canine cancer treatment, feline parasite vaccination

More than 100 studies are currently being funded for canine and feline research advancement in all types of veterinary fields of study.

Morris Animal Foundation, a nonprofit organization that funds animal health research, has released its 2015-2016 species reports, according to a foundation release. There are currently 70 funded clinical trials for canines and 36 for felines, with areas of study ranging from behavior and cancer to genetics, nutrition, infectious disease and pharmacology and many more. In 2015, advances were made in canine genetic mutation identification, and chronic kidney disease diagnosis, while the potential for a new vaccine for a tick-borne disease is in the works for cats.

In the canine fields of study, highlights include advancements in identifying causal genetic mutations, passive immunotherapy and new diagnostic and monitoring strategies for chronic kidney disease.

Advances in genetics. Being able to identify causal genetic mutations is important for developing screening tests for serious conditions in high-risk breeds, the release states. This year, researchers found a genetic mutation strongly associated with calcium oxalate bladder stone formation in miniature schnauzers, while another study identified a genetic mutation that’s involved with subvalvular aortic stenosis in Newfoundland dogs. These findings led to the development of breed-specific screenings for the defects.

Novel cancer treatment. Using specially designed antibodies to kill cancer cells, known as passive immunotherapy, has revolutionized lymphoma treatment in humans. Morris Animal Foundation scientists were able to evaluate an antibody immunotherapy combination that was proven to be safe and effective in treating diffuse large B-cell lymphoma in canine cultured cells, the release states. This research builds a platform for clinical trials for dogs with lymphoma.

Earlier diagnosis of CKD. Up to

15 percent of aging dogs are affected by chronic kidney disease, which can be difficult to diagnose in early stages. New research identified urinary biomarkers that help detect different types of renal damage in dogs. Two biomarkers identified are associated with immune complex-mediated glomerulonephritis, which is a manageable disease if caught early, according to the release.

Highlights of the feline report include new approaches to treating feline oral squamous cell carcinoma, development of a treatment strategy for emerging disease and improvement in the safety of drugs given to cats with heart disease.

Slowing the growth of cancer cells. Squamous cell carcinoma, an aggressive and common oral cancer in felines, often has very short survival time, even with early detection and treatment. Researchers found a targeted anticancer agent that suppressed cancer cell replication, spread in cell culture and interrupted the circuits that promote cancer growth, the release states. Further study of the drug as a potential new treatment strategy for cats is warranted based on those findings.

Strides in vaccination development. Cytauxzoonosis is a tick-borne disease that is emerging and life-threatening to cats caused by Cytauxzoon felis parasite. While there is no vaccine currently, Morris Animal Foundation researchers identified 30 potential C. felis proteins that are attacked by the cat’s immune system by using genome sequencing and bioinformatics, according to the release. Each of those proteins represents a potential vaccine candidate against the parasite.

Fewer clots in heart patients. Arterial thromboembolism is a common complication in cats with heart disease. Researchers found that a new oral anticoagulating drug, which has shown

promise in humans, is safe and may help reduce abnormal clotting in cats with heart disease, the release states.


For more information about the Morris Animal Foundation and the research studies it funds visit morrisanimalfoundation.org. **dvm360**

Studies by the numbers

Currently funded studies in the canine and feline fields:

- Canine:**
70 currently funded studies
- 1 behavior
 - 35** cancer
 - 2 cardiovascular
 - 2 dermatology
 - 3 endocrine/metabolic
 - 1 gastroenterology
 - 2 general health
 - 3 genetics
 - 2 hematology
 - 1 immunology
 - 3 infectious disease
 - 3 musculoskeletal
 - 4 neurology
 - 1 nutrition
 - 2 pharmacology
 - 5 urinary

- Feline:**
36 currently funded studies
- 1 behavior
 - 6** cancer
 - 6 cardiovascular
 - 2 endocrine/metabolic
 - 2 genetics
 - 12** infectious disease
 - 1 nutrition
 - 1 pathology
 - 2 pharmacology
 - 1 reproduction/overpopulation
 - 1 respiratory
 - 1 urinary



(milbemycin oxime-lufenuron-praziquantel)

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

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.

Manufactured for: Virbac AH, Inc.
P.O. Box 162059, Ft. Worth, TX 76161

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Dogs should be tested for heartworm prior to use. Mild hypersensitivity reactions have been noted in some dogs carrying a high number of circulating microfilariae. Treatment with fewer than 6 monthly doses after the last exposure to mosquitoes may not provide complete heartworm prevention. Please see full product label for more information, or visit www.virbacvet.com.

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See brief summary on page 10

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.

Shaping the future of animal health



University of Arizona aims to open veterinary program in August 2016

AVMA COE will conduct a site visit in January before issuing a letter of reasonable assurance for program's accreditation. *By Matthew Kenwright*



>>> A mock-up shows the building that will be renovated to house the University of Arizona's Oro Valley Veterinary Clinical Skills Training Facility. The facility will be named after the Kemper and Ethel Marley Foundation because the nonprofit gave the university a \$9 million gift to help start the program.



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The University of Arizona's College of Agriculture and Life Sciences will host the American Veterinary Medical Association Council on Education (AVMA COE) in January for a site visit to earn a reasonable assurance of accreditation.

The group visited the university in spring 2014 for a consultation and provided a report, Shane C. Burgess, BVSc, PhD, the dean of the College of Agriculture and Life Sciences, tells *dvm360*. The recommendations were small and manageable, Burgess says.

The COE will issue a decision about the reasonable assurance of accreditation in April, and ASU hopes to open its doctor of veterinary medicine program in August. Job descriptions for new hires and class details are being finalized now, and the hiring process and class scheduling will start in the spring after approval is received.

Although a \$9 million gift from the Kemper and Ethel Marley Foundation helped start the program, the university has largely used its own resources. "One of the things that's different between us and other programs is that we haven't put a big budget together and hired a bunch

of people," Burgess says. "We've been bootstrapping this program almost entirely using labor from those of us who work in the system already."

The program would be the state's only public education option for veterinary students, although the private Midwestern University recently opened a veterinary college in Glendale.

Keeping more students in Arizona, reversing the shortage of veterinarians in rural areas and providing doctors for the animals involved in the region's growing biotech industry are among the factors driving the program's creation, Burgess says.

Although rural areas nationwide struggle to attract veterinarians, Burgess says the program will seek to alleviate the problem by selecting students that are more inclined to live in rural areas and graduating students with less debt so they can afford to work in those regions.

Second- to fourth-year students will go to school for 48 weeks a year. The schedule is designed to take four calendar years and contain five academic years but not sacrifice anything in the curriculum.

"We did the math, and frankly it's impossible for students to earn

enough money over the summer break to make up for the lost money in terms of extra time and also the opportunity cost of not working that year," Burgess says.

The program will be founded on three pillars that focus on outcome, not process: commerce, human-animal interdependence and One Health. The commerce aspect involves the entire economic ecosystem, Burgess says, and it explores what makes the economy turn with respect to animals, animal products, regulatory affairs, business law, negotiation and other issues.

Students will have to pass those concepts to learn about the subjects associated with a veterinary education, Burgess says. The program will also address disenchantment and burnout in the profession by ensuring students understand what joining the profession entails and the responsibilities involved.

Oro Valley will be the program's hub, and the final three semesters will be spent in Douglas, Yuma and Verde Valley for clinical training. There will also be some specialist training through five clinical partner clinics, Burgess says. **dvm360**



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Bionic Burton

Veterinary orthopedist Randy Boudrieau takes a page from human medicine using 10 titanium plates narrower than a pencil to repair fractured facial bones. *By Genevieve Rajewski*

When owner Janine Stuczko first saw her 4-year-old Labrador retriever, Burton, after a car hit him, she opened his bloodied mouth because she thought he had eaten glass. “I heard all the bones in his muzzle grinding, like fingernails on a chalkboard,” she says. “It was awful. His muzzle was squished down to his eye socket.”

Facial fractures are common in people who fly through a windshield in a car accident, says Randy Boudrieau, DVM, DACVS, a professor at Cum-

Craniofacial surgeons stabilize facial fractures in people by attaching metal plates to the “buttresses,” or thicker portions of the facial skeleton. In 1980, anatomist and physical anthropologist E. Lloyd Du Brul first described these buttresses by putting a light inside a human skull to determine the location of the thick and thin areas. The light, Boudrieau says, “would shine through the thinner parts, identifying the thicker areas, which were termed the pillars or buttresses.”

Using a similar technique, Boudrieau mapped the location of canine buttresses by installing a Christmas tree light inside a dog skull and taking photographs. (He was caught red-handed by his wife on Christmas day.) His findings have been published in several veterinary textbooks and journals.

He then evaluated the effectiveness of different titanium plates used in human and veterinary medicine to repair facial fractures that involved many small pieces. Boudrieau found that similar to human medicine, plates that can be bent three-dimensionally work best. Stuczko’s dog, Burton, was his most recent case, published in *Veterinary and Comparative Orthopaedics and Traumatology* in August 2014. Brought to Foster Hospital for Small Animals after the accident, Burton had multiple fractures of his face, including the nose, cheek and eye socket. His maxilla (essentially the snout) had separated from the base of his skull.

Once in surgery, Boudrieau lined

“I heard all the bones in his muzzle grinding, like fingernails on a chalkboard. It was awful. His muzzle was squished down to his eye socket.”

—Janine Stuczko, Burton’s owner



mings School of Veterinary Medicine at Tufts University. But these injuries are pretty rare in dogs, he says, so most veterinarians have limited experience treating them. Canine facial fractures may be left to heal on their own if they are relatively stable, or they may be wired together if the bone fragments are large enough. However, these techniques often aren’t effective with bones that break into many small pieces.

In human and animal orthopedics, the prevailing theory is that “the best way to manage the pain from broken bones is to stabilize them so they’re not moving anymore,” Boudrieau says.

>>> A right oblique and left oblique 3D reconstruction of a CT scan of Burton (pictured above) before his surgery with Dr. Randy Boudrieau.

“We have the equipment to fix them. You can go from a dog that looks and feels like hell to one that’s comfortable and eating by the next day.”

—Dr. Randy Boudrieau

up Burton’s facial bones with the jaw by using the places where the upper and lower teeth would normally come into contact as anatomic landmarks. “The whole idea is that you work on the simplest fracture first and gradually proceed sequentially through the more difficult areas,” he says, while “trying to stay in the areas of the thicker bone— a.k.a. the buttresses.” During the five-hour operation, Boudrieau implanted 10 titanium plates.

Burton was in surgery for five hours. Courtesy of Tufts UniversityThe morning after his surgery, Burton was comfortably eating soft foods. Stuczko says her pet has “healed up perfectly.” Some 21 months after his accident,

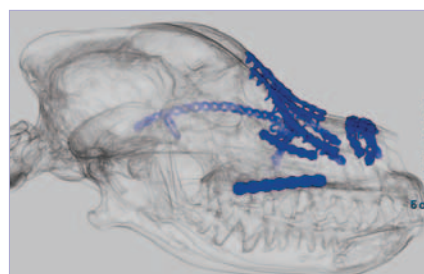
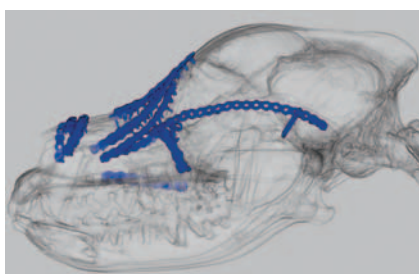
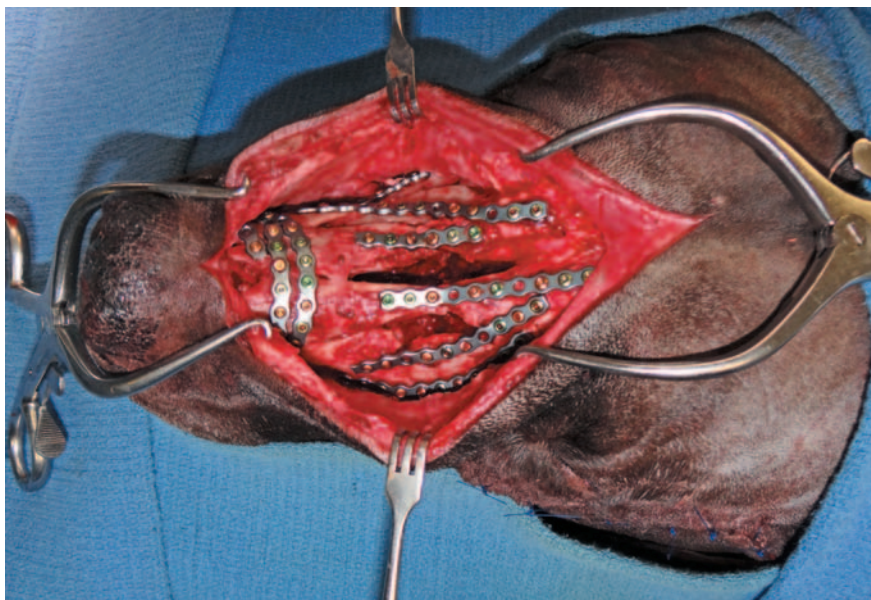
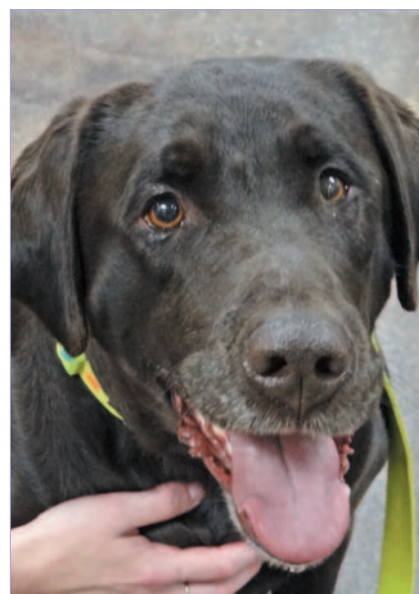
“he’s very playful,” she reports, although he won’t be “going through any metal detectors any time soon.”

“Burton is a good example of a bad case,” says Boudrieau, “and these cases are very rewarding.”

He advocates more aggressive treatment of craniofacial fractures. “What I basically propose is to stop treating these cases conservatively,” he says.

“We have the equipment to fix them. You can go from a dog that looks and feels like hell to one that’s comfortable and eating by the next day.” [dvm360](#)

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>>> Above, top: An image of Burton’s intraop left oblique shows the use of titanium plates that can bend three dimensionally. Above: A 3D reconstruction of a low opacity CT scan showing Burton’s left and right lateral views. At right, from top: Burton just after the five-hour surgery at Foster Hospital for Small Animals at Tufts University. Burton, seen here 13 months after surgery, made a full recovery though his owner says he won’t be going through any metal detectors anytime soon.

Find it all here
dvm360
com

One “Tuft” dog

To see more on Burton’s facial reconstruction by Dr. Randy

Boudrieau at Tufts University, including additional images and an interactive online feature,

go to [dvm360.com/burton](#).

Also explore links to other reconstruction surgery content including treatment of facial trauma for companion animals and horses.

Puppy mill survivor named Hero Dog for inspiring action

Hallmark Channel honors 14-year-old Chihuahua at AHA's annual American Hero Dog Awards program Oct. 30.

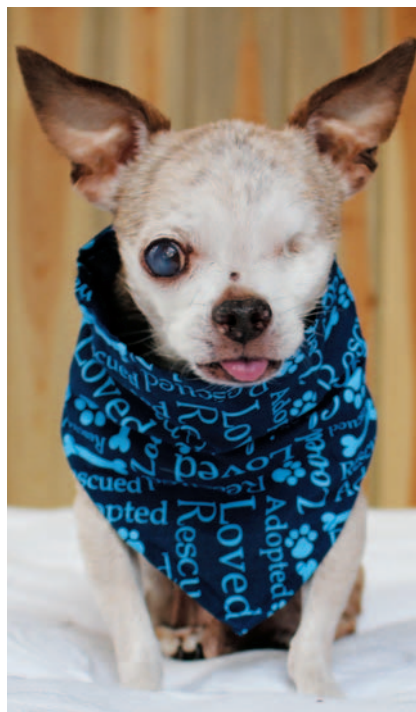
A 14-year-old Chihuahua overcame languishing in a puppy mill and losing his left eye to win the title of American Hero Dog from the American Humane Association (AHA) during its annual American Hero Dog Awards.

