dvm360 Find it all here.™

The devil's in the (contract) details

Dr. Codger wants Dr. Greenskin to sign below a few scribbles. What will she do?

page 34

April 2016 | Volume 47 | Number 4 | dvm360.com

dvm360 sits down with Dr. Pol

Nat Geo star champions common-sense approach, affordable pet care. *By Kristi Reimer*

At the Western Veterinary Conference recently in Las Vegas, the editors of dvm360 had an opportunity to chat with Dr. Jan Pol, the title character in Nat Geo Wild's reality show *The Incredible Dr. Pol*. Here are some highlights from the conversation.

dvm360: How would you describe your veterinary practice philosophy?

Pol: I have my own philosophy, yes. What I like to see is kids growing up with animals. First of all if they have a cat or a dog and mom or dad is scolding them, they can go over there and cry in their fur. Also, when they're very young and crawling around on the ground with the animal, they're less apt to have allergies later in life. Third of all if they do something to hurt the animal—pull on the tail or whatever—that animal will tell them, "Don't do this. It hurts." And they quit doing it because if they hurt an animal it walks away. I find that kids who grow up with animals make better adults. This is why I want to keep pet ownership affordable. Common-sense affordable pet care is what I believe in.

Recently a 4-year-old Australian shepherd came

See page 28>

>>> A photo from the book *Vet Set Go!* shows a tween boy getting a glimpse of a career in veterinary medicine.

Catching *pet lovers* early

New program shows tweens a path to become responsible pet owners. *By Sarah A. Moser*

Think back to career day in school. Did you raise your hand and say you wanted to be a veterinarian? Studies show that 65 percent of all veterinarians made their career choice by age 13, and 18 percent of today's tweens show an interest in veterinary medicine. A new book with a website by Chris Carpenter, DVM, called *Vet Set Go!* aims to harness that early interest into a generation of responsible pet owners, and possibly future veterinarians.

"The quandary is that tweens often decide on a career in veterinary medicine early, and they are told to study science and get veterinary experience," says Carpenter (who in another life is executive director of the Companion Animal Parasite Council). "But to shadow a veterinarian, you need to be 18 or older, and age 16 at most

See page 26>

83-year-old retired pediatrician goes to technician school

page 6

Everything's bigger—and more efficient—in Texas

page 18

Celebrity stalking ... or friendly offer? Ethicist weighs in

page 44

The finer points of laparoscopic liver biopsies

page M1

UBM

Dogs take enough risks on their own.

NEW Combinations Available!

Count on* RECOMBITEK® *4 Lepto Combos for comprehensive leptospirosis protection in its purest form.[1]

Protect your patients from the rising threat of leptospirosis with the nonadjuvanted vaccine that offers four-way protection against disease and shedding.* ***Now available in DAP and DAPP combinations!***

The only vaccine that prevents leptospirosis caused by *Leptospira canicola*, *L. grippotyphosa*, *L. icterohaemorrhagiae*, and aids in the prevention of *L. pomona*.

Prevents your patients from shedding bacteria into the environment after exposure*

The only bacterin to provide a 15-month duration of immunity**

[1] Nobivac: A portfolio of advanced vaccines for the well-being of canine family members [brochure]. Summit, NJ: Merck Animal Health; 2013. MAH-VC-851.

* Indicated for the prevention of leptospirosis and leptospiruria caused by *L. canicola*, *L. grippotyphosa* and *L. icterohaemorrhagiae* and as an aid in the prevention of leptospirosis and leptospiruria caused by *L. pomona*.

** *L. grippotyphosa*

MERIAL
A SANOFI COMPANY

Advance program

MERIAL PET VACCINES CUSTOMER SATISFACTION GUARANTEE

RECOMBITEK® 4lepto COMBOS

VaccinateYourPet.net

dvm360 Find it all here.

Volume 47, Issue 4

Dual Validation.

For your peace of mind.

When you're evaluating a diet, science matters. It matters to us, too. That's why our **NEW UR Urinary® Ox/St™ Canine Formula** is backed by a comprehensive dual-validation process, measuring both the concentration and activity of the minerals that produce sterile struvite and calcium oxalate crystals. It's the nutrition your clients need, backed by science and expertise you can trust. **Learn more about our complete line at PurinaProPlanVets.com**

PURINA®
PRO PLAN®
VETERINARY
DIETS

dvm360 Find it all here.

Mission

Through its extensive network of news sources, **dvm360** provides unbiased multimedia reporting on all issues affecting the veterinary profession.

Neal Award Winner 2006 2008-2012

Neal Award Finalist 2006-2012

Content

Editor/News Channel Director | **Kristi Reimer**
kristi.reimer@ubm.com

Content Manager | **Adrienne Wagner**
Senior Content Specialist | **Jennifer Gaumnitz**
Associate Content Specialist | **Katie James**
Clinical Content Manager | **Heather Lewellen**, DVM
Clinical Techniques Course Manager | **Jennifer Vossman**, RVT
Digital Content Director | **Jessica Zemler**
Digital Design Director | **Ryan Kramer**
Digital Design Manager | **Alison Fulton**
Multimedia Producer | **Troy Van Horn**

Contributing Authors | Advisory Board

Christopher J. Allen, DVM, JD | **Kenneth L. Marcella**, DVM
Brett Beckman, DVM, DAVDC, DAAPM | **Michael A. Obenski**, VMD
Jan Bellows, DVM, DAVDC | **Carl A. Osborne**, DVM, PhD, DACVIM
Anthony Carr, DVM, DACVIM | **Karen L. Overall**, VMD, PhD, DACVB
Karyn Gavzer, MBA | **Michael Paul**, DVM
Marsha L. Heinke, DVM, CPA | **Michael H. Riegger**, DVM, DABVP
Alice M. Jeromin, DVM, DACVD | **Gerald M. Snyder**, VMD
David M. Lane, DVM, MS | **James F. Wilson**, DVM, JD

Sales

Sales Director | **David Doherty**
(913) 871-3870 | david.doherty@ubm.com

Account Manager | **Angie Homann**
(913) 871-3917 | ahomann@ubm.com

Account Manager | **Angela Paulovcin**
(440) 891-2629 | angela.paulovcin@ubm.com

Account Manager | **Terry Reilly**
(913) 871-3871 | terry.reilly@ubm.com

Account Manager | **Heather Townsend**
(913) 871-3874 | heather.townsend@ubm.com

Digital Data Analyst | **Jenny Shaffstall**
913-871-3854 | jenny.shaffstall@ubm.com

Sales/Projects Coordinator | **Anne Belcher**
(913) 871-3876 | anne.belcher@ubm.com

Books/Resource Guide Sales | **Maureen Cannon**
(440) 891-2742 | maureen.cannon@ubm.com

Marketing

Marketing Director | **Brenda Andresen**
brenda.andresen@ubm.com

Marketing Designer | **Andrew Brown**

Marketing Copywriter | **Lori Kleiböhmer**

UBM Americas, Veterinary

Vice President & Managing Director | **Becky Turner Chapman**
913-871-3810 | becky.turnerchapman@ubm.com

Vice President, Digital Product Management | **Mark Eisler**

Group Content Director | **Marnette Falley**

Medical Director | **Theresa Entriken**, DVM

CVC Director | **Peggy Shandy Lane**

Business Manager | **Chris Holston**

UBM Americas, Life Sciences Group

Executive Vice President &
Senior Managing Director | **Tom Ehardt**

Subscriber Services: Visit dvm360.com to request or change a subscription, or call our Customer Service Department toll-free at (888) 527-7008. **Reprints:** Call 877-652-5295 ext. 121, or write to bkolb@wrightsmedia.com. Outside the U.S. and U.K., direct-dial (281) 419-5727 ext. 121. **Books and Resource Guides:** Visit industrymatter.com. **List Rental Sales:** Call Anne Belcher at (913) 871-3876, or write anne.belcher@ubm.com. **Editorial Offices:** UBM Americas, Veterinary, 8033 Flint, Lenexa, KS 66214; 913-871-3800. **Websites:** dvm360.com; TheCVC.com; UBMAmericas.com.

UBM

Election 2016: Where our presidential hopefuls stand on veterinary issues

Here's a look at how Hillary, Bernie, Ted and The Donald might vote on animal-welfare and veterinary-practice issues. *By Kathryn Primm, DVM*

Unless you live under a rock, you're seeing presidential campaign ads and hearing lots of campaign news these days. In case that rock is called "practicing veterinary medicine," here's the rundown: Hillary Clinton is the frontrunner for the Democratic nomination. Bernie Sanders is also in the running. Private-sector multimillionaire Donald Trump has been the Republican frontrunner since the first primaries. Ted Cruz is also still a possibility for the Republican presidential nomination (at least as of press time).

So from a strictly veterinary standpoint, do we have a "dog in this race"? Maybe so. I reached out to the major candidates for their stance on three important issues. I got no response, so we're left to consider the views along party lines and based on voting history and interviews.

Would they fight animal cruelty? The PACT (Prevent Animal Cruelty and Torture) Act would amend federal crime codes to prohibit engaging in conduct in which an animal is intentionally and seriously injured. Where would the candidates fall on this?

> Given their voting record on animal-welfare issues, Clinton and Sanders would likely support the bill.

> Trump, in an exclusive interview with animal-rights blogger Andrew Kirschner, said he'd be "the best president for animals God ever created."

> Cruz has no public stance on animal cruelty and was supposedly involved in a social media scandal involving posing with a tiger pelt.

Would they tackle veterinary student debt? Two bills are bouncing around Congress right now that try to tackle the issue of high college student loan debt, especially tough for veterinary school graduates with sharp debt-to-income ratios. The Veterinary Medicine Loan Repayment Program Enhancement Act would provide loan repayment and tax deductions for veterinarians who agree to practice in specific areas of need throughout the country. The Student Loan Refinancing Act and Student Loan Interest Deduction Act would remove restrictions on refinancing federal student loans and expand tax deductions on student loan interest.

> Given Clinton's proposal of the New College Compact to reduce student loan interest rates, she would likely be in favor.

> Sanders has publicly promoted the idea of making public colleges and universities free and cutting student loan interest rates, so he too would likely be in favor.