Harley, of Berthoud, Colorado, lived in a puppy mill's dire conditions for a decade before he was rescued in 2011, according to a release from Merial, one of the Hero Dog sponsors.

Although veterinarians believed Harley wouldn't live more than four months in his condition, he survived and became the public face of an effort to raise money for dogs that share his struggles.

The "Harley to the Rescue" campaign partners with the National Dog Mill Rescue to rescue and care for mill survivors. Since it was founded in 2013, the campaign has raised more than \$500,000 and helped more than 500 dogs. Harley participates in fundraisers, events and rescue missions.

Harley was also recognized as



>>> Harley, who lost his left eye during his 10 years in a puppy mill, was named the American Hero Dog.

the Emerging Hero Dog, sponsored by Merial, which was one of the eight award categories in the AHA competition and the only one open to non-service dogs.

The winners in the other seven categories were:

- > **Guide/Hearing Dogs:** Chara—Waynesboro, Virginia
- > **Arson Dogs:** Glory—Evansville, Wisconsin
- > **Search and Rescue Dogs:** Glory—Sun Valley, California
- > **Service Dogs:** Axel—Fredericksburg, Virginia
- > **Law Enforcement Dogs:** Dax—Ashland, Massachusetts
- > **Military Dogs:** Rambo—Converse, Texas
- > **Therapy Dogs:** Hudson the Railroad Puppy—Castleton, New York

All of the winners vied for the top American Hero Dog award, and more than one million people voted for the title. Celebrity judges also shared input.

"Harley exemplifies what we look for in an Emerging Hero Dog, and he inspires hope and confidence in dogs and people alike," says Brandt Giffin, Merial executive director. "We are honored to celebrate his achievements in advocating for dogs confined to debilitating puppy mills." **dvm360**

Henry Schein plans to acquire a majority interest in Vetstreet

Veterinary distributor announces intention to purchase 80 percent of the company; the remaining interest will remain with VCA.

Henry Schein Inc., a publicly held provider of products and services to veterinary practitioners, has announced that it will acquire a majority interest in Vetstreet, a client education and marketing assistance site for veterinarians. Vetstreet had sales in 2014 of about \$43 million, according to a press release from Henry Schein.

The transaction is expected to close early in 2016 and will give Henry Schein 80.1 percent of Vetstreet. The

remaining interest will remain with VCA Inc., its current owner. Additional financial details were not disclosed.

"Vetstreet will nicely complement our animal health businesses," says Stanley M. Bergman, chairman of the board and CEO of Henry Schein, in a release. "Vetstreet's offering will expand our practice marketing and client communication solutions, provide tools to further enhance our supplier relationships, better connect us with our veterinary customers, and help our

veterinary customers better connect to their pet owner clients."

The approximately 100 members of Vetstreet will continue to be led by its current management team, including the company's founder and president Derrick Kraemer, the release says.

"As part of the Henry Schein family, we look forward to Vetstreet having an opportunity to expand and enhance its offering to better serve the unique and changing needs of veterinary customers," Kraemer says. **dvm360**

Nationwide offers broad-sweeping insurance plan for veterinary clients

Whole Pet with Wellness plan expands coverage, reimburses members for 90 percent of eligible costs for pets' care.

Nationwide has recently launched a pet insurance program that reimburses policyholders for 90 percent of their pets' eligible veterinary expenses.

The Whole Pet with Wellness plan was designed to reduce pet owners' confusion about what is covered underneath their plan, say officials from Nationwide (formerly Veterinary Pet Insurance). The plan includes coverage for these services, according to a Nationwide release:

- > Diagnostic testing
- > Prescriptions (including therapeutic diets and supplements, as long as they're prescribed by a veterinarian and included in the medical record)
- > Wellness care, including vaccinations and parasite control products
- > Hospitalization
- > Dental work
- > Hereditary and congenital conditions
- > Surgeries
- > Behavioral exams and treatments.

Non-eligible services include pre-existing conditions, boarding, grooming and nonveterinary fees such as tax and waste disposal. There are no age restrictions excluding older pets.

Members can choose from a \$100 or \$250 deductible and visit any veterinarian for pet care.

"A key differentiator for Whole Pet with Wellness is the annual deductible," says Scott Liles, Nationwide's chief pet insurance officer, in the release. "Many pet health insurance companies offer per-incident deductibles, which the pet owner incurs each time he or she takes their pet to the veterinarian for a new issue. With Nationwide's Whole Pet with Wellness plan, once the annual deductible is met, members will receive 90 percent reimbursement for eligible veterinary expenses through their annual policy term."

There are tentative plans to cover avian and exotic animals in the future, Nationwide officials say. For more information on the program, visit petinsurance.com. **dvm360**

WHAT IS NEW FOR 2016?



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Animal Planet launches *Dr. Dee: Alaska Vet*

Show premiered Nov. 7 and chronicles one veterinarian's care of domestic and wildlife patients in remote areas of the Alaskan wilderness.



>>> Dr. Dee Thornell, of Fairbanks, Alaska, is the subject of a new Animal Planet television show that chronicles her experiences treating patients in the remote wilderness.

Animal Planet added a new show with a veterinary angle to its programming lineup in November. *Dr. Dee: Alaska Vet* premiered at 9 p.m. ET on Nov. 7. The show centers on Dee Thornell, DVM, who practices in remote Alaska, following her as she travels across glaciers and works in subzero temperatures, even flying a small plane to reach her patients if needed.

Thornell, a former Midwesterner, started her business out of a pickup truck more than 25 years ago and now owns Animal House Veterinary Hospital in Fairbanks, Alaska, according to a release from Animal Planet. The

hospital treats a variety of species that wouldn't necessarily show up on a veterinarian's day-to-day patient list in other areas: ox, moose, bear, beavers, bald eagles, chinchillas and iguanas. Those exotic cases often require her to leave her high-tech clinic and rely on the bare necessities in remote villages, using a small plane, four-wheeler or a horse and carriage to get there, the release states.

The first season will chronicle Thornell as she checks a team of sled dogs to ensure they're ready for glacier work, examines a black bear just out of hibernation, and embarks on a helicopter rescue of an injured

horse. Thornell's team includes Terry Wighs, DVM; her husband, Ken, a pilot who accompanies her on house calls; and Nicole, the hospital administrator, according to the release. Thornell is a general contractor and built her own clinics throughout the years. She is also a former Ms. Alaska bodybuilder.

Dr. Dee: Alaska Vet joins Nat Geo Wild's *The Incredible Dr. Pol*, *Vet School* and *Dr. Oakley, Yukon Vet* as television programs featuring veterinarians at work.

For more information about the show, visit animalplanet.com/tv-shows/dr-dee-alaska-vet. **dvm360**

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*Associated with susceptible strains of bacteria (*Staphylococcus pseudintermedius*) and yeast (*Malassezia pachydermatis*).

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Report pinpoints veterinary shortage

> Continued from the cover

sity officials decided to study both the need and opportunity for veterinary medicine in this region of the country, officials say. With the help of analysts from the National Center for Health-care Analytics in Blacksburg, Virginia, they determined the distribution of livestock, pets and veterinarians in 420 Appalachian counties in 13 states. The region defined as “Appalachia” by the Appalachian Regional Commission, a federal agency established to help improve the conditions of this region of the United States, includes all of West Virginia and parts of Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee and Virginia.

The region is “bound geographically by the footprint of the Appalachian Mountains, bound culturally with a fierce sense of self-sufficiency, and bound by poor infrastructure, poor health metrics, and little access to healthcare,” says Jason W. Johnson, DVM, MS, DACT, executive director of the center, in the report.

The goals of the study were twofold, Johnson says: to quantify the need for veterinary services in Appalachia and to analyze the economic impact of existing veterinarians on their surrounding communities. “Veterinarians are out there—on the hills, in the valleys—and are important to advancing Appalachia,” Johnson says.

To conducts its analysis, the Center for Animal Health developed a modeling system to estimate county-level need for large and mixed animal veterinarians within Appalachia. It found that there are 7,178 actively practicing veterinarians within the Appalachian footprint, and these veterinarians support an estimated 13.8 million companion animals and 13.7 million large animals. They employ about eight people per practice, the report says, and their practices contribute an estimated \$2.3 billion total to the Appalachian economy.

Based on the study’s modeling, there is an overall excess of 264 full-time veterinarians within Appalachia as a whole. However, when the data is examined on a county level, it shows that 75 percent of rural Appalachian counties have a veterinary shortage, estimated to be 1,907 veterinarians, which translates to an economic loss of \$621 million and 15,256 jobs, ac-



Source: Appalachian Regional Commission

cording to the report. Gary Sherman, PhD, national program leader for veterinary science with the U.S. Department of Agriculture, says the report has tremendous implications for the Veterinary Medicine Loan Repayment Program (VMLRP), which his agency administrates. The VMLRP provides up to \$25,000 in student loan forgiveness annually to veterinarians who work in designated U.S. shortage areas (see “USDA awards \$4.5 million in veterinary loan repayments” at right).

“The nuanced shortage information you have developed in the Appalachian footprint is going to be, I think, key to the success of the future of the VMLRP,” Sherman told those assembled at the LMU College of Veterinary Medicine for the release of the report. “We [at the USDA] are realizing after six years of running this program that’s actually the level of information that we need in order to properly identify shortages.”

Sherman says state officials in Appalachia are fortunate to have such strong data to use going forward when they nominate areas for consideration when the USDA allocates VMLRP funds.

Joe Kinnarney, DVM, president of the American Veterinary Medical Association (AVMA), agreed, urging those gathered to lobby Congress for

passage of the Veterinary Medicine Loan Repayment Program Enhancement Act. If that bill passes and removes the 39 percent withholding tax recipients must pay on their forgiveness funds, the VMLRP will be a viable way for veterinarians to pay down their student debt, Kinnarney says. “The data you have collected will help us make decisions, help veterinary colleges make decisions. To me, this is amazing and I applaud you on it,” he told CAHA leaders.

Michael Dicks, PhD, director of the AVMA’s Veterinary Economics Division, says he would like to see the center’s work replicated across the United States. “This is the kind of thing we need to have done so that we can better understand what the needs are for veterinarians across the country,” he said during the conference. Applying CAHA’s work nationwide has the potential to increase VMLRP appropriations from five million to tens of millions of dollars a year, says Mark Cushing, JD, founder of the Animal Policy Institute and LMU’s vice president for public affairs. “My friends in Congress say that \$5 million does not constitute a real problem,” he says. “They say, ‘Call me when you have a \$50 million problem.’ This has the power to do that.” **dvm360**

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Contraindications: Do not use in dogs with known tympanic perforation (see **Precautions**). Do not use in dogs with a hypersensitivity to florfenicol, terbinafine or corticosteroids.

Warnings: Not for use in humans. Keep this and all medications out of reach of children. Consult a physician in case of accidental ingestion by humans. In case of accidental skin contact, wash area thoroughly with water. Avoid contact to the eyes.

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

Adverse Reactions: The most common adverse reactions reported during the course of a US field study for treatment of otitis externa in dogs treated with OSURNIA with 1 tube per affected ear(s) and repeated after 7 days were Elevated Alkaline Phosphatase, Vomiting, and Elevated AST, ALT, ALP* *Aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase (ALP). Two dogs with pre-existing elevations in ALP were reported to have an increase in liver enzymes (ALP, ALT and/or AST) at study exit. Subsequent clinical chemistries returned to pre-treatment levels in one dog, while no follow up was performed for the second dog.

To report suspected adverse drug events, contact Elanco Animal Health at 1-800-332-2761. For additional information about adverse drug experience reporting for animal drugs, contact the FDA at 1-888-FDA-VETS or <http://www.fda.gov/AnimalVeterinary/SafetyHealth>. For technical assistance, contact Elanco Animal Health at 1-800-332-2761.

Effectiveness:
Effectiveness was evaluated in 235 dogs with otitis externa. The study was a double-masked field study with a placebo control (vehicle without the active ingredients). 159 dogs were treated with OSURNIA and 76 dogs were treated with the placebo control. All dogs were evaluated for safety. Treatment (1 mL) was administered to the affected ear(s) and repeated 7 days later. Prior to the first administration, the ear(s) were cleaned with saline but not prior to the Day 7 administration. Six clinical signs associated with otitis externa were evaluated: pain, erythema, exudate, swelling, odor and ulceration. Total clinical scores were assigned for a dog based on the severity of each clinical sign on Days 0, 7, 14, 30 and 45. Success was determined by clinical improvement at Day 45. The success rates of the two groups were significantly different (p=0.0094); 64.78% of dogs administered OSURNIA were successfully treated, compared to 43.42% of the dogs in the placebo control group.

NADA # 141-437, Approved by FDA
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>>> Recipients of loan repayment awards work in one of three shortage situations: food animal medicine, rural practice or public health.

USDA awards \$4.5 million in veterinary loan repayments

Program provides up to \$25,000 per year, plus tax offset, to veterinarians who work in high-need areas.

The U.S. Department of Agriculture (USDA) on Nov. 5 awarded more than \$4.5 million to 49 U.S. veterinarians to help repay a portion of their veterinary school loans in return for serving in areas lacking sufficient veterinary resources. The awards, made through the Veterinary Medicine Loan Repayment Program (VMLRP) administered by the USDA's National Institute of Food and Agriculture (NIFA), will help fill shortages in 26 states.

"Rural America is challenged with recruiting veterinarians," says John Clifford, DVM, chief veterinary officer for the USDA, in an agency release. "These professionals often face high student loan debt, leading them to work in locations with larger populations and higher pay. This program offers loan-repayment assistance to veterinarians, allowing them to fill shortages and work in rural areas."

Studies indicate significant shortages of food animal veterinarians in certain areas of the country, and in high-priority specialty sectors that require advanced training, such as food safety, epidemiology, diagnostic medicine and public health, the release states. One cause of this shortage may be the heavy cost of four years of veterinary training, which leaves current graduates with a mean debt burden of \$135,283, according to the USDA.

Recipients of the loan repayment awards must commit to three years of veterinary service in a designated veterinary shortage area. Benefits are limited to payments of the principal and interest on government and commercial loans received for attendance at an American Veterinary Medical Association-accredited college of veterinary medicine resulting in a veterinary degree.

Loan repayments made by the VMLRP are

taxable income to participants. Also included in the award is a federal tax payment equal to 39 percent of the loan payment to offset the increase in income tax liability. A bill in Congress, the Veterinary Medicine Loan Repayment Enhancement Act, seeks to eliminate the 39 percent tax, allowing those funds to potentially be used for additional awards.

This is the third year NIFA has made renewal awards through VMLRP. Previous awardees with educational debt surpassing \$75,000, the maximum award amount, are eligible to apply for a renewal award. Renewal applications follow the same competitive review process as new applications, and submission of a renewal application does not necessarily mean the veterinarian will receive continued VMLRP benefits.

In fiscal year 2015, NIFA received 137 applications and made 49 awards. Below is a breakdown of the fiscal year 2015 awards:

- > Funds awarded: \$4,583,623 (includes loan and tax payments), averaging \$95,543 each.
- > Average eligible debt for repayment on new awards: \$112,923.
- > Number of new recipients who received the maximum of \$25,000 per year (plus taxes): 34.
- > Number of new recipients who obtained their DVM within the last three years: 17.

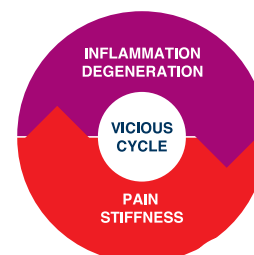
Participants are required to serve in one of three types of shortage situations: Awardees filling Type 1 shortages areas must dedicate at least 80 percent of their time to food animal veterinary services. Type 2 shortages are rural areas in which awardees are obligated to provide food animal veterinary services at least 30 percent of their time. Type 3 shortage areas are dedicated to public practice and awardees must commit at least 49 percent of their time. **dvm360**

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Nonprofit veterinary clinics do far more good than harm

Improving patient health should be the priority—regardless of the veterinary practice's profit status. *By Michael Blackwell, DVM, MPH*

An estimated 23 million pets live in poverty in America.¹ Millions more are in homes that struggle daily to make ends meet. These pets are much beloved and their owners want the best care possible for them, but for many pet owners, even basic veterinary services are out of reach. Nonprofit veterinary clinics have helped to make these services accessible, but recent attempts to close or restrict their activities raise serious ethical issues for the profession.