> Trump has publicly criticized the fact that the federal government makes money on student loans.

> Cruz voted last year to block a bill that would have allowed student loan refinancing at lower interest rates.

Would they support mandatory prescriptions? The Fairness to Pet Owners Act would require veterinarians to provide a written prescription to all clients to fill anywhere, whether those clients want one or not. Because of the bill's bipartisan support, any of the candidates as president-elect might champion this legislation despite its potentially adverse effect on us veterinarians.

Of course, the choice for president is much broader than each candidate's likelihood to vote the way veterinarians would hope. And we're a pretty diverse group ourselves. My take? Staying aware of issues affecting animals, veterinary medicine and veterinary business—and making sure all your elected representatives know how you feel—is likely a more direct way to make your voice heard than a single vote for president in November. **dvm360**

Kathryn Primm, DVM, owns Applebrook Animal Hospital in Ooltewah, Tennessee, and is the author of Tennessee Tails: Pets and Their People.

83-year-old retired pediatrician goes back to school to become technician

Leonard Marino, MD, will soon gain another set of credentials. *By Katie James*

When Leonard Marino, MD, 83, graduates this May from Suffolk County Community College's veterinary technician program he'll have licensed veterinary technician credentials in addition to the medical degree he earned decades ago.

Marino started his career as a pediatrician in 1964, practicing in Plainview, New York, until 1995. After he retired from practice he found his way to Long Island Veterinary Specialists (LIVS) also in Plainview, where his son Dominic Marino, DVM, DACVS, DACCT, CCRP, is chief of staff. The elder Dr. Marino began as editor of the specialty and referral practice's newsletter "LIVS in PlainView," which serves to educate the veterinary community.

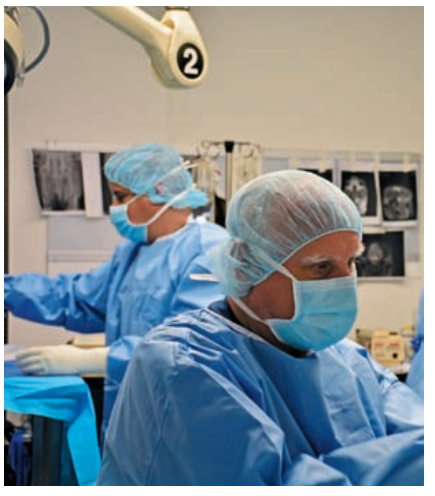
>>> Leonard Marino, MD, practiced pediatric medicine until 1995. Now he works in his son's veterinary hospital.

"The pig was not supposed to be on the bed, and when his owner came home, he jumped off and injured himself. It was the most unusual case I've worked on."
—Leonard Marino, MD

While he does have a background in human medicine, a desire to better understand the veterinary practice newsletter's technical content led Marino to think about attending a technician training program. "I thought I'd be more qualified to edit the subject matter," he says. An additional motivation? The opportunity to work in the operating room with his son. "My son said he'd support me and do all that he could to help me earn acceptance [to the program], even though I was older.

"Initially, I was in the online training, but switched to the in-person classes," Marino says. "I missed that 'hands-on' element that I was used to with pediatrics. We've worked in all kinds of settings, from the farm to laboratory, and I enjoy it." And though the students and instructors are much younger and "more vibrant" than Marino, he still enjoys contributing to and participating in the hands-on course.

>>> Drs. Dominic and Leonard Marino.



>>> Drs. Marino in the operating room.

Marino's favorite thing about working as a technician is being in the operating room with his son. "I've helped with more than 500 hip replacement surgeries," he says. "I look forward to coming in and being able to actually help my son do what needs to be done to repair the hip. I set up drapes and equipment, use the suction and cautery, hand him clamps and so on during surgery and postoperatively."

He fondly recounts the story of a pot-bellied pig that needed a hip replacement. "The pig was not supposed to be on the bed, and when his owner came home, he jumped off and injured himself. It was the most unusual case I've worked on, so it sticks out as one of the more interesting," Marino says.

And he has no plans for slowing down, hoping to continue assisting with surgeries and editing the practice newsletter for as long as he's able. After all, Marino notes, his father lived to be 100. "So I've still got some time," he says. **dvm360**

PHOTOS COURTESY OF LONG ISLAND VETERINARY SPECIALISTS

HIP HIP COMBIVA

Celebrate Combiva® II – the new lower priced alternative to Advantage® II.*

To find out more information or to order Combiva® II today,
please contact your favorite Distributor or Ceva Sales Representative.

Healthy Holistic

BLUE

NATURAL Veterinary Diet™

The efficacy you demand. The ingredients your clients want.

The Natural Alternative in Nutritional Therapy™

With BLUE Natural Veterinary Diet you can offer your patients formulas with proven efficacy to manage specific therapeutic dietary needs, and which contain the natural ingredients your clients are seeking.

Formulated by veterinarians and animal nutritionists, BLUE Natural Veterinary Diet formulas feature:

- ✓ High-quality proteins from real chicken or salmon
- ✓ Wholesome fruits and vegetables
- ✓ NO chicken (or poultry) by-product meals
- ✓ NO corn, wheat or soy
- ✓ NO artificial preservatives, colors or flavors
- ✓ Fortified with vitamins and minerals

www.TrueBLUEVets.com

Two conditions, one natural solution

<u>Clinically proven</u> to reduce body fat by 39.6% in dogs and 36.8% in cats in two months.*

<u>Clinically proven</u> in dogs and cats to produce a:*

- Urine pH of 6.0-6.4
- Struvite RSS of <1
- Calcium oxalate RSS of <5

WU
Weight Management + Urinary Care

For dogs and cats with gastrointestinal disease

29% quicker resolution of diarrhea in both dogs and cats*

Clinically shown to improve stool quality in dogs*

Clinically proven to improve stool quality in cats*

GI
Gastrointestinal Support

For dogs and cats who experience adverse food reactions

The **first ingredient is salmon hydrolysate,** a high-quality novel protein with a **mean molecular weight of 2,000 daltons**.

HF
Hydrolyzed for Food Intolerance

* Blue Buffalo Co., Ltd., data on file, 2015

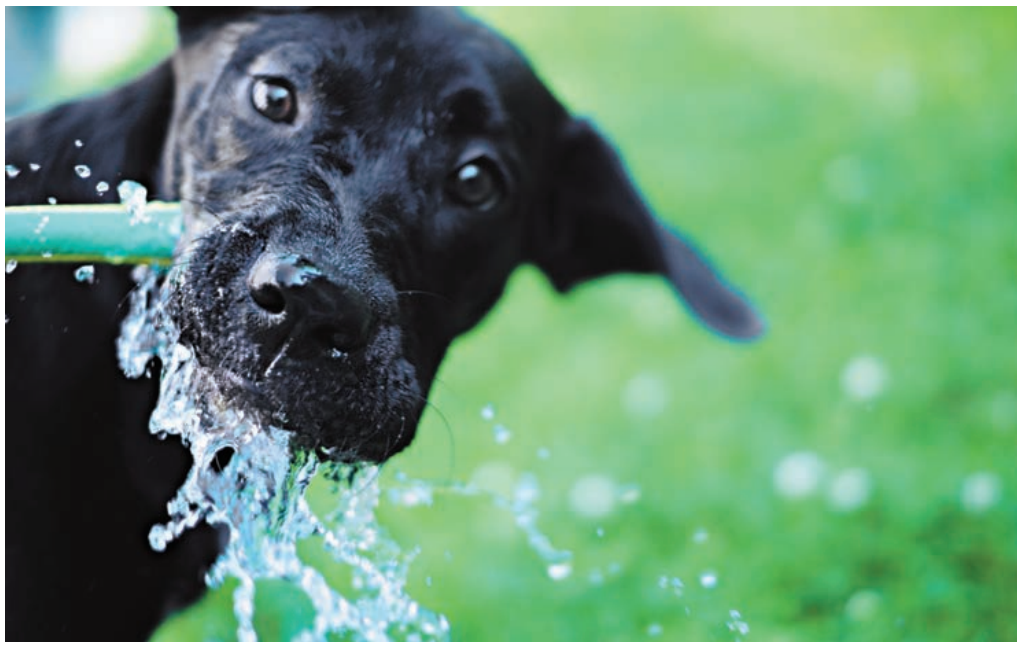
Call **888-323-BLUE** (2583) to speak with a Veterinary Specialist.

Flint water crisis raises questions about pets

Michigan state veterinarian provides information, resources to pet owners concerned about the effects of lead-tainted water. *By Julie Scheidegger*

Thousands of children were exposed to lead after the city of Flint, Michigan, began using treated water from the Flint River in April 2014. The river water was corrosive, and lead leached from the city's pipes into the drinking water. It is estimated that in parts of Flint—where nearly half of residents live in poverty—the percentage of children with high levels of lead in their blood doubled.

Furthermore, residents are asking what that means for their pets and other domestic animals.



Few confirmed cases

To date, Michigan State Veterinarian James Averill, DVM, and his staff have confirmed only two cases of lead toxicity. The first was a family pet whose veterinarian tested for lead in October 2015 after the animal's owners became concerned. A veterinarian who randomly tested a number of stray animals reported the second case in January. Only one dog out of the group tested positive.

Averill says there is no good answer for why they haven't seen more cases. He does offer a couple of theories. One reason may be the impact of tainted water in low-income areas. "Veterinary care is the last thing they're worried about," he told dvm360. Averill says there could be more pet issues than he and his staff members realize, but it's not being reported.

Lin Holmes, adoption manager at the Humane Society of Genesee County, agrees. She says many pet owners in Flint live below the poverty line, have no established relationship with a veterinarian and are waiting to see if there will be a financial aid program to help pay for veterinary evaluations for their animals.

Another reason may be that the relatively small amount of lead in the water introduced to an animal over time doesn't present the more acute clinical signs Averill says he usually sees when, for example, a cow comes in contact with a battery thrown out in a pasture. He says that in the case of companion animals in Flint, the exposure is likely more chronic, with signs developing over time. "Once you remove them from the source they'll probably do fine," Averill says, with lead levels returning to normal.