As the recent economic downturn progressed, many Americans found themselves with less disposable income and were forced to make tough decisions about all noncritical expenditures, including preventive veterinary care. Unfortunately, the cost of veterinary medical education, advanced medical technologies and new pharmaceuticals increased as well, making veterinary practices more expensive to operate. In response, many practices were forced to raise their fees to match increasing expenses and, as a result, found themselves losing clients.

At the same time, a more subtle challenge has contributed to client erosion, namely a shift in what constitutes an appropriate standard of care. Initially defined as a minimum acceptable level of caretaking, standard of care has recently come to reflect an uppermost level of medicine and surgery, one that is often accessible only to more affluent pet owners. For a patient with a broken leg, the inexpensive but still humane and effective technique of splinting has long been considered appropriate care. However, there appears to have been a shift in thinking recently, with surgical plating becoming the only acceptable treatment. Although more state-of-the-art treatment is ideal, many pet owners just can't afford it. As "low-tech," less expensive options no longer qualify as acceptable care, more and

more clients have been forced to forgo veterinary care altogether.

For some, the answer to this dilemma is that if you can't afford a pet, you shouldn't have one. However, that's an overly simplistic and even potentially dangerous argument. Pets add value to people's lives and should not be considered a luxury available only to a privileged few. For many people, their pets are one of their most valued relationships in terms of the joy and love they provide. Nearly two-thirds of Americans already have pets and that number continues to grow.

Efforts to limit where nonprofit groups can operate, the scope of services they may provide, and the types of clients they can assist are not the answer. After all, the pet owner who can't afford vaccinations for her dog could be your neighbor who was just laid off from her job, or the friend whose husband was just diagnosed with cancer, or someone who is struggling to pay college tuition for a child.

In the spring of 2015, a diverse group of veterinarians representing private practices, nonprofit clinics and animal welfare organizations came together to discuss these concerns and how the veterinary profession can return to its original foundation of ensuring humane care and treatment of all animals. The group agreed on the following basic principles:

1. All animals deserve veterinary care.
2. Many pets in the United States do not get the veterinary care they need.
3. Veterinarians should have the freedom to provide a spectrum of care for their patients, meaning:
 - > Veterinarians should have the flexibility to offer proven, effective treatments for their patients, with the understanding that those options may not involve the use of the most expensive, technologically advanced or state-of-the-art equipment or techniques.
 - > Veterinarians should be able to consider pets' individual circumstances and their owners' living



>>> Dr. Michael Blackwell asserts that a more stringent standard of care makes care unaffordable for many.

dvm360 Find it all here

What do you think?

Should profit status shouldn't be the main focus? Let us know your thoughts by emailing dvmnews@advanstar.com.

situations when determining proper courses of treatment.

> Veterinarians should have the legal protection and professional approval to provide appropriate care to underserved animals, whether that is in for-profit or nonprofit practice settings.

> Nonprofit veterinary practices should not be required to limit the scope of services they provide or perform means testing or other income screening of clients simply because of their nonprofit status.

For some, the answer to this dilemma is that if you can't afford a pet, you shouldn't have one. However, that's an overly simplistic and even potentially dangerous argument.

These fundamental principles, known as the Guiding Principles to Ensure Access to Veterinary Care, resonate with many veterinarians. Please join those veterinarians across the country in signing on to show your support as the first step to ensure that the voices of those who have none of their own—those very lives we have sworn to preserve—are never lost by visiting hsvma.org/guiding_principles_to_ensure_access_to_veterinary_care.

From these guiding principles will be the birth of a coalition whose goals will be to:

> Foster development and promotion of methods for providing access to veterinary care for the millions of pets currently without it.

> Respond to legislative, regulatory and other efforts designed to interfere with nonprofit practices' ability to serve pet owners, and work to preempt and avoid such action whenever possible.

> Improve collaboration among private for-profit and nonprofit veterinary service providers as well as relevant social services providers to promote access to veterinary care for all pet owners.

> Provide guidance to everyone working in all sectors of the veterinary profession regarding ways it can help promote access to veterinary care for all pet owners.

> The veterinary profession is stronger and its impact is greater when everyone involved works together toward fulfilling common

goals to protect those whom we have taken an oath to serve. **dvm360**

Michael Blackwell, DVM, MPH, is a member of the board of the Humane Society Veterinary Medical Association.

¹Estimate by the Humane Society of the United States based on the number of U.S. families below the poverty line (11.5 percent) and the average number of families with pets (roughly 66 percent).



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Business practices of high-volume, low-cost veterinary clinic questioned

Can you really practice a high standard of medicine in seven minutes per patient?

Regarding the article “High-volume clinic slashes prices” (October), I have some issues with what was stated by Angels Vet Express. Mr. Silverglat insists patient care is the clinic’s top priority. I find that hard to believe when the clinic is open from 8 a.m. to 5:30 p.m. on weekdays and one of the doctors is boasting about logging 82 exam room visits in a day. If she didn’t take any breaks, including lunch or bathroom breaks, that comes to 6 minutes 57 seconds per visit, including going into and out of the room.

I think most veterinarians—and pet owners—would say that you couldn’t get quality care in that amount of time. I’m not sure how you can perform a thorough examination, discuss options for care of the animal (healthy or sick) and answer any questions the owner may have in less than seven minutes.

Mr. Silverglat also insists that veterinarians “haven’t been trained for business.” But he hasn’t broken even in 13 years! I understand that he is operating as a not-for-profit, but even nonprofits want to at least break even or they can’t keep operating. This is why people have questioned what Mr. Silverglat does to make his money. The money to fund an endeavor that keeps losing money has to come from somewhere.

Mr. Silverglat states that it takes the clinic up to a year to hire a new veterinarian and he interviews up to 200



Find it all here.

October 2015 | Volume 41 | 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.

"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 >



Dr. Martha Smith-Blackmore

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'Shooby'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 >



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



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**

candidates. Most veterinarians may inquire and even visit but soon decide they don't fit in this type of practice. I can vouch for this personally. I applied to Angels Vet Express right out of veterinary school and knew it wasn't for me even though I was offered a job. I also know of a veterinarian who previously worked at Angels Vet Express—

while working for another practice he was let go, in part due to poor medical practice. The point is that Angels Vet Express does not always get the best candidates. I know this can happen at any practice, but when you seem desperate the perfect candidate is often the one who says yes.

Name withheld

Why shouldn't we make a decent living?

It's possible to charge fair prices without alienating low-income clients.

I would like to comment on the subject of low-cost veterinary care addressed in numerous articles, especially the latest concerning the high-volume clinic in Missouri. Having been both a practice owner and an associate in middle-class to low-income areas, I have seen that it is possible to ask fair prices and

keep clients coming in. But my main question to all the recent conversations is this: What's wrong with a veterinarian making a living? My plumber has a nice house; why can't I? That being said, I still need to make a profit to pay my mortgage! In the 29 years of my career as a

veterinarian, the same money issues continue—criticizing our desire to make a profit, long hours of work to do so, and unequal pay for women. As I look to retirement, I see no changes from when I graduated. Good luck, future veterinarians! *Susanne Felser, VMD
Taos, New Mexico*

24 | December 2015 | dvm360

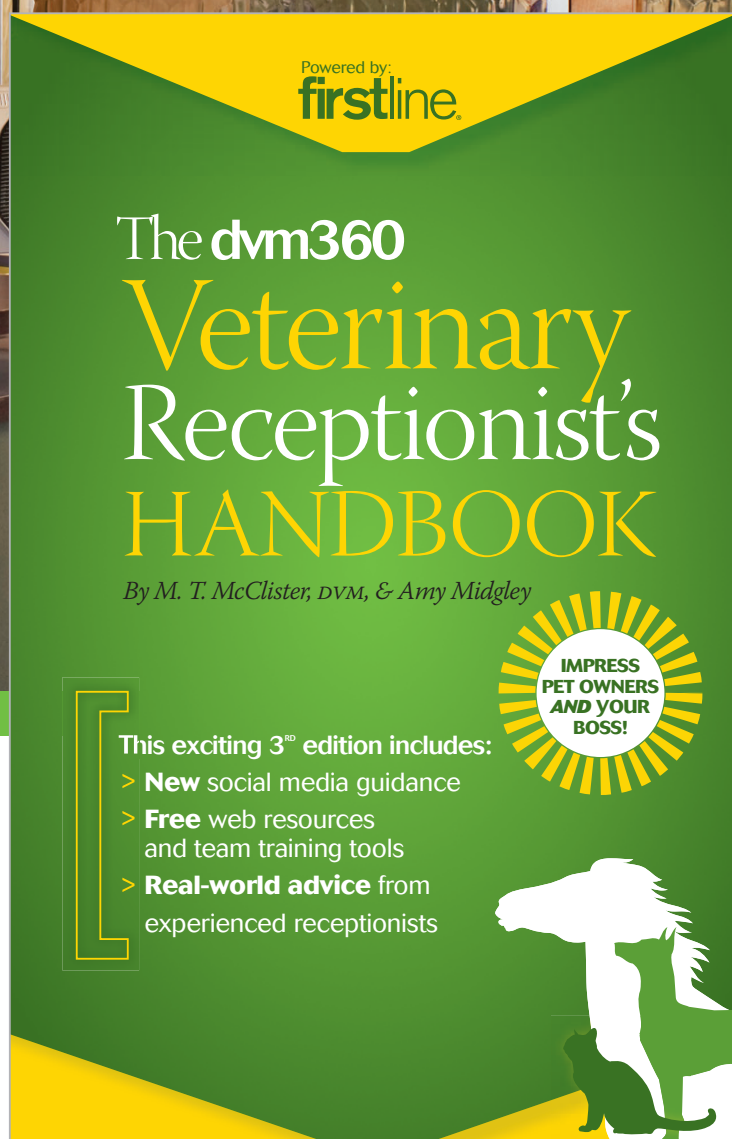


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In response to an anonymous letter titled "For-profit veterinary schools have a legitimate role to play" (October), the writer should know that I feel no animus toward the graduates of vocationally oriented veterinary schools, both U.S. and foreign. Rather, I regard them as professional colleagues and wish them the greatest success. Having paid high tuitions for what I believe to be an incomplete education, they bear significantly greater debt burdens than graduates of the majority of traditional nonprofit U.S. schools.

By asking how anyone, especially a dean, can "suggest that all changes that need to occur are external," the writer indicates that he or she hasn't understood what I have written about the rapidly occurring retrograde evolution of veterinary medical education, due in large part to the proliferation and accreditation of schools that do not meet the published standards promulgated by the AVMA Council on Education, the accrediting agency for schools of veterinary medicine. Such schools have succeeded in undermining the structure and quality of American veterinary medical education. Their proliferation can best be explained by their high profitability: large class size, including several classes per year, high tuitions, no costly investment in teaching hospitals, and weak basic science and clinical programs.

That women are likely to receive lower salaries and benefits than men for equal work is of course unacceptable, but since veterinary medicine is now largely a woman's profession, women are in a strong position to correct this injustice. Equally worrisome is the steady decline in male veterinary school applicants. Any profession that attracts only one gender, male or female, needs to be deeply concerned about its future.

Robert R. Marshak, DVM, DACVIM

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Reader offended by the word ‘turd’ needs to lighten up

Dr. Brock's columns are a humorous and true look at everyday practice life.

I'm not sure which one made me laugh harder, Dr. Brock's column on the 32.5-inch turd (August) or the letter to the editor about his disgusting article being in poor taste (October). Dr. Brock's article has better hang time, but Dr. Koenig's crappy attitude is very close behind. Keep up the good humor, Dr. Brock.

Brian Peter, DVM
Phoenix, Ariz.

In response to the letter from the veterinarian who found Dr. Bo Brock's August column "offensive and embarrassing" as it related to a 32.5-inch dog turd, I would only ask, "Really?" Regarding the editorial staff's judgment in allowing it to be printed, I think their standards are up to par.

With the recent news of a veterinarian killing a cat with a bow and arrow, and a Minnesota dentist doing the same with a lion, Dr. Brock's



columns on the lighter side of veterinary medicine are welcome relief. Please disregard the sensitivity of one reader and let us all thank Dr. Brock for his contributions to the heart and soul of veterinary practice.

Bernhard H. Mayer, DVM
Westwego, La.
Louisiana State University, 1980

Technician out of line in 'Dilemma' column

The ins and outs of the business are not what she was hired for, says reader.

Regarding Dr. Marc Rosenberg's "The Dilemma" column in September—Sarah was hired to be a veterinary technician. She was not hired to be an IRS mole or the staff outreach member to Occupy Wall Street. The financial dealings of this business are none of her concern. She was rightly

sacked and any business owner armed with this knowledge and in possession of a brain would stay the hell away from her regarding her future employment. This practice owner has no respect, nor use, for this VMD's advice.

Warren Deal, DVM
Monte Vista, Colo.

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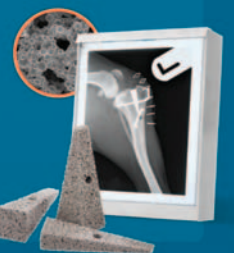
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3 practice sale slowdowns

A few things are certain: Death, taxes—and the countless ways a practice sale can be brought to a screeching halt.

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Recently I was contacted by a group of veterinarians who had successfully negotiated an excellent deal to sell a group of practices to one of the large corporate veterinary companies. Based on what they told me then, I explained that it sounded as if everything was well on track and that if price, terms, financing and leasing had all been agreed upon, the closing should be simple *and soon*.

But alas, I heard from them again about a month later. Apparently, the group's attorney and CPA were being so slow in preparing schedules and documents that the corporate buyer was threatening to pull out of the deal entirely. This response is understandable; corporate practice purchases tie up the acquirer's transition staff. These buyers need to schedule their people's time, so time and timing are of the essence. They have little patience for unjustified delays.

Clearly, negotiating and consummating a practice sale can be difficult for anyone who's never been through it. And it can sometimes be tough to even identify who or what is holding things up when the transaction begins to stall. Let's proceed logically through the process involved in a quick and proper clinic sale closing:

Time is money

First, never forget the reasons why it's critical to move forward with the least possible delay. There are key time-sensitive realities facing both parties.

Taxes. The clinic building may be part of a capital gain "like-kind" exchange and as such carries with it a severe Internal Revenue Service (IRS)-imposed time limitation for the buyer. The seller may have capital losses he needs to offset in the year the sale occurs. Missing deadlines can simply kill the sale for tax reasons.

Financing rate. Banks and other lending institutions don't commit to loans indefinitely. If some CPA or lawyer slows down the closing such that

a loan commitment expires, it can result in more than an inconvenience. A rate hike can make it economically impossible for the buyer to go forward with the purchase.

End of employee contracts.

Many practice sales are contingent on the selling clinic having a full veterinary staff at closing. When ownership is about to change hands, employees of all categories begin to get nervous—that edginess can result in staff seeking employment elsewhere and DVMs hesitating to fulfill or renew their employment contracts.

The usual suspects

Second, once we understand the need for speed in finalizing a practice sale, we need to identify what's most likely to slow things down. Here are my usual suspects:

Lending institution paperwork.

Often closings are delayed because banks and banks' attorneys don't concern themselves adequately with the importance of thoroughness. Financial institutions loan money day-in-day-out, and one deal looks a lot like the last 10. When a document or a deed goes missing, it can take a long time for bankers even to let folks know that something is missing.

CPAs and accounting assistants.

When you schedule a practice sale on or near March 15 (subchapter S tax return deadline), April 15 (personal income tax return deadline), Oct. 15 (personal tax return extension deadline) or after mid-November, *expect delays and confusion* from your accountant. She is dealing with a barrage of last-minute documents pouring in from procrastinators and also, in December, employees calling in sick to do holiday shopping and party planning.