However, the effects of cognitive damage—seen in developing children with lead poisoning—are hard to qualify in animals. "We don't have the cognitive test that we have in humans," Averill says.

Clinical signs for lead toxicity are nonspecific, such as vomiting, diarrhea and changes in behavior. Those signs could be evidence of a number of conditions. Averill advises that with so much concern and attention given to the water crisis in Flint, veterinarians should advise clients that more common maladies must be ruled out first. "Lead toxicity has such broad signs and symptoms we have to think about more common issues before we jump to lead toxicity," Averill says.

He adds that if common things are ruled out and veterinarians are still thinking lead toxicity is likely, they should contact his office. A staff member will go through the case history and if there is reason to believe it is a legitimate case of lead toxicity, the state will pay for a whole blood test.

Prevention and protection

In the meantime, Averill says, pet owners should give pets and animals bottled or filtered water to drink, use bottled or filtered water when making pets' food, keep the toilet seat down and not allow animals to drink out of any unfiltered water source. Homeowner assistance in Flint provides free water testing and filters and the Humane Society of Genesee County currently has more bottled water than it has room to store.

Holmes says the humane society is handing out a week's supply of water to anyone who requests it. "We want to make sure they feel welcome to come in here—we'll fill their trunk up," she says, noting that there has been an outpouring of donations from animal organizations and veterinarians out of state.

Averill's best advice for pet owners is to "take steps to protect themselves and do the same for pets and they'll be OK." **dvm360**

If you or a client suspects lead toxicity

Michigan State Veterinarian James Averill, DVM, says veterinarians are fielding lots of questions from pet owners in the wake of the water crisis in Flint, Michigan. He advises veterinarians to explain that common causes of these broad clinical signs must be ruled out before a blood test for lead is done.

If veterinarians suspect lead toxicity, they should report cases to the State Veterinarian's Office at (800) 292-3939, which will provide free testing to legitimate cases. Signs of possible lead toxicity include:

- Vomiting
- Seizures
- Behavioral changes
- Sleepiness, fatigue
- Poor appetite
- Weakness
- Extreme anxiety
- Diarrhea
- Blindness
- Abdominal pain
- Crying.

GETTYIMAGES

JOIN US.
STAY YOU.

PEAKS VIEW ANIMAL HOSPITAL

FOUNDED 2000 | LEGACY PRESERVED 2012

"When we sold our practice to NVA, the culture of our clinic remained the same. They haven't changed the way we practice medicine. That was really important to us. NVA has proven to be exactly what they said they were."

– Al Henry, DVM and Les Mulligan, DVM

Join us and we'll preserve your legacy.

NVA

NVAonline.com/stayyou

888-767-7755

Kristen Lindsey to face peers at administrative hearing

Court documents show veterinarian admitting to killing cat, contradicting her original rabies defense. *By Katie James*

Kristen Lindsey, DVM, the Texas veterinarian notorious for killing a cat with a bow and arrow and bragging about it on Facebook, is tentatively scheduled to appear before an administrative law judge in April. The Texas Board of Veterinary Medical Examiners (TBVME) will determine whether her license will be revoked, according to court documents.

In April 2015, Lindsey posted a photo to her Facebook page showing her holding an orange and white cat that had been shot through the head with a bow and arrow, with the statement, "My first bow kill … lol. The only good feral tomcat is one with an arrow through it's [sic] head! Vet of the year award … gladly accepted."

Public outcry ensued, but the Austin County Grand Jury found insufficient evidence to prosecute Lindsey on criminal animal cruelty charges. However, the TBVME, working under administrative law, not criminal law, had enough evidence to find Lindsey in violation of the veterinary licensing act and the board's rules and moved to revoke her license.

Lindsey denied the board's allegations, saying in an October affidavit that she believed the cat was rabid and a threat to her animals "given the existing and extensive rabies outbreak in Washington and Austin Counties."

However, in a deposition Feb. 9, Lindsey appears to contradict that defense. The following is an excerpt:

Question: The time you killed the cat, did you think it had rabies?

Lindsey: No.

Question: Do you think now that the cat had rabies?

Lindsey: I don't know. ...

Question: So you didn't submit this animal for testing?

Lindsey: No.

Lindsey contends in the affidavit that the cat's death was instantaneous and did not cause any unwarranted suffering, and that the board doesn't have the authority to revoke her license because the act was not committed while practicing veterinary medicine; instead it was "within a generally accepted and otherwise lawful form of conduct occurring solely for the purpose of wildlife management or wildlife or depredation control."

She also counterclaimed that the board's prosecution is influenced by public outrage and is "frivolous, unreasonable and without foundation."

The judge overseeing the case disagreed and motioned for the hearing to be held. dvm360

Pennsylvania veterinarian, wife facing animal cruelty charges

Dozens of dead, emaciated animals taken from property.

Clyde Rendell Shoop, VMD, 67, and Kimberly A. Shoop, 52, of Carbon County, Pennsylvania, are facing 11 counts of animal cruelty each after investigators found severely emaciated and dead animals on their property during a search on January 22, according to Pennsylvania Department of State documents. Shoop is listed as the owner of Pocono West Mobile Equine Services.

Following a complaint, state police found 16 horses, 20 sheep, 10 dogs, a calf, a raccoon, a wild turkey, two alligators, a boa constrictor, a pig and birds on the property during the search, according to WFMZ News in Pennsylvania.

Of those animals, nine of the horses were in critical condition with body condition scores of 1-2, the pig was severely dehydrated and the calf was emaciated. Two of the horses were pregnant. Investigators also found the remains of 12 other animals in pits around the property or under pallets. One deceased horse was found under a mattress, according to state documents. A lack of food, water and shelter available to the animals on the property was noted as well.

The Pennsylvania Department of State, which oversees veterinary licensing, lists Shoop as having a valid license through Nov. 30, 2016, though it has temporarily been suspended in connection with the seizure from his property.

A preliminary hearing before the veterinary board was scheduled to be held within 30 days of the suspension order, issued on February 12.

Local media reports indicate that this is not the first time Shoop has come under suspicion. In 2009 he was charged with four counts of animal cruelty. A district judge later dismissed the charges after there were no witnesses available to testify. dvm360

IN FLEA AND TICK CONTROL,

REACH HIGHER

Longest lasting protection available in a chew

- Provides up to **12-week**[1]***** flea and tick control

Aids in pet owner compliance[2,3]

- Eliminates the need for monthly application

Revolutionary technology

- No known flea resistance[4]

Vet exclusive

- Proven safety and efficacy

Order BRAVECTO today.
Contact your MERCK Animal Health Representative or distributor.

BRAVECTO® (FLURALANER)

BravectoVets.com

***Bravecto kills fleas, prevents flea infestations, and kills ticks (black-legged tick, American dog tick, and brown dog tick) for 12 weeks. Bravecto also kills lone star ticks for 8 weeks.**

IMPORTANT SAFETY INFORMATION: The most common adverse reactions recorded in clinical trials were vomiting, decreased appetite, diarrhea, lethargy, polydipsia, and flatulence. Bravecto has not been shown to be effective for 12-weeks' duration in puppies less than 6 months of age. Bravecto is not effective against lone star ticks beyond 8 weeks after dosing.

References: 1. Bravecto [prescribing information]. Summit, NJ: Merck Animal Health; 2014. **2.** Beck S, Schein E, Baldermann C, von Samson-Himmelstjerna G, Kohn B. Tick infestation and tick prophylaxis in dogs in the area of Berlin/Brandenburg—results of a questionnaire study. *BerlMünch Tierärztl Wochenschr*. 2013;126(1-2):69-76. **3.** Kidd L, Breitschwerdt EB. Transmission times and prevention of tick-borne diseases in dogs. *Compend Contin Educ Pract Vet*. 2003;25(10):742-751. **4.** Gassel M, Wolf C, Noack S, Williams H, Ilg T. The novel isoxazoline ectoparasiticide fluralaner: Selective inhibition of arthropod Y-aminobutyric acid- and L-glutamate-gated chloride channels and insecticidal/acaricidal activity. *Insect Biochem Molec Biol*. 2014;45:111-124.

Please see Brief Summary on following page.

MERCK Animal Health

NADA 141-426, Approved by FDA

BRAVECTO® (FLURALANER)

BRIEF SUMMARY (For full Prescribing Information, see package insert)

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

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

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

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

Warnings:
Not for human use. Keep this and all drugs out of the reach of children. Keep the product in the original packaging until use, in order to prevent children from getting direct access to the product. Do not eat, drink or smoke while handling the product. Wash hands thoroughly with soap and water immediately after use of the product.

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

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

Percentage of Dogs with Adverse Reactions in the Field Study

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

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

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

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

Distributed by:
Intervet Inc (d/b/a Merck Animal Health)
Summit, NJ 07901

Made in Austria

141487 R2

Reference: Bravecto [prescribing information] Summit, NJ: Merck Animal Health; 2014
Available by veterinary prescription only.

MERCK Animal Health

Research targets moquito's role in heartworm disease

Study by Dr. John McCall shows value in targeting vector to prevent transmission, infection; Vectra 3D manufacturer urges change in veterinary protocol.

A study by John McCall, MS, PhD, of the University of Georgia shows that a repellent insecticidal product (Vectra 3D) protects dogs against heartworm disease by targeting its vector—the mosquito. Rather than rely on an oral heartworm preventive alone, McCall's study supports also using a topical parasiticide to repel and kill mosquitoes, researchers say.

Ceva Animal Health is the manufacturer of Vectra 3D, a topical parasiticide combining dinotefuran, permethrin and pyriproxyfen that controls fleas and ticks. While the Vectra 3D product label already contained a claim for the product's efficacy in repelling and killing mosquitoes, it has not been an emphasis in the company's marketing—until now.

In the wake of McCall's research, Ceva is urging veterinarians and pet owners to adopt a "double defense" protocol that involves an oral heartworm preventive plus a topical insecticide. McCall's research found that:

> Vectra 3D was more than 95 percent effective in repelling and killing mosquitoes for 28 days after treatment.

> Vectra 3D was 100 percent effective in blocking the transmission of heartworm microfilariae from dogs to mosquitoes.