Lawyers. A lot of law offices operate like squirrels. They take in all the work that comes along in preparation for the leaner times they may face in the future. They're not always equipped to work diligently on all matters that sud-

denly demand immediate attention. If yours is one of those matters, look out.

Don't hate the player, know the game

Third, you as a buyer or seller have the power to speed things up by being proactive. You can genuinely own the transaction by learning what has to happen to get it done. Here are some examples of issues a buyer and seller need to work through with their respective legal and financial teams early in the clinic sale process:

Equipment and employee schedules. Don't wait for your advisers (or the other side's advisers) to ask you for the business documents and information they'll need to prepare closing papers. Make a list at the outset. They might require, among other things:

- > Employee lists
- > Copies of DVM employment contracts
- > Schedules of earned but unpaid vacation and sick time
- > Approximate inventory
- > Equipment model numbers, age, condition and depreciation status
- > Accounts receivable.

Tax returns. Profit-and-loss statements and tax returns are often annexed to purchase agreements. Find out how many are needed and by whom and get them where they belong.

Corporate documents. If your practice operates as a PC or LLC, you likely will need proof that you are legally entitled to dispose of your clinic and its assets and real estate. This involves preparing a board resolution or other paperwork. Don't wait until the evening before the closing to discover that you can't find your corporate or LLC kit, seal, stock certificates, board resolutions and so on.

Leases and deeds. The buyer may need to negotiate new terms with your landlord or at least satisfy himself that your lease is assignable. It's pretty hard to do that if you can't supply your landlord's contact information and copies of past leases. And don't forget: You should give your landlord a heads-up that you're selling your practice. If the landlord has been secretly waiting for you to leave, he or she may have another tenant in mind, and that will send the whole transaction into a hurricane.

Occupancy permits, zoning restrictions, municipal ordinances. Absolutely, positively discover whether

you need any variances or approvals from the municipality where the clinic you plan to sell or buy is located. Nothing can slow up a deal like an ordinance officer or town zoning board. If you wait to discover that three public hearings need to be scheduled before your practice can change hands, you'd better get familiar with the hearing schedule

for the village or city in question. And don't be surprised when a scheduled meeting is postponed or your matter is put on hold pending the village getting an engineer's opinion or other information before voting on your application.

Ultimately, you may be the No. 1 factor to prevent a sale from coming to a screeching halt: Push for an ex-

peditious close, identify slow-movers and be proactive to avoid becoming the problem. **dvm360**

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.

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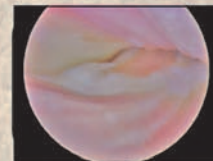
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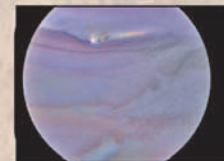
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Arthroscopic image of severe MCD



Arthroscopic image of CUE 7 months post-op



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What’s the proper diagnosis for struggling veterinarians?

Analysis reveals low overall burnout in the veterinary profession, points to factors that affect it. *By Mike Dicks, PhD, and Bridgette Bain, PhD*

At the beginning of our research into the economics of the veterinary profession, we determined that unemployment and underemployment were important indicators of excess capacity in the profession. We developed a survey to measure these two key economic indicators and included questions pertaining to factors affecting either one. Of course, demographic factors such as age, practice type and location can affect unemployment and underemployment, but we also looked at health. Simply put, better health may be associated with less unemployment and less underemployment.

The results of our first employment survey found that roughly 80 percent of veterinarians consider themselves fairly healthy—a four or five on a five-point scale. This low level of variation did little to explain unemployment and underemployment in the profession.

For the 2015 Employment Survey we decided to dig a little deeper. Participants in the American Veterinary Medical Association’s (AVMA’s) Future Leaders Program, already working on a study of veterinary wellness, provided us with information on a wellness tool used in numerous other professions. That information helped us tie the wellness of veterinarians to that of other professionals. The Professional Quality

of Life Scale Survey solicits responses that can be used to compute a “burnout” score. Standardized scores provide for comparison with other professions.

With input from more than 3,000 respondents, the findings from the 2015 AVMA Employment Survey indicate that the burnout score for 95 percent of the respondents (within two standard deviations) is low to average (see Table 1). This seems to be in sharp contrast to the recent article by Randall Nett in the Centers for Disease Control and Prevention’s *Morbidity and Mortality Weekly Report*, which concluded that:

> 13 percent of all male veterinary

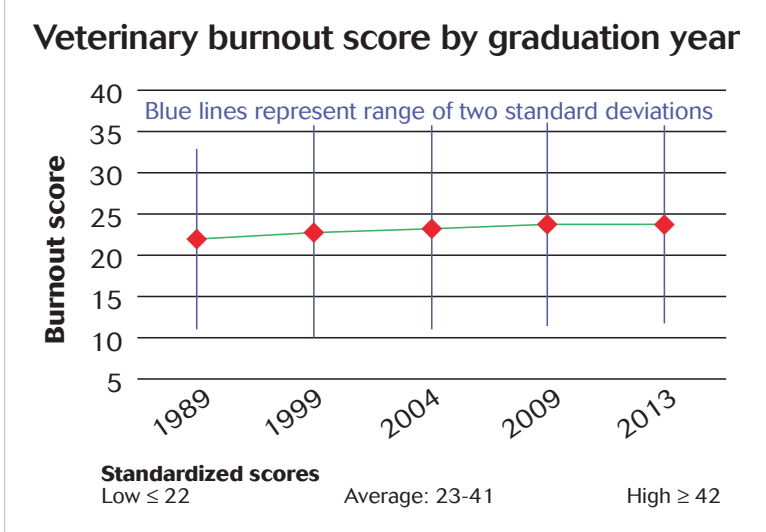
respondents and 24 percent of all female veterinary respondents are currently being treated for mental health conditions or problems

> 10 percent of respondents have experienced some kind of serious psychological distress

> 17 percent of respondents have experienced suicidal ideation since leaving veterinary school.¹

The Nett study noted that the findings were subject to at least two limitations: “First, the small number of veterinarians who responded compared with the number of those potentially eligible increases the likelihood of nonresponse

TABLE 1



Source: AVMA Veterinary Economics Division

TABLE 2

Factors associated with burnout in veterinarians

A negative number indicates a negative association with the burnout score for a particular graduating class, while a positive number indicates a positive association. The higher the number, the stronger the association.

Year of graduation	2013	2009	2004	1999	1989
Constant—estimated burnout score	32.306	39.515	24.594	21.108	25.758
Hours worked per week		-0.107			
Solo practice owner					-3.530
Change in hours desired	-0.085	-0.195		-0.148	0.179
Do you have any children? Yes=1, No=2		-3.353			
Positive health assessment rating	-1.829	-2.374			
No change in employment community desired				-3.192	
Prefer employment in smaller community	3.836				
First position: companion animal practice					8.093
First position: resident/postdoc/graduate school		-12.729			
Current position: companion animal practice				-3.291	
Current position: food animal practice	-4.754				
Kansas State graduate		6.215		6.613	
Louisiana State graduate				9.585	
North Carolina State graduate	-14.142				
Other university graduate				-6.363	
Tuskegee graduate			8.072		
UC-Davis graduate			8.406	9.370	
University of Florida graduate		9.653			
University of Illinois graduate	-4.136				
University of Missouri graduate		-3.735			
University of Tennessee graduate		7.023			
University of Wisconsin graduate		4.441			
Virginia-Maryland Regional graduate	-5.015				
What percentage of your household's income do you contribute?				0.082	

Source: AVMA Veterinary Economics Division

bias,” the authors state. “Second, the possibility exists for social desirability bias. Both of these factors could lead to overestimation or underestimation of the actual prevalence of risk factors for suicide among U.S. veterinarians.”

Another caveat is that the Nett study provides measures of mental health problems in the profession, while the AVMA survey provides a measure of burnout. While related, these may well be different measures and not highly correlated. An additional difference is that the burnout score is a current measure, while two of the Nett measures cover past experience.

An important result of the AVMA study was the evaluation of factors related to burnout. These factors are provided in Table 2 for five different graduation years. The constant (first row in table) provides the starting point estimate for the burnout score. All of the other rows are factors that are statistically significant in their relationship with the burnout score for at least one graduating class. A negative number means the factor is negatively associated with burnout; a positive number indicates a positive association.

For instance, for recent graduates (2013 and 2009), an individual health self-assessment is negatively associated with burnout. The healthier a veterinarian feels, the less he or she is burned out. Only one variable was significant for the majority of graduating classes: a desired change in hours worked (underemployment). The desire to work less hours for less pay (negative underemployment) was associated with greater burnout in younger veterinarians.

After completing our analysis, we’ve concluded that the most important finding in our burnout score data is that burnout begins to increase at graduation, peaks at five years after graduation and then declines during the remainder of the veterinarian’s career. Our analysis also indicates that the factors that affect burnout change over time.

The bottom line is that we simply don’t have enough information yet to study what may be a problem that is, as yet, not well-defined. We need to further explore the relationship between burnout and treatment for mental health conditions, serious psychological distress and suicidal ideation.

Like so many of the potential complications we have uncovered in our analysis of the economics of the profes-

sion, the mental and physical health of veterinarians, while not currently found to be a problem in general, may well be concentrated in a group of veterinarians with specific characteristics. If that’s the case, then examining the entire profession may hide the problem. Persistent collection of specific measures and the potential factors that affect those

measures will be instrumental in both identifying specific health problems and creating strategies that might be useful in abating those problems.

Since healthy veterinarians help ensure a healthy profession, further research will provide critical information that can be used to address the troubling dilemma of burnout. **dvm360**

Dr. Mike Dicks is director of the AVMA’s Veterinary Economics Division. Dr. Bridgette Bain is an analyst in the AVMA’s Veterinary Economics Division.

Reference

1. Nett RJ, Witte TK, Holzbauer SM, et al. Notes from the field: Prevalence of risk factors for suicide among veterinarians—United States, 2014. *Morb Mortal Wkly Rep* 2015;64(6):159.

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Strive *for* balance on the **high wire**

Work-life balance isn't a constant state of being. Rather, it's a the process of making small adjustments all the time.

Over the time I've been writing this column and speaking at symposia, I've found that there are two general themes that surface again and again. The first is client experience and the second is working to make life balance a priority. While everyone generally agrees with the need for life balance and harmony, being out of balance continues to be an accepted reality. I've realized that simply telling someone to be more balanced is like telling a pig to fly. Without tools and specific steps it just ain't gonna happen. So I've made it a priority to search for specific actions that we can take to make theory reality.

According to author, speaker and philosopher Tom Morris, PhD, of the Morris Institute, most people suffer needlessly from a complete misconception about what life balance is. Many individuals are stressed and recognize they are living unbalanced lives. But what exactly is the balance they strive for?

You may have seen the movie *Man on a Wire* a few years ago or the more current movie *The Walk*. In both films the characters make a decision to perform an impossible feat on a tight wire seemingly miles in the air. We are left asking questions like "How?" "Why?" and "What if?" From a distance, the wire walker looks like he is virtually gliding along the wire, but in reality he is out of balance virtually every step as he struggles to make it appear smooth and easy.

Think about a gymnast or yoga master standing as still as ice with perfect balance—or is it? Actually, these people are in constant motion, making adjustments to their position, posture and movements so fine that they're imperceptible to anyone but them.

We're all like the tightrope walker. A little

out of balance in some way or another. There is no perfect balance and, in fact, the key to life balance is constant adjustment and correction, along with forward movement.

Like the gymnast or wire walker or yoga master, we should watch for slight shifts in balance and do something about it before we come down like a Jenga tower. Don't be afraid of being out of balance. Most of us are, most of the



time. The challenge is to not get caught up in feelings of regret or remorse but to focus on fine adjustment and adaptation much like the wire walker who strives to remain in balance over time.

Personal life balance isn't constant. Sometimes you spend a little too much time at work, so change that. Shift your emphasis to time with family and friends. Not enough emphasis on work? Failing to do things you need to get done? Adjust the other way. Many people, when working hard, feel bad that they're not at home, or they worry when they're at home that they're not working as they should be. The result is that they never really experience what they're doing. They



never really show up and are never invested in the moment. This is no way to live—or work.

I recently came across an article in *The Huffington Post* titled “5 Lessons We Can All Learn About Finding Balance From Yogis,” which I think is applicable to the veterinary profession. Here’s a summary:

Breathe. I have a tattoo on my arm made up of lyrics to a Jimmy Buffett song: “Breathe in, breathe out ... move on.” When you feel stressed or overwhelmed, close your eyes and breathe in and out through your nose, inhaling and exhaling to a count of four.

Be conscious. Be aware of how you “are.” How do you treat others? Do you focus on the positive?

Let go. Quit holding on to negative thoughts and influences.

Be steady. Don’t listen to your internal conversations too much. Be aware

of your thoughts and emotions without being self-critical and judgmental.

Step out of your comfort zone.

Don’t run away from a difficult challenge. Stay with it and watch yourself act with grace under pressure.

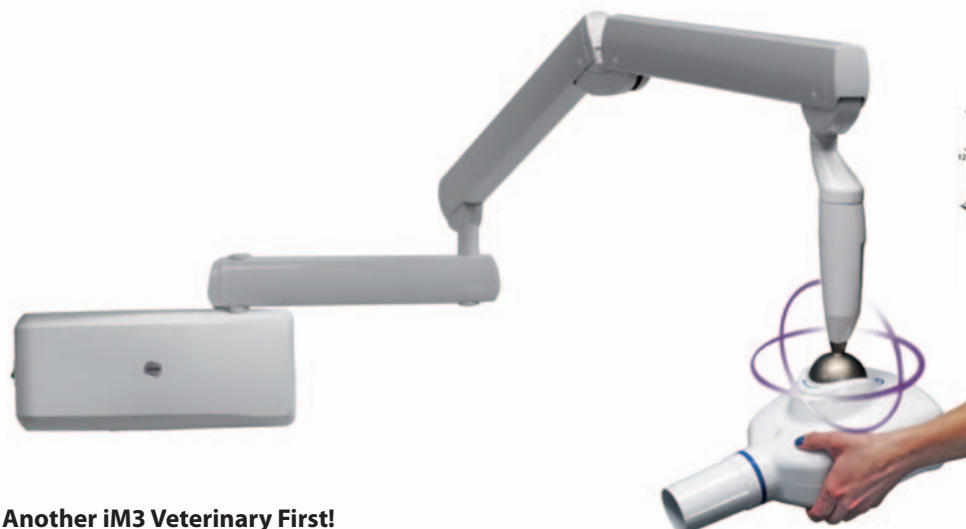
In my upcoming columns we will explore steps to help you recognize how you personally deal with stress

and what you can do to better make those fine adjustments that will keep you feeling balanced. **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.



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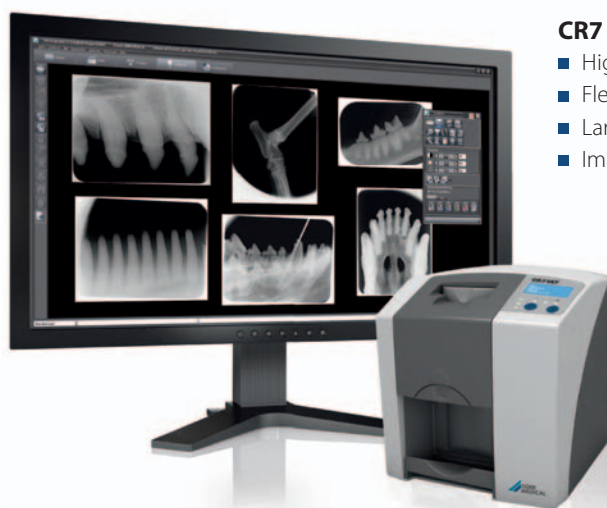
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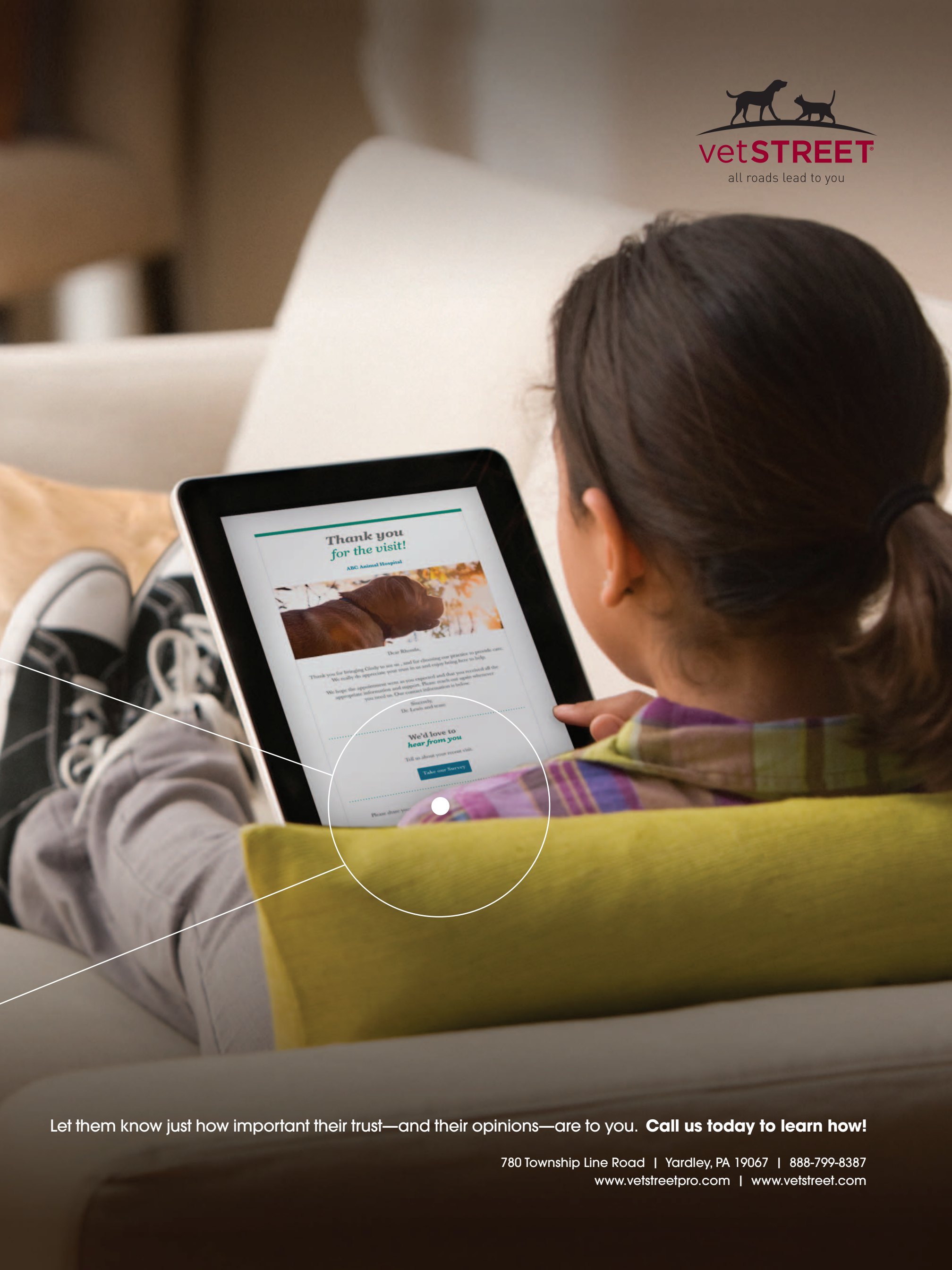
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If you learn just one thing after years of veterinary practice, it's that most situations are not black and white.

Shades of gray in the doctor-client relationship

Prioritizing standard of care in practice doesn't prohibit compromise.

Dr. Lee Hanes practiced with two partners at Mountain Animal Hospital. After 11 years, the practice had grown significantly. The clinic's ability to cater to the needs of its upscale clientele drove the success. Dr. Hanes would be the first one to admit that the practice pampered its clients. It wasn't unusual for valued pet owners to have doctors' cell phone numbers. Nor was it unexpected for clients to meet a veterinarian after hours for care. While this might sound like veterinary practice from decades past, it was a winning formula for the clinic. Recently, the staff had noticed that clients were starting to disregard prescription renewal protocols. Pets on NSAIDs and other long-term medications were supposed to undergo periodic blood testing before their prescriptions were renewed. The staff began to tactfully inform clients that these blood tests had to be done before medications would be refilled. Not monitoring a drug's impact could solve one problem

in the pet but create another, they told the pet owners who called. Mrs. Longman had been giving her dog Cuddles phenobarbital for his epilepsy for five years. She was retired, and she and Cuddles were living on her social security benefits. Cuddles' last three blood profiles had showed her liver values to be within normal range and her phenobarbital level to be in the therapeutic range. Mrs. Longman could afford the inexpensive prescription phenobarbital, but the yearly blood test was a financial hardship. She believed her limited budget merited refilling the dog's medication without the testing. Dr. Hanes respectively disagreed. He believed he would be professionally negligent if he continued to prescribe a controlled substance that had the potential to harm a patient more than it helped. He offered Mrs. Longman a discount on the testing, but it was still beyond her budget. Dr. Hanes reluctantly told Mrs. Longman that his hands were tied—monitoring the status

of a patient taking a controlled barbiturate was standard veterinary practice. Within a week of going off her medication, Cuddles experienced a grand mal seizure, fell on the stairs and injured her knee. Mrs. Longman's niece intervened and took Cuddles to her personal veterinarian. The niece paid for the blood test, and Cuddles' phenobarbital prescription was renewed. Mrs. Longman's niece was disturbed by her elderly aunt's experience and filed a complaint of professional misconduct against Dr. Hanes. The state veterinary board believed that this was an unfortunate experience but that Dr. Hanes had acted both professionally and within the normal standard of care. The pet owner's financial status was not grounds for a veterinarian to take medical shortcuts. Mrs. Longman appreciated her niece's help, and the practice lost a good client. The experience prompted Dr. Hanes to take a long, hard look at his clinic's policy on blood screenings.

Rosenberg's response

If you learn just one thing after years of veterinary practice, it's that most situations are not black and white. Hard-and-fast rules don't always work. Dr. Hanes was not guilty of unprofessional conduct—he just used poor judgment. He could have asked Mrs. Longman to sign a waiver acknowledging the risks of not monitoring her dog's blood parameters and then dispensed the medication. He could have made the blood testing affordable for this needy client. He should have seen that Cuddles didn't have elevated blood values in multiple previous test results and made a calculated exception. My piece of advice for Dr. Hanes: Live and learn. **dvm360**

Dr. Marc Rosenberg is director of the Voorhees Veterinary Center in Voorhees, New Jersey. The veterinary practices, doctors and employees described in "The Dilemma" are fictional.

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Non-steroidal anti-inflammatory drug for oral use in dogs only

Warning: Repeated use of meloxicam in cats has been associated with acute renal failure and death. Do not administer additional injectable or oral meloxicam to cats. See Contraindications, Warnings, and Precautions for detailed information.

Brief Summary: Before using Loxicom Oral Suspension, consult the product insert, a summary of which follows.
Caution: Federal law restricts this drug to use by or on the order of a licensed veterinarian.
Description: Meloxicam is a non-steroidal anti-inflammatory drug (NSAID) of the oxicam class.

Indications: Loxicom Oral Suspension is indicated for the control of pain and inflammation associated with osteoarthritis in dogs.

Contraindications: Dogs with known hypersensitivity to meloxicam should not receive Loxicom Oral Suspension. **Do not use Loxicom Oral Suspension in cats. Acute renal failure and death have been associated with the use of meloxicam in cats.**

Warnings: Not for use in humans. Keep this and all medications out of reach of children. Consult a physician in case of accidental ingestion by humans. **For oral use in dogs only.** As with any NSAID all dogs should undergo a thorough history and physical examination before the initiation of NSAID therapy. Appropriate laboratory testing to establish hematological and serum biochemical baseline data is recommended prior to and periodically during administration. To report suspected adverse reactions, to obtain a Material Safety Data Sheet, or for technical assistance, call Norbrook at 1-866-591-5777.

Precautions: The safe use of Loxicom Oral Suspension in dogs younger than 6 months of age, dogs used for breeding, or in

pregnant or lactating dogs has not been evaluated. As a class, cyclo-oxygenase inhibitory NSAIDs may be associated with gastrointestinal, renal and hepatic toxicity. Sensitivity to drug-associated adverse events varies with the individual patient. Patients at greatest risk for renal toxicity are those that are dehydrated, on concomitant diuretic therapy, or those with existing renal, cardiovascular, and/or hepatic dysfunction. Concurrent administration of potentially nephrotoxic drugs should be carefully approached. NSAIDs may inhibit the prostaglandins that maintain normal homeostatic function. Such anti-prostaglandin effects may result in clinically significant disease in patients with underlying or pre-existing disease that has not been previously diagnosed. Since NSAIDs possess the potential to induce gastrointestinal ulcerations and/or perforations, concomitant use with other anti-inflammatory drugs, such as NSAIDs or corticosteroids, should be avoided or closely monitored. The use of concomitantly protein-bound drugs with Loxicom Oral Suspension has not been studied in dogs. Commonly used protein-bound drugs include cardiac, anticonvulsant and behavioral medications. The influence of concomitant drugs that may inhibit metabolism of Loxicom Oral Suspension has not been evaluated. Drug compatibility should be monitored in patients requiring adjunctive therapy.

Adverse Reactions: Field safety was evaluated in 306 dogs. Based on the results of two studies, GI abnormalities (vomiting, soft stools, diarrhea, and inappetence) were the most common adverse reactions associated with the administration of meloxicam. Of the dogs that took meloxicam (n=157), forty experienced vomiting, nineteen experienced diarrhea/soft stool, five experienced inappetence, and one each experienced bloody stool, bleeding gums after dental procedure, lethargy/swollen carpus, and epiphora. Of the dogs that took the placebo (n=149), twenty-three experienced vomiting, eleven experienced diarrhea/soft stool, and one experienced inappetence. In foreign suspected adverse drug reaction (SADR) reporting over a 9 year period, incidences of adverse reactions related to meloxicam administration included: auto-immune hemolytic anemia (1 dog), thrombocytopenia (1 dog), polyarthritis (1 dog), nursing puppy lethargy (1 dog), and pyoderma (1 dog).

Effectiveness: The effectiveness of meloxicam was demonstrated in two field studies involving a total of 277 dogs representing various breeds, between six months and sixteen years of age, all diagnosed with osteoarthritis. Both of the placebo-controlled, masked studies were conducted for 14 days. All dogs received 0.2 mg/kg on day 1. All dogs were maintained on 0.1 mg/kg oral meloxicam from days 2 through 14 of both studies. Parameters evaluated by veterinarians included lameness, weight-bearing, pain on palpation, and overall improvement. Parameters assessed by owners included mobility, ability to rise, limping, and overall improvement. In the first field study (n=109), dogs showed clinical improvement with statistical significance after 14 days of meloxicam treatment for all parameters. In the second field study (n=48), dogs receiving meloxicam showed a clinical improvement after 14 days of therapy for all parameters; however, statistical significance was demonstrated only for the overall investigator evaluation on day 7, and for the owner evaluation on day 14.

How Supplied: Loxicom Oral Suspension 1.5 mg/mL: 10, 32 and 100 mL bottles with small and large dosing syringes.
Storage: Store at controlled room temperature 68-77°F (20-25°C). Excursions permitted between 59°F and 86°F (15°C and 30°C). Brief exposure to temperature up to 104°F (40°C) may be tolerated provided the mean kinetic temperature does not exceed 77°F (25°C); however such exposure should be minimized.

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***Indication:** For the treatment of secondary superficial bacterial pyoderma in dogs
caused by susceptible strains of *Staphylococcus pseudintermedius*.

Important Safety Information: RILEXINE® Chewable Tablets for Dogs are contraindicated in dogs with a known allergy to penicillins or cephalosporins. For oral use in dogs only. Not for use in humans. Individuals sensitive to penicillins or cephalosporins should avoid contact of the product with the skin and mucous membranes. Do not prescribe in the absence of a proven or strongly suspected bacterial infection. Safety in breeding, pregnant, or lactating bitches has not been evaluated. The most common adverse reactions in dogs include diarrhea, vomiting, anorexia and lethargy. Please see full product label for more information, or visit **www.virbacvet.com**.

See brief summary on page 42

Shaping the future of animal health

Virbac

RILEXINE® (cephalexin) Chewable Tablets for Dogs

Antimicrobial for Oral Use in Dogs only

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

BRIEF SUMMARY: Please consult package insert for complete product information. The information presented is not comprehensive. Speak with your veterinarian for further information. Contact Virbac at 1-800-338-3659 to obtain the FDA-approved product labeling.

INDICATION: For the treatment of secondary superficial bacterial pyoderma in dogs caused by susceptible strains of *Staphylococcus pseudintermedius*.

CONTRAINDICATIONS: RILEXINE Chewable Tablets are contraindicated in dogs with a known allergy to cephalexin or to the β -lactam (any of the penicillins or cephalosporins) group of antibiotics.

WARNINGS: For use in dogs only. Not for use in humans. Keep this drug out of the reach of children. Antimicrobials, including penicillins and cephalosporins, can cause allergic reactions in sensitized individuals. Sensitized individuals handling such antimicrobials, including cephalexin, should avoid contact of the product with the skin and mucous membranes in order to minimize the risk of allergic reactions.

In case of ingestion by humans contact a physician immediately. Physicians may contact a Poison Control Center for advice concerning cases of ingestion by humans.

PRECAUTIONS: Prescribing antibacterial drugs in the absence of a proven or strongly suspected bacterial infection is unlikely to provide benefit to treated animals and may increase the risk of the development of drug-resistant animal pathogens.

The safe use of RILEXINE Chewable Tablets in dogs intended for breeding and in pregnant or lactating bitches has not been evaluated.

Positive direct Coombs' test results and false positive reactions for glucose in the urine have been reported during treatment with some cephalosporin antimicrobials. Cephalosporin antimicrobials may also cause falsely elevated urine protein determinations. Some antimicrobials, including cephalosporins, can cause lowered albumin values due to interference with certain testing methods.

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.

ADVERSE REACTIONS: The most common adverse reactions in dogs include diarrhea, vomiting, anorexia and lethargy. To report suspected adverse reactions call Virbac at 1-800-338-3659.

EFFECTIVENESS: The clinical effectiveness of Rilexine Chewable Tablets was established in a randomized, multi-location, placebo-controlled field study (see Table 1). In this study, 131 dogs with secondary superficial bacterial pyoderma treated with either Rilexine Chewable Tablets (n = 91) at 22 mg/kg (10 mg/lb) body weight or with a negative control (n = 40), twice daily for 28 days, were analyzed. Rilexine Chewable Tablets were considered superior to the placebo (70% success rate vs. 13% respectively) in the treatment of secondary superficial bacterial pyoderma caused by susceptible strains of *Staphylococcus pseudintermedius*.

Table 1: Primary endpoint: Percentage of Cure* (Effectiveness population)

Treatment	RILEXINE Tablets	Placebo	P-value
N	91	40	
Success	64 (70.3%)	5 (12.5%)	0.0009
Failures	27	35	

*Absence of lesions at the end of the study.

ANIMAL SAFETY: RILEXINE Chewable Tablets were administered orally three times a day to 12-week-old healthy Beagles at 0 mg/kg (placebo), 22 mg/kg (1X), 66 mg/kg (3X), and 110 mg/kg (5X) for 12 weeks, and at 22 mg/kg twice a day for 12 weeks. The most common clinical findings included epiphora, salivation, vomiting and diarrhea among all the dose groups. Three dogs had decreased activity (1 in each from the 22 mg/kg twice a day, 22 mg/kg three times a day, and the 66 mg/kg three times a day groups). These observations were mild and sporadic.

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.

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

HOW SUPPLIED: RILEXINE (cephalexin) Chewable Tablets are supplied in 150 mg, 300 mg, and 600 mg tablets packaged in bottles of 100.