"A multimodal approach to the prevention of heartworm by reducing populations of vector mosquitoes, preventing mosquito biting and killing mosquitoes, as well as the monthly or bi-annual administration of macrocyclic lactone preventives should be strongly encouraged," McCall concludes in the study.

The incidence of heartworm disease continues to increase, parasitologists say. From 2013 to 2015, there was a 166 percent increase in reported positive heartworm cases, according to the Companion Animal Parasite Council as reported in a release from Ceva. And the American Heartworm Society has tracked the spread of heartworm disease to all 50 states and increased prevalence—including evidence of resistant strains—in several regions of the country.

"Macrocyclic lactones cannot continue to do all the heavy lifting," Elizabeth Hodgkins, technical services director for Ceva, stated during an event at the Western Veterinary Conference in Las Vegas in March. "It baffles me that in a two-parasite-transmitted disease, we have let one parasite off scot-free."

With Zika virus and other mosquito-borne diseases in the news, itchy bites are becoming the least of the public's concerns. Robert Wirtz, PhD, retired entomologist with the Centers for Disease Control, has been at the forefront of investigating and battling these diseases.

"We know full well that mosquitoes and many other parasites inflict serious damage to both humans and our pets," Wirtz says. "The CDC has ample evidence of the importance of vector control in limiting the potential for harm to humans. The same holds true for pets. Fortunately we have the resources to combat this. It's incumbent upon veterinarians to continue to educate pet owners and use every tool possible to prevent disease transmission and, equally if not more important, eliminate the vector to decrease the spread of any diseases."

To see the full details on McCall's research, visit FightHeartwormNow.com. **dvm360**

GETTY IMAGES

2016 tick update: Populations are spreading

Veterinary parasitologist gives the lowdown on these bloodsuckers.

Ticks aren't just disturbing because they embed themselves in the skin. The real concern is the diseases they spread once they dig in, says veterinary parasitologist Richard Gerhold, DVM, MS, PhD, an assistant professor at the University of Tennessee's College of Veterinary Medicine.

"Although Lyme disease has received a great deal of attention, other important diseases—including ehrlichiosis, Rocky Mountain spotted fever, anaplasmosis and cytauxzoonosis—have been emerging in various areas," says Gerhold.

And that bite in and of itself isn't innocuous. "Ticks bites can lead to wounds and inflammation from salivary proteins," says Gerhold. "Secondary infection and disease can be due to toxicosis, local necrosis and tick paralysis. Plus, tick bites predispose animals to secondary attacks by myiasis-producing flies."

The perfect vector?

Evolution has given these parasites true powers. "Ticks are great vectors because of their ability to be persistent bloodsuckers that attach firmly and feed slowly," says Gerhold. Add to this the fact that ticks have long lifespans, have a wide geographical distribution, are resistant to environmental conditions, have high reproductive potential and can pass infective agents to the next generation through their eggs or through successive stages, he says.

The key, as always, is prevention

Informing your clients of the many risks of tick bites is likely a staple in your exam room. But if your clients remain unconcerned about ticks and tick-borne diseases and, thus, don't see the need for year-round prevention, you can point them to the Companion Animal Parasite Council's parasite prevalence maps to show them that …

No one is safe

Whoa, Appalachia! Look out, Canada! In a video clip posted at **dvm360.com/ticks2016**, Gerhold says new tick populations are heading your way to menace your veterinary patients. And a new study shows that ticks stick around even in cold weather, making year-round prevention imperative. (Listen to how fast Dr. Gerhold rattles off the names of a couple of these suckers. A true tick master.) dvm360

Service animal eye event offers free screenings in May

ACVO planning 9th annual event.

They say eyes are windows to the soul. And for service animals, the eyes are more than a glimpse into the gentle souls of these hardworking creatures—they're a critical tool they use to perform their work, whether they're serving as K-9 officers patrolling the city streets, working as Diabetic Alert Dogs or working in countless other service fields.

Regular checkups are an important part of preserving these animals' sight, and the American College of Veterinary Ophthalmologists (ACVO) is gearing up for its 9th Annual ACVO/StokesRx National Service Animal Eye Exam event in May. The goal: To provide as many free eye exams as possible for qualifying service animals from May 1 to May 31.

Martha Low, DVM, DACVO, a veterinary ophthalmologist at Center for Animal Referral and Emergency Services (CARES) in Langhorne, Pennsylvania, is one of the veterinarians who plans to volunteer her services to provide free eye exams to qualified service animals.

"I love participating in this event," Low says in a hospital press release. "It allows us to really see the impact of our work and provides a screening for early detection of ocular diseases. With early detection, diseases that can potentially cause blindness may be caught and treated early, helping these important service animals keep their vision."

Qualified service animals may work in the following fields:

> Guide dog services
> Handicapped assistance
> Drug detection
> Military and police
> Hearing services
> Search and rescue services
> Certified and currently registered therapy animal services.

Veterinarians and people with service dogs can check eligibility and sign up at ACVOeyeexam.org. dvm360

NEW

ENVIRONMENTAL ALLERGIES

The best **offense** is a good **defense**

The **FIRST & ONLY NUTRITION** formulated to reduce signs of environmental allergy by:

- Disrupting the internal allergy response
- Creating a barrier against future episodes

NEW PRESCRIPTION DIET®

Derm Defense™ with HistaGuard™ Complex

H	The first defense against future allergy outbreaks with **HISTAGUARD COMPLEX**, a proprietary blend of bioactives and phytonutrients
24/7	Continuously **NORMALIZES IMMUNE RESPONSE TO ALLERGENS** with natural sources of polyphenols
	Supports **SKIN REJUVENATION** with vitamin A, zinc and essential fatty acids

HillsVet.com

>>> Illuminating veterinary care: This conversion project started out 9,000 square feet but luckily the owners were able to snag the empty space next door, bumping up their total square footage to 11,081. An all-glass lobby not only looks stellar but also is a great way to showcase the hospital at night.

Everything's bigger—*and* more efficient—in Texas

What this emergency and specialty center lacks in space, it makes up for in efficiency and accessibility. *By Ashley Griffin*

Austin Veterinary Emergency and Specialty Center (AVES) gets stuff done. The team managed to squeeze seven specialties (surgery and orthopedics, internal medicine, critical care, oncology, radiology, rehab and fitness, and dentistry) into an 11,081-square-foot leasehold in Austin, Texas. The dense floor plan was praised by experts in veterinary hospital design and earned a Merit Award in the 2016 Hospital Design Competition.

"Our floor plan was designed to promote a multispecialty collaborative approach to patient management while providing dedicated workspace for each individual department," says Lindsay Vaughn, DVM, DACVECC, one of the seven owners of AVES.

Here are some design "truths" that the team discovered as they built their new hospital.

Sometimes less is more. It all started with a concrete slab. This conversion project was originally an undeveloped portion of a strip center. There were no walls, ceilings or floors. CEO Ryan Buck said this was ultimately a plus.

"The advantage was that there was no demo required and no existing infrastructure to work around," Buck says. "We didn't have to build the exterior structure and had a 'blank canvas' for the interior."

Plans change. The original lease for AVES was 8,956 square feet, but about a month into the design planning, the team realized they were going to need a bigger boat so to speak. Good thing they had signed a contract with a right of first refusal for the adjacent open space.

"We realized that we needed more room to accommodate our programming and vision for the future," Buck says. "We exercised our right of first refusal (or in this case acceptance) on the adjacent space, which took our total hospital space to 11,081 square feet."

There will be problems 24/7. Clinics that don't close tend to come with their own unique set of problems and this project was no exception. AVES' two biggest hurdles?

>>> Let's get physical: With its prime location at the front of the hospital in a room off of the lobby, the physical therapy room was designed for easy access for outpatient care. A large window provides natural light and free advertising as passersby can see the underwater treadmill in action.

>>> Exam time: The judges swooned over the eight efficient exam rooms (including one large exam room). "Single door exam rooms save a lot of space in your floor plan," one of the judges said. A dark blue accent wall with a nature painting sets a calming mood for clients (1) and a carpet panel on top of the exam room table (2) creates a cozier experience for pets. Porcelain tile with a slightly textured finish was installed with an epoxy grout in all the public areas, including exam rooms (3).

PHOTOS COURTESY OF THOMAS MCCONNELL, THOMAS MCCONNELL LLC.

>>> Rockin' reception: AVES wanted a large and aesthetically impressive reception area to knock clients' socks off the second they walk in the (emergency) door. We say mission accomplished with the solid surface countertops (1), backlit resin panels (2) and stone veneer wall (3) behind check-in.

>>> Treated with care: The open treatment area comes with a variety of tables to fit every pet and employee's needs (1). A rolling treatment station (not pictured) allows for more flexible patient care. And storage is not a shortage here. Overhead and under-the-counter shelves and cabinets (2) accompany every workstation. "Central ICU and the treatment area are situated adjacent to the reception waiting area and the exam rooms to facilitate prompt evaluation of critical patients and provide treatment stations for physical exams," says Dr. Lindsay Vaughn.

>>> Take a seat: In a specialty and emergency hospital, a long-term waiting area isn't a luxury—it's a necessity. AVES opted for "mix and match" chair types (a combo of lounge chairs and tandem seating) and arranged them in private groups of three and four (1). Flower paintings and nature scenes (2) hang on the walls, complementing the stone veneer accent. A flat screen TV (3) helps pet owners pass the time while they wait.

Hours of operation and signage. (The building had a previous restrictive covenant preventing operation 24 hours a day and the neighborhood associations banned significant signage on the building because of the "scenic highway" on the adjacent road.)

AVES owners say don't be afraid to set up meetings with the local neighborhood associations and coalitions to negotiate terms (like they did). It will most likely delay your project, but you might just walk away with approval for a 24/7 facility and a monument sign at your veterinary center's entrance (like they did).

Start marketing now. Buck says it's never a bad idea to hire a marketing firm to help with the launch of your new hospital. "It doesn't need to be a firm that focuses only on the veterinary industry," he says. "Picking one that doesn't have a lot (or any) experience in veterinary can help curate fresh ideas to help your brand stand out."

The best part of the planning process? Vaughn says it was the ability to design and build every part of the hospital from the ground up—literally. "This allowed