NADA 141-326, Approved by FDA.

Distributed by: Virbac Animal Health, Inc. Fort Worth, TX 76137 USA

Revision date: 05/2013

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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NEWS | Veterinary headlines

Banfield Foundation kicks off with first grant of \$200k Donation will support AVMF's "Our Oath in Action" program over the next three years.

The Banfield Foundation, a 501(c)(3) nonprofit organization established by Banfield Pet Hospital, launched with its inaugural grant in October, a \$200,000 commitment to the American Veterinary Medical Foundation's (AVMF) "Our Oath in Action" initiative over the next three years, according to a Banfield Foundation release.

The AVMF is the charitable arm of the American Veterinary Medical Association (AVMA). "Our Oath in Action" is designed to connect members of the veterinary profession with volunteer opportunities in their communities. Its focus is to give veterinarians, technicians, assistants and staff the ability to reach out and connect with the public outside the hospital, the release states.

The Banfield Foundation, while established by Banfield Pet



Hospital, is a separate nonprofit entity. Through grants and service programs, the foundation plans to focus on elevating the human-animal bond, strengthening the pet welfare community, providing disaster relief for pets and advancing the science of veterinary medicine, according to the release.

The foundation will initially focus on growing two programs—pet advocacy and veterinary assistance grants. Both are aimed at helping keep pets with their families and supporting struggling pet owners in covering the cost of preventive and emergency medical care and medications. For more about the foundation, or to get involved visit banfieldfoundation.org. **dvm360**

AVMA summit addresses improving veterinary economic climate

Veterinary salaries are climbing and employment is strong, economists find.

The American Veterinary Medical Association (AVMA) held its annual Economics Summit on Oct. 21 in Chicago. Research conducted by the AVMA and outside economists finds that salaries are climbing, employment is strong and the debt-to-income ratio for veterinary school graduates is holding steady, according to an association release.

Starting salaries for the profession have grown to an average of about \$70,000, while unemployment is about 4 percent. The debt-to-income ratio of graduating students is 2:1, the release states.

While all of this is an indicator

of a positive economic climate, more information is needed in the area of how consumer income and the price of veterinary care affect consumer demand for veterinary services, according to the AVMA. Those present at the summit agreed that the profession has an opportunity and ability to increase the demand for veterinary services, the release states.

From here, the AVMA Economics Division, the AVMA's Veterinary Economics Strategy Committee and its research partners will focus on analyzing consumer demand characteristics in the veterinary market, the AVMA says. **dvm360**

MEDICINE | Behavior

In search of 'dognition'

Two centers lead studies in attempt to discern canine cognition. *By Ed Kane, PhD*

Can dogs think? And if they have some level of cognition, what the heck are they thinking about? Researchers at two centers, the Duke Canine Cognition Center and Emory University's Center for Neuropolicy, are trying to answer those questions. They are finding—to no veterinary professional's surprise—that dogs do indeed have a high degree of social and emotional intelligence.

Not training but reasoning

At the Duke Canine Cognition Center, the mission is to discern the way dogs understand the world, says Evan MacLean, PhD, senior research scientist and co-director. The center, which is

in Duke University's Department of Evolutionary Anthropology, seeks to understand the similarities and differences in dog and human psychology, as well as how dog psychology compares with that of other species.

Each dog as a unique snowflake.

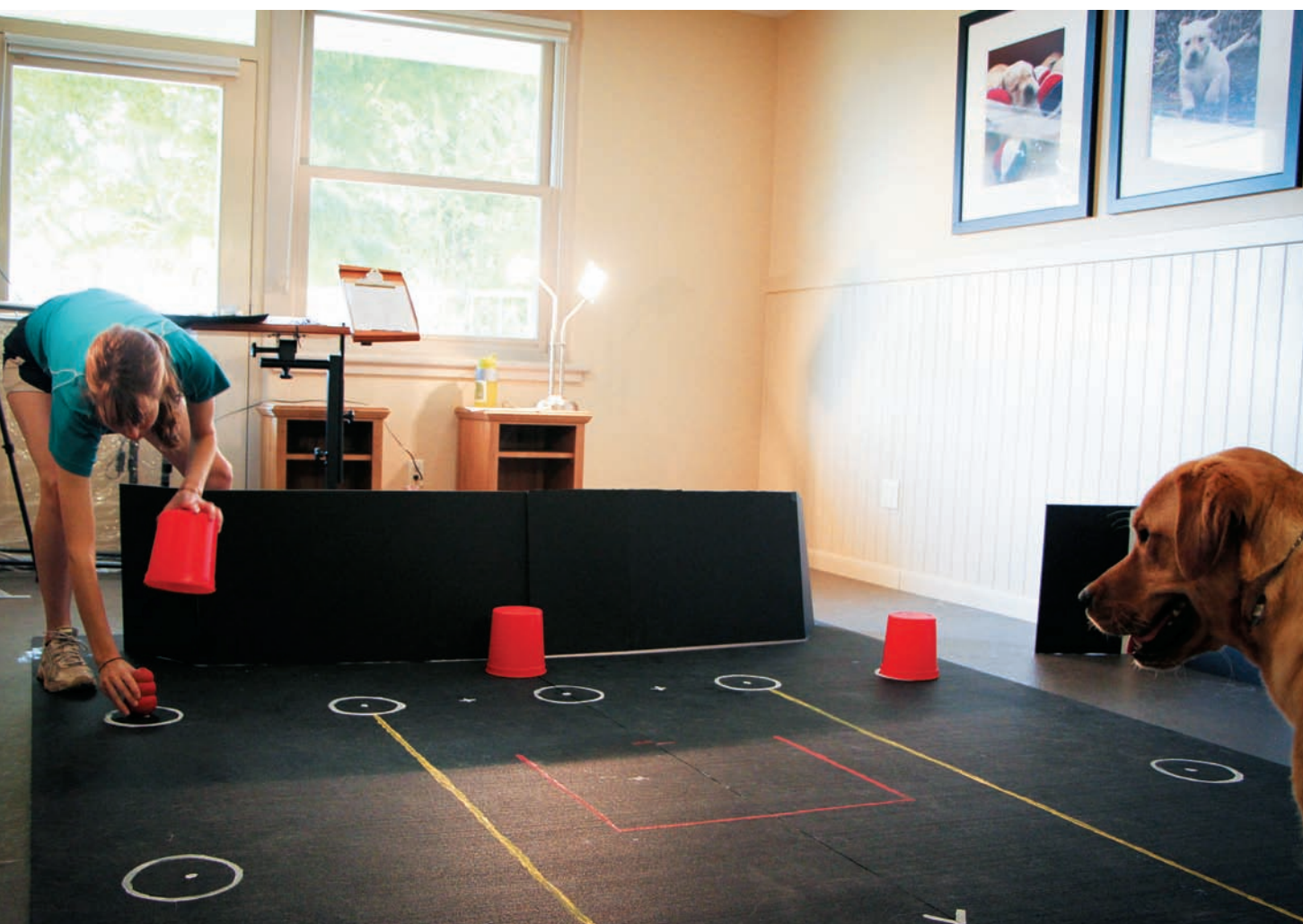
"It turns out that dogs behave quite similarly to human children," says MacLean. "There are many aspects of the dog mind that are similar to the human mind."

MacLean says his team is trying not just to describe dog psychology—how dogs do this or that—but to ask questions about individual differences in dog cognition, behavior and psychology. In other words, what makes the

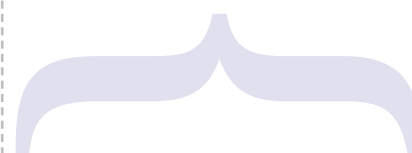
minds of individual dogs different; what are their different cognitive strengths and weaknesses?

Center researchers want to use what they're learning about canine cognition to help predict which dogs will be good at which types of work. The center collaborates with the U.S. Office of Naval Research and with assistance-dog agencies to help them identify the cognitive characteristics of dogs that may be most successful in their programs.

MacLean says the researchers are interested not in what one can train a dog to do, but in how dogs spontaneously solve problems. "We look at dogs with no training and try to understand how they reason and figure things out in unique situations,



>>> **Hide and go seek.** At the Duke Canine Cognition Center, a dog watches as a reward is hidden in a memory task; 20 to 30 seconds later, the dog will have the opportunity to search in one of the three locations. (Photo courtesy of Dr. Evan MacLean)



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New possible Cushing's treatments work at root cause

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>>> **A rewarding gesture.** At the Duke Canine Cognition Center, a reward is hidden in one of the two buckets, but the dog doesn't know which. Will she use the pointing gesture to find the food? (Photo courtesy of Dr. Evan MacLean)

and in what situations dogs are clever and insightful, and in which situations they're not so bright," MacLean says.

Assimilating subtle social cues. As noted in *The Genius of Dogs* (Dutton, 2013), written by MacLean's colleagues Brian Hare, PhD, and Vanessa Woods, PhD, some basic cognitive traits show that dogs can interpret signals and understand the communicative intentions of simple human gestures. "We ask questions, without language, in such a way that we don't have to train the dog to solve the problem," MacLean explains.

For example, in various studies conducted at the center, it's been shown that dogs can figure out the location of a food reward based on social cues alone. In one study, the dogs determine where the food is simply from a person pointing toward the correct location.

"We set up a game where something is hidden underneath one of two buckets," MacLean says. "The dogs know the reward is in one of the two buckets, but they don't know which one. We give the dogs cues to where the food is. In some cases we use a social cue, as we very subtly look in the direction of one of the two hiding places. We try to see if dogs can use that type of social information. By and large they are very sensitive to a whole range of social cues to which other species aren't."

The dogs are precluded from using their noses to locate the food. "The containers are a distance of at least a couple of meters from where they are searching," MacLean explains. "If you let them use their noses, they can eventually work their way to the food. But starting a few meters away, without being able to come close to the containers, they can't very accurately locate it by smell."

Researchers have also determined that dogs are most likely to follow a

human's gaze if the person calls their name before looking in the desired direction. What's more, dogs are able to respond to the gaze of other dogs. For example, a dog will correctly identify one of two locations—the one with the food reward—just by following another dog's gaze.

In another study, food was shown to dogs and then placed within another container and stored out of reach. The dogs were able to correctly identify and communicate where the food treat was contained by barking and looking toward the owner, indicating the dog's recognition of food that had been hidden.

Constant canine observers. Studies show that dogs can observe and then act on human gestures, skills that indicate their domestication and cognitive evolution. Says Hare, "A lot of the initial research on 'dognition' has focused on communicative abilities. We've seen that dogs are geniuses in their ability to read our gestures. Their skills are similar to what we observe in infants. The mental flexibility of dogs has led other researchers and me to suggest that dogs have a basic appreciation of our communicative intentions. They often use our behavior to infer what we want."

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Building a functional map of the canine brain

Gregory Berns, MD, PhD, director of Emory University's Center for Neuropolicy, describes in his book *How Dogs Love Us* (New Harvest, 2013) how he and his colleagues have learned about dogs' social and cognitive hierarchy from magnetic resonance imaging (MRI) scans of their brains. Berns' key question: Is it possible to scan a dog's brain and figure out what it's thinking?

The power of peas versus hotdogs.

In what Berns describes as "The Dog Project," he and his colleagues studied two dogs—a rat terrier and a border collie. They trained the dogs to remain perfectly still while undergoing functional and structural MRI scans. The intent was to gain a sufficient number of MRI images to properly assess the dogs' cognitive activity.

The researchers offered positive rewards such as hot dogs and praise, and

reverse inference in the caudate, they found that activity in this region was almost always associated with the expectation of something good. As long as they stuck to the caudate, Berns suggested, they would be safe in interpreting activity in this part of the dog's brain as a signal of a positive feeling. Even a dog's love, they inferred, was associated with caudate activation.

"I really love hot dogs!" Berns and his colleagues reasoned that since hot dogs were more likeable than peas, caudate activity should be greater for the hand signal for hot dogs than it was for the signal for peas. And, in fact, both dogs showed unmistakable proof of caudate activation for the positive response to hot dogs. From his findings, Berns concluded via fMRI a definitive relationship between a dog's brain response to a positive "like" stimulus and hand signals for the preferred food.

In essence, the Dog Project found that dogs show social learning and that they care about human intentions as evidenced by their brain scans.

they took MRI brain scans to determine dog cognition—or what the dogs were "thinking." The objective of the work was to compare the dogs' responses to two stimuli: one strong and more favorable (hot dogs), the other weaker and less favorable (peas). Images of the dogs' brains allowed Berns to do a crude analysis of brain activity specifically in the cortex and caudate area.

After analyzing the data, Berns knew roughly which parts of the dogs' brains responded to human hand signals they had learned for peas and hot dogs. But this still didn't necessarily tell him what the dogs were thinking. To determine that, Berns had to interpret patterns of activation based on similar patterns in humans. If the comparison proved correct, Berns could begin to build a functional map of the canine brain. Using the concept of homology, Berns could infer canine thought processes from dogs' human equivalents.

Berns and his colleagues decided that the reward system used in dog training belonged to the caudate section of the brain. When they analyzed

The dog's caudate activation, as the MRI data indicated, was the first piece of evidence Berns needed to begin to understand the dog's intentions as demonstrated by activity in its brain. Dogs, like humans, Berns notes, "just want to be understood."

Love does enter through the nose.

Berns also explored the olfactory areas of the canine brain and the role scent plays. The most interesting finding, he notes, appeared when Berns and his team divided dog and human scents into subcategories of familiar and unfamiliar. "One and only one activated the caudate brain region: 'familiar human.' The dog essentially knew who its family was and remembered them," Berns says.

Researchers have found further evidence for this interpretation in the inferior temporal lobe, the part of the brain associated with memory function. The dogs' inferior temporal lobes were strongly activated by the smell of a familiar human, which further suggests to Berns that dogs remember their human family.

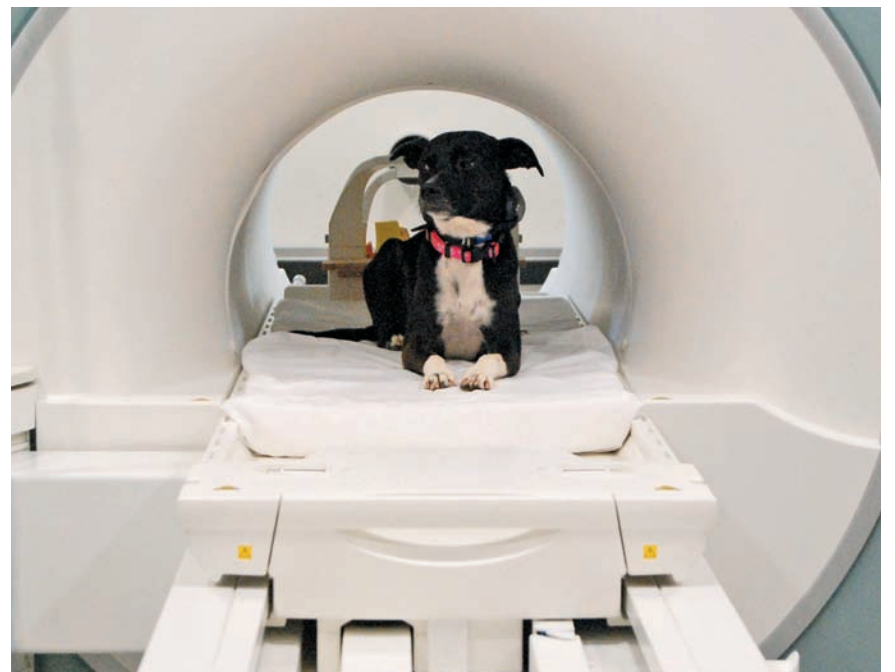
The mental map starts to take shape.

Throughout The Dog Project, Berns and colleagues focused on the dog-human relationship. Even with data from just two dogs, a picture is beginning to emerge. The pattern of activation seen via MRI brain scans suggests that dogs create mental models of human behavior. Those mental models include data of important people in their lives—that is, brain scans indicate that dogs associate positively with people: a scientific indication of dog as man's best friend.

In essence, The Dog Project found that dogs show social learning and that they care about human intentions as evidenced by their brain scans. "Proof of social cognition of dogs shows that dogs are not just Pavlovian learning machines. It means that dogs are sentient beings," Berns concludes.

Since his initial studies on the border collie and rat terrier, Berns has done MRI scans on more than 50 dogs, providing further data to the burgeoning field of dognition. The most important thing Berns says he has learned from these studies is that a dog's brain shows evidence of a theory of mind for humans. Dogs apparently make mental models of what humans intend—and also what we think. [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.



>>>Sitting pretty still. Dr. Gregory Berns' own dog Callie in an MRI unit at Emory University's Center for Neuropolicy. (Photo courtesy of Dr. Gregory Berns)



>>> A veterinarian's best opportunity to educate clients on nutrition is their first three appointments with a new pet. Emphasizing diet and eating management could help prevent obesity in the future.

3 can't-miss updates in feline veterinary nutrition

New research may lead to changes in feline diets, says Tony Buffington—plus, the benefits of food puzzles and early intervention.

As it becomes ever-more apparent that many cat owners aren't getting the message about feline nutrition (58 percent of cats are overweight, according to pet obesity studies), Tony Buffington, DVM, MS, PhD, DACVN, recently spoke with *dvm360* about new developments that can guide cat owners who visit your veterinary practice.

1. Protein and lean muscle mass.

One study challenges popular belief, suggesting that cats need more protein than previously thought to sustain their lean muscle mass rather than just balance nitrogen levels, says Buffington, who recently retired from Ohio State University's Department of Veterinary Clinical Sciences. Buffington says this new knowledge could inspire changes in the way feline diets are formulated.

2. Food puzzles. Feeding management is an area that should be studied

in greater depth, Buffington says. He loves using food puzzles—they provide mental and physical stimulation for cats all day long as the cats work to get the puzzles' rewards.

"I work in a large urban practice, and essentially I'm a zoo veterinarian, because all of our animals are captive indoors," Buffington says. "As we've learned from the zoo vets, feeding enrichment is one of the best forms of environmental enrichment the animals under our care can have."

3. Maximizing kitten visits. Emphasizing nutrition with clients early and educating them to recognize different body types can help prevent pet obesity, Buffington says. "I'm personally dismayed that we don't seem to be making a whole lot of progress on obesity in adult animals," he says. "One option I'd like to see explored more is to teach body condition scoring to

owners of kittens. As any behaviorist will tell you, it's a whole lot easier to shape behaviors than it is to change behaviors."

Capitalizing on a new client's early round of visits is integral to building long-term success, Buffington says. "Those first three appointments that we have—what are sometimes called 'routine vaccination appointments'—in my view are the three most important interactions we'll ever have with that client and that cat," he says. "They shape the relationship we're going to have for the rest of the time we interact with each other. And that's our opportunity to shape it in the best interest for the long-term health and welfare of both the cat and the client." **dvm360**



Dr. Tony Buffington

Osteoarthritis myths debunked

Veterinary surgeon and rehabilitation specialist Denis Marcellin-Little sets the record straight about this common orthopedic condition.

Osteoarthritis, with its long-term, progressive nature, can be a scary diagnosis for clients to hear. But with education and a treatment plan, these pets can live long, happy lives. Denis Marcellin-Little, DVM, DEDV, DACVS, DECVS, DACVSMR, professor of orthopedics at North Carolina State University College of Veterinary Medicine, recently shared three common misconceptions about osteoarthritis and what they really mean.



Dr. Denis Marcellin-Little

Myth 1: It only affects older dogs

People often associate osteoarthritis with aging dogs and think it's a

disease of wear and tear, Marcellin-Little says. In reality osteoarthritis is genetic and developmental, and it usually starts within the first few months of a dog's life—during the rapid growth that occurs in the first four to six months. Although it's present early on, it tends to pass under the radar for years and be diagnosed only when its impact is much more profound later in life, Marcellin-Little says.

Myth 2: Affected dogs have to retire from all activity

It may be tempting to let pets with osteoarthritis take it easy, but activity is actually very important in both dogs and people with the disease. In fact, exercise is one of the most powerful weapons against osteoarthritis, Marcellin-Little says. People

with osteoarthritis who exercise are less depressed and anxious, need fewer medications, and function and feel better as long as the exercise program is in effect. The same is true in canine patients, he says.

Myth 3: It's a long-term death sentence

Osteoarthritis can be managed very effectively over the long term, particularly if it's diagnosed early and if the dog is engaging in regular activity and staying strong, Marcellin-Little says. If the motion and comfort of the joint is monitored and the pet owner has regular communication with the veterinarian supervising the case, osteoarthritis cases are very manageable, and dogs can have good quality of life for a very long time, and potentially for a lifetime. [dvm360](#)





The nail trim 'power struggle'

Dr. Lisa Radosta takes on a persistent myth of an often-tricky task. *By Lisa Radosta, DVM, DACVB*

Q : I'm a technician with a new job. Recently when I asked the practice manager about the Fear-Free approach of giving treats before and during a nail trim, she emphatically said, "Oh no. We don't let the dog win." She said technicians will reward the dog with a treat after a nail trim, but they don't ever give treats during the activity. Does the dog "win" the power struggle if we give him treats during a nail trim instead of after?

A : A nail trim is not a power struggle anymore than giving an infant a vaccine is a power struggle. You are delivering healthcare to an individual who can't understand you and who may perceive what you are doing as frightening and painful. Framing this interaction as a power struggle shows a basic misunderstanding of the stress/fight-or-flight response and learning theory.

When an animal is fearful, the body mounts a stress response, which tells the brain, in short, to shut down all critical thinking activity and

tap into the reptilian part of the brain. That's the region that makes an animal (or a human, for that matter) fight for its life or run as fast as possible away from the scary situation. It takes something powerful to change that animal's mind, to take it from paralyzed to calm. For most animals, that "something" is food.

Now, the stress response is neurochemical and involuntary. In order to beat it, to make it stop and keep the animal calm, you should try to get ahead of it.

Take this example: My husband and I discuss all large purchases. My husband likes to purchase bikes, which I think are outrageously expensive. When he wants a new bike, he makes sure that I am very happy. Then, he springs it on me. By doing this, he has a much better chance of getting a "yes" to his bike purchase.

How does this apply to animals in the clinic? Before you cut the nails, take a lesson from my husband and set the mood. Make the animal nice and relaxed with treats, toys and gentle

handling. Then, when you trim the nails, you're starting with a calm pet and not a fearful pet. You're not swimming against the neurochemical tide of the stress response. Because the fear-producing stimulus continues throughout the procedure, continue the food in an attempt to perpetuate the calm and relaxed state of mind.

Finally, if a veterinary team member must feel that she is "winning" when trimming the nails of the dog, let her feel that way. When you control an animal, keep your staff safe, make your clients happy and reduce worker's compensation claims by using food as it should be used for nail trims, you are winning. Everyone, in fact, is winning. [dvm360](#)

Lisa Radosta, DVM, DACVB, is the owner of Florida Veterinary Behavior Service in West Palm Beach, Florida. She has written a number of textbook chapters on veterinary behavior; she also writes a column for the Palm Beach Post and contributes continuing education podcasts to VetGirl.

New possible Cushing's treatments work at root cause

Prominent endocrinologist says veterinarians may soon be able to do more than treat clinical signs.

Every year an estimated 90,000 to 100,000 new cases of Cushing's disease are diagnosed in geriatric dogs, making it the most common endocrine disease in older canine patients. Many of these cases are treated with



Dr. David Bruyette

drugs such as mitotane or trilostane, which reduce cortisol and help with clinical signs, but neither works at the level of the pituitary.

David S. Bruyette, DVM, DACVIM, medical director VCA West Los Angeles Animal Hospital, says dopaminergic drugs may provide another treatment option that does just that. "Historically we've used medications that attack the adrenal; we don't address the primary problem, which is the pituitary tumor," Bruyette told *dvm360* recently.

Up to 40 percent of these tumors overexpress the D2 dopamine receptor in dogs, he says, and drugs that bind with high affinity to the dopaminergic receptor actually shrink the tumors. They also decrease adrenocorticotropic hormone (ACTH) production, which then lowers cortisol—so these drugs treat clinical signs of Cushing's as well.

"There is a drug commercially available called

cabergoline that was used in a large number of dogs in a study out of Argentina, and the drugs seem quite effective in normalizing clinical signs as well as shrinking the tumors—at least in dogs with relatively small tumors," Bruyette says.

Further studies have examined the receptor abnormalities expressed by the pituitary tumors that cause Cushing's, he continues. Researchers are actively looking at epithelial growth factor receptor (EGFR) antagonists as well as somatostatin receptor antagonists.

Bruyette says use of a human drug called pasireotide, an SST2 receptor antagonist, looks promising for treatment of dogs as well. "A recent study in dogs with fairly small tumors showed that not only did they get reductions in ACTH and reductions in urine cortisol-creatinine ratios but also modest shrinkage in some of these tumors," he says.

Larger studies will examine whether use of drugs such as pasireotide are effective for treating dogs with larger tumors without radiation and surgery.

"Hopefully, some of these newer treatments that have recently come available for humans will become available for use in the dog," Bruyette says. *dvm360*



Hear more

To learn more about new possible treatments for Cushing's disease, scan this QR code to watch video of Dr. David Bruyette or go to dvm360.com/pituitarytx.





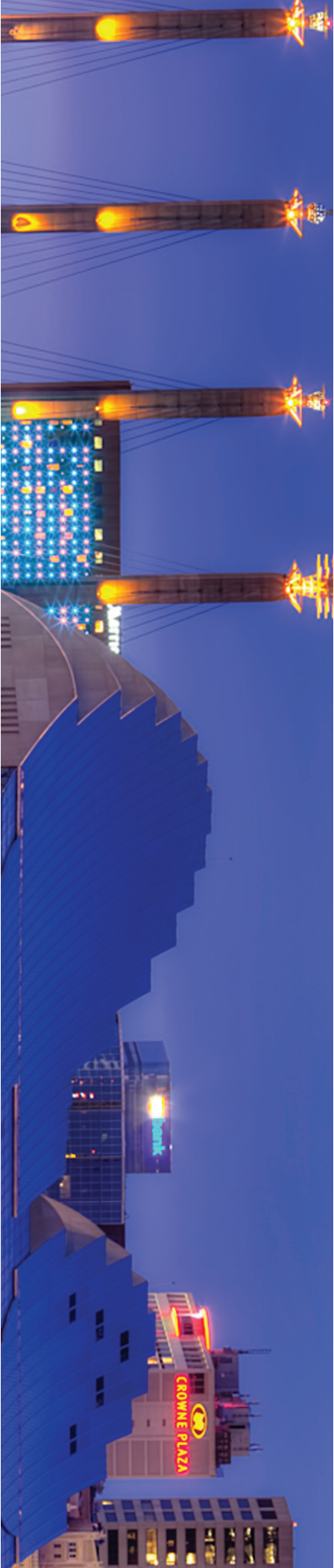
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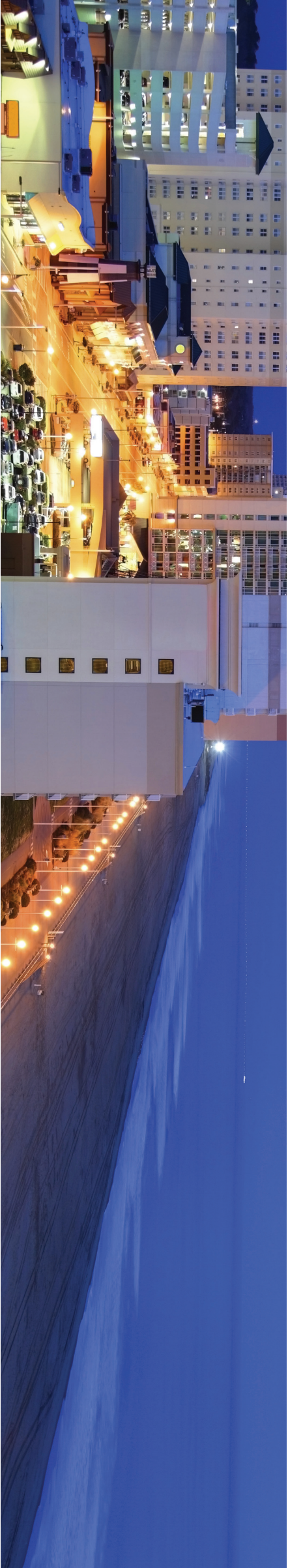
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EQUINE | Surgery

A life of unbridled innovation

Dr. Dean Richardson looks back at a career continuously on the leading edge of equine orthopedic surgery. *By Ed Kane, PhD*

Dean Richardson, DVM, DACVS, has certainly made an impact on equine orthopedics. The award-winning chief of large animal surgery at the University of Pennsylvania's New Bolton Center has worked on some of the world's most famous horses and continues to train and inspire the next generation of veterinary surgeons.

"I am unbelievably lucky to have a

career that I've been happy doing. I really don't have any hesitation saying I jump up to go to work, and I love my job," says Richardson, the Charles W. Raker Professor of Equine Surgery at the University of Pennsylvania's School of Veterinary Medicine. "I've tried to innovate in equine surgery by trying new techniques and exploring new ideas to make the repairs more sophisticated and less traumatic."

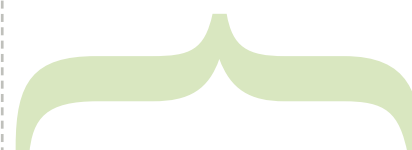
Getting 'hooked on horses'

Growing up in Honolulu, the son of a U.S. Navy captain and physician, Richardson knew nothing about horses. At the age of 16, as a freshman at Dartmouth College, Richardson chose at random a course on horseback riding to fulfill a physical education requirement. Despite his lack of experience, Richardson says he got hooked on



>>> Fighting for recovery. Dr. Dean Richardson cared for 2007 Kentucky Derby winner and Triple Crown hopeful Barbaro at Penn Vet's New Bolton Center after the horse shattered his right hindlimb at the Preakness Stakes. Barbaro was eventually euthanized due to laminitis.

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horses and started taking horsemanship more seriously.

Showing horses, Richardson earned his “A” pony club certificate by his junior year. He started three-day eventing (also known as combined training) and began working at Huntington Farm, a well-known eventing farm in South Strafford, Vermont. Still in operation today, Huntington Farm has changed ownership but is still known for its three-day eventing and dressage school, as well as horse breeding. As time passed, “I continued to get more serious about working with horses,” remembers Richardson.

As a drama major at Dartmouth, he initially had ambitions of going into

on the U.S. Equestrian Team in 1961. However, he chose veterinary school, earning his VMD from the University of Pennsylvania. Eventually he moved to North Carolina where he and Richardson crossed paths.

At the time Richardson applied to veterinary school, there were relatively few of them in the United States and none in North Carolina. He applied to Tuskegee, Georgia and Ohio State, and was accepted to the latter. “I was thrilled, because that’s where I really wanted to go,” he says. While there, Richardson met his wife, Laura, a veterinary classmate. They were married between their third and fourth years of veterinary school.

At Ohio State, Richardson also

specialist and the official veterinarian for the U.S. Equestrian Team. She was one of the first to do a surgical residency at New Bolton after graduating from Penn in 1973. From 1996 until 2006, Leitch was adjunct assistant professor of surgery at New Bolton. From 2005 until 2011 she was staff veterinarian in the section of sports medicine and imaging, teaching students, caring for patients and sharing her vast knowledge.

Richardson also met Charles F. Reid, DVM, DACVR, a specialist in large animal diagnostic radiology, and Charles Raker, DVM, DACVS, a senior equine surgeon. They both became his good friends, colleagues and mentors.

Of Raker, Richardson says, “He had a huge influence on me. He was just a really fine man in every regard. He taught me a lot about professionalism, dealing with clients and situations. Dr. Raker had an incredibly open mind—always willing to try new things.”

Pushed by these mentors, Richardson began his surgical residency at New Bolton. He’s been there ever since, enjoying the company of some of the finest equine practitioners. “I’ve always loved my job here,” Richardson says. “I’ve been very fortunate in that regard.”

In 1981, Raker encouraged Richardson to pursue equine arthroscopy. At the time, Raker was recognized as one of the experts in traditional joint surgeries. In the late 1970s and early 1980s, arthroscopy was not yet accepted as a surgical tool. “I saw arthroscopy as the future,” states Richardson. “I begged Dr. Raker to let New Bolton Center get started with it.”

Raker not only did that, but from his own research funds purchased the arthroscopy equipment. He encouraged Richardson to develop arthroscopy as a useful surgical technique. “He told me to take cadaver legs and work on them until I could figure out how to use it,” Richardson recalls. “That’s basically how I learned arthroscopy. I didn’t train with anyone, but continued to work on the technique using those legs.”

In time, arthroscopy became a standard equine surgical technique. “We had a good early start at New Bolton Center because Dr. Raker was willing to accept that the way he had done things in the past was not the future.

“Dr. Charles Raker was willing to accept that the way he had done things in the past was not the future. In my experience, a lot of people aren’t that open-minded. They don’t want to see something come along and take the place of their former expertise.”

—Dean Richardson, DVM, DACVS

theater. However, the more he worked at it, the more he realized drama was not his calling (“a serious lack of talent,” as he recalls). Instead, he took science courses to pursue a career in equine veterinary medicine.

After completing his bachelor’s degree at Dartmouth, Richardson took a year off and went to North Carolina to work for Fred B. McCashin, VMD, now the owner of Carolina Equine Clinic in Southern Pines, North Carolina. McCashin had qualified to ride

met Larry Bramlage, DVM, DACVS. Although a resident at the time, Bramlage was nonetheless “one of the truly brilliant minds in equine orthopedic surgery,” says Richardson. “I continue to be an admirer of his over these many, many years.”

Career at New Bolton Center

Richardson went to PennVet’s New Bolton Center in Kennett Square, Pennsylvania, as an intern in 1979. “It was my first choice, as I was aware of several great equine practitioners there as well as the strong local horse industry,” he says.

At New Bolton, Richardson met several practitioners who were important to his development. High on that list was Midge Leitch, DVM, DACVS, a longtime New Bolton veterinarian. Leitch and Richardson immediately became close friends. Leitch was also a strong mentor. Although the two “argued over pretty much anything,” it was a part of their tight bond.

Leitch was a groundbreaking equine



Shhh ... don't tell Mom!

Dr. C. Wayne McIlwraith on 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.” Read more about how fellow equine orthopedic pioneer McIlwraith got his start and his monumental contributions to the field at dvm360.com/McIlwraith.





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>>> **Truly cutting-edge.** Dr. Dean Richardson has pioneered many new techniques in equine orthopedic surgery.

In my experience, a lot of people aren't that open-minded. They don't want to see something come along and take the place of their former expertise. An excellent mentor, Dr. Raker was very, very remarkable in that regard."

"If you do what we do—the really difficult orthopedic cases—you have to be willing to take the hard stuff. It's a bitter thing to fail, but as long as you're learning from it, it's worth the pain."

—Dean Richardson, DVM, DACVS

Richardson also credits David Nunamaker, VMD, DACVS, for his success. "Nunamaker was someone to admire," he says. "He wasn't exactly a horseman, but he was without ques-

tion a terrific orthopedic surgeon because he had trained so extensively in canine surgery."

Nunamaker also took an open-minded approach to his work. "He had the attitude that just because

something had not been done before did not mean it could not be done. He is a good example of someone I've tried to emulate. If you do what we do—the really difficult orthopedic

cases—you have to be willing to take the hard stuff. It's a bitter thing to fail, but as long as you're learning from it, it's worth the pain. And if you do what we do, you're going to fail often enough," Richardson says.

Outstanding cases

Over the years, Richardson has worked on some of the equine world's foremost horses. "I'm certainly proud of working on Animal Kingdom, who came back to win the \$10 million Dubai World Cup," says Richardson, who repaired the fracture of the thoroughbred's hock.

Richardson also repaired a fracture on McDynamo, a legendary steeple-chaser. "It was great to see him fox-hunting after his retirement," he says.

A well-known Arabian stallion who came to New Bolton from the Midwest was a particularly difficult case for Richardson. The horse presented

with severe lameness, unable to breed or get around easily. “Fortunately, the outcome was great,” states Richardson, who did a carpal arthrodesis on the horse in 2010, fusing the knee. “We used some of the methods I’ve been very interested in developing over the years, using less-invasive techniques with much smaller incisions and less exposure,” Richardson explains. “Years later, the horse is still doing well. He’s now in his 20s, adored by his owners and still breeding.”

But it was Barbaro, the 2007 Kentucky Derby winner, that was Richardson’s most famous patient. Richardson did an exemplary job of surgical repair after the horse shattered his leg in the Preakness Stakes. He and his team spent many long days with the horse during the eight months the champion racehorse was hospitalized, before laminitis led to his unfortunate demise.

Over the years, Richardson has won many prestigious awards for his work, including the Pfizer Award for Excellence in Research (1997), the Special Eclipse Award from the National Thoroughbred Racing Association (2007), and a Special Commendation from the American College of Veterinary Surgeons (2007). His honors also have included numerous teaching awards, and of those, he says, he is most proud. “I take that part of my job very, very seriously. I believe my role is both to try new ideas and to help other people try to innovate as well,” he says.

Today, Richardson and his wife own six horses. He shows two jumpers (“poorly,” he adds), and his wife rides to hounds.

Richardson still loves horses and spends each day doing the healing work he began all of those years ago when he first came to PennVet’s New Bolton Center. “The advice I give young surgeons is that you should only do this job if working on horses will be the thing that will make you happy,” he says. “Otherwise, you might as well do something else—maybe go into theater.” **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.

“The advice I give young surgeons is that you should only do this job if working on horses will be the thing that will make you happy. Otherwise, you might as well do something else—maybe go into theater.”

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Purdue breaks ground on \$8.8 million equine veterinary facility

Centaur Gaming pledges \$3.1 million to name diagnostic and surgical center to be built near racing casino in Shelbyville, Indiana.

Purdue University's College of Veterinary Medicine celebrated the official ground breaking of the \$8.8 million Centaur Equine Diagnostic and Surgical Center Oct. 20 near the Indiana Grand Racing Casino

in Shelbyville, Indiana. The college says the state-of-the-art facility will serve as a working laboratory to support the College of Veterinary Medicine's student learning and research as well as provide specialty medical and surgical

18,000
sq. ft. of advanced equine care

services for horse owners.

"This is an exciting day that marks a major milestone in our dream of creating a state-of-the-art equine referral hospital on location in the heart of Indiana's horseracing industry, enabling our college to bring advanced medical and surgical services directly to the equine athletes and their owners," says Willie Reed, DVM, PhD, dean of the College of Veterinary Medicine and professor of veterinary anatomic pathology. "This center will house the most technologically advanced medical equipment to diagnose and treat equine patients while also facilitating groundbreaking research and vital educational opportunities for students."

The center, to be completed by the end of 2016, will be part of the Purdue Equine Sports Medicine program based on the West Lafayette campus and will offer advanced diagnostic imaging, shockwave therapy, regenerative medicine, endoscopy laser surgery and specialized equine orthopedic surgery and specialized equine surgery. The one-story, 18,000-square-foot center will be built on land purchased by Purdue Research Foundation with \$2.3 million in support from Shelby County and city of Shelbyville. Centaur Gaming, which owns and operates Indiana Grand Racing & Casino, has pledged \$3.1 million to name the facility, which will be located just a few miles from the Indiana Grand Racing & Casino's track in Shelbyville. It will also be within an hour's drive from Hoosier Park Racing and Casino in Anderson, Indiana. [dvm360](#)



Antibiotic-resistant gene discovered in soil bacterium that commonly infects foals

A research team based in the University of Georgia College of Veterinary Medicine has discovered a novel gene—erm(46)—that confers antibiotic resistance in *Rhodococcus equi*, a soil-dwelling bacterium that commonly infects foals and causes opportunistic infections in immunocompromised people, according to a release from the university.

The finding was made in collaboration with researchers at the University of Edinburgh, Texas A&M University and the University of Washington.

R. equi, a gram-positive intracellular pathogen, is one of the most important causes of disease in foals between 3 weeks and 5 months of age, says team lead Dr. Steeve Giguère, DVM, PhD, DACVIM, chair of equine studies at UGA.

The researchers sequenced the genomes of antibiotic-resistant and antibiotic-susceptible *R. equi* isolates collected from foals in four states. They searched each isolates' genome for genes with similar sequences to known genes that cause bacterial resistance to the macrolide class of antibiotics in other bacterial species. Through their search, they discovered the new gene, named erm(46) by the Nomenclature Center for MLS Genes at the University of Washington.

When the team cloned erm(46) into susceptible *R. equi* isolates normally inhibited by antibiotics, they found that erm(46) induced a high level of resistance to macrolide, lincosamide and streptogramin B antibiotics. They also found that the gene can be transferred from resistant to susceptible isolates of *R. equi* during bacterial mating.

"This process likely contributes to the spread of resistance," Giguère says.

Their finding, recently published in the *Journal of Antimicrobial Chemotherapy*, is the first molecular characterization of resistance to these three classes of antibiotics in *R. equi*.

"Before, we knew we had resistant isolates, but we did not know how resistance occurred, and we had no molecular markers to identify and track the resistant bacteria," Giguère says.

So far, Giguère and his team have identified antibiotic-resistant *R. equi* isolates carrying erm(46) in New

York, Florida, Texas and Kentucky—where, on one farm producing 100 to 170 foals a year, as many of 40 percent of infected foals were found to carry resistant isolates.

The bacterium is present in soil year-round, but because it typically causes disease only in foals up to 5 or 6 months of age, illnesses typically manifest in spring and summer. [dvm360](#)

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*Currently, there are no vaccines available with USDA-licensed label claims against equine abortions, uveitis or acute renal failure due to *L. pomona*.

¹ Data on file, Study Report No. B850R-US-12-011, Zoetis Inc.

² Data on file, Study Report No. B951R-US-13-043, Zoetis Inc.

³ Data on file, Study Report No. B951R-US-13-046, Zoetis Inc.

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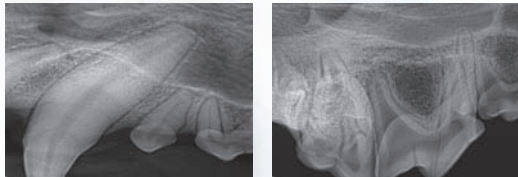


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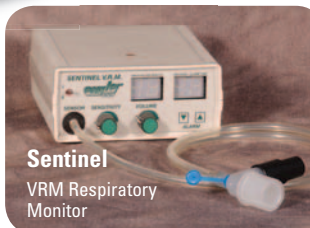
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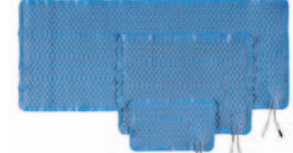
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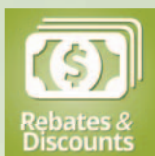


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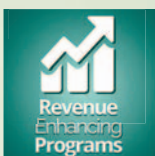
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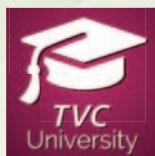
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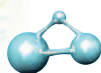
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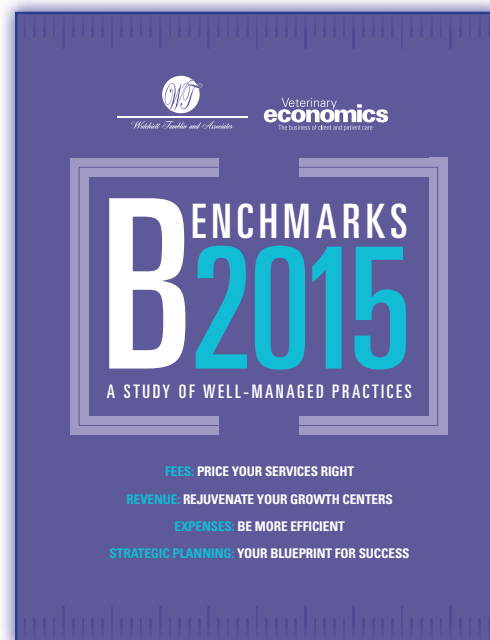
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December 11-12
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A strange Santa and his *atypical* reindeer

An unusual encounter leaves Dr. Brock running for his life, covered in smelly spit.

The man standing in front of me looked like a short, cyanotic Santa Claus. He was wearing a white shirt with strange stitching running vertically next to the buttonholes and a cap that said, “Llamas rock.”

His breathing was so labored that he would pause after each sentence to catch his breath. I was worried that any degree of exercise would kick him past his reserve of oxygen and into a hypoxic collapse. I stood there patiently listening to him tell me that all three of his llamas needed to have blood drawn and sent to the lab for testing. I had driven 45 minutes to get to this place, and what I saw before me was simply amazing.

The weeds in the pasture and along the perimeter of the pasture had grown to no less than nine feet tall. His description of the geography indicated that somewhere in the forest of giant weeds was a shed housing three grown llamas that were completely gentle and loving. The owner told me that his health problems prohibited him from going into the weed forest with me but that I would find things just as he had described and that the docile llamas would be easy to catch and get blood from. He handed me two halter-type things and wished me well.

My technician asked if she should go with me. I studied the area and noticed a small place devoid of weeds in one corner of the pasture. I told her to stay there, and I would see if I could herd the llamas to that area. Then she could hold them while I drew the blood. So she headed to the southwest corner of the five- or six-acre habitat.

As I hacked my way into the weed jungle, eventually I happened on a trail the llamas had worn in the brush.

It eventually led to a clearing with a three-sided tin shed and a water trough. I stood surveying the clearing while still in the cover of the weeds, looking for signs of life. My gaze finally came to a creature lying prone on its side, across the clearing from my vantage point.

I could see the critter rolling and contracting and could now detect moans and grunts coming from the vicinity. I left the weed forest and headed over to see what was happening. As I got closer I could see that this was indeed a llama. And I knew it was a female llama, because she was in the act of giving birth. Let me take a moment to inform you that I know nothing about llamas. I never saw one in veterinary school and they are not native to West Texas. All I knew was that Santa Claus needed blood tests run and I was supposed to collect this blood.

It is my nature to help a critter in need, and this gal was in need. The baby that was trying to come out of her was twisted up and coming butt first. I’ve delivered thousands of animals and I figured a llama was no different than any other critter when it comes to dystocia. So I picked up my pace as I headed toward her to render aid.

I was about halfway across the clearing when I heard a rustling sound mixed with a guttural hiss coming from my right. The ground shook mildly from the intensity but I couldn’t see what the source was. The giant weeds were swaying and rumbling as something within them rocketed toward the clearing.

I paused to think about what it might be. Suddenly another llama burst into the clearing, ears back and lips pursed. It was running straight at me at a pace

that about broke the sound barrier. I was unprepared for such an encounter. I felt my fight-or-flight instinct kick in as I prepared for impact.

The thing hit me with its chest on my right side and sent me reeling into the weeds. Feet were flying—both mine and the llama’s—and noises I’d never heard were filling my ears. I rolled to the left and it passed over me briefly. I regained my feet and prepared for another blow as I surveyed the weed wall to see where the attacker had gone. I could hear movement all around me but couldn’t see a thing. Suddenly another, even larger llama came sprinting across the clearing.

It was obvious that I was outnumbered, so I decided to retreat. Going back on the path seemed like a bad idea because they knew the terrain better than me, so I plowed through the forest as fast as I could go. When I finally hit the fence, they were close behind me. I climbed over and fell to the ground, panting like a dog and glad to be safe.

My technician came running over just as the two male llamas hit the fence and started spitting vile fluid all over me as I lay there. Holy mackerel, what kind of a mess had I encountered? I got to my feet once again and told Santa that his female was having a baby and needed help.

We managed to get the two males penned up in a corner with some panels, and after being soaked with stinky llama spit, I got the baby out. The mama llama was sweet as she could be. I felt like she appreciated the help on the delivery, but those two males ... I still occasionally have nightmares about being chased through the weed forest and doused with spit. [dvm360](#)

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

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back to
the joy
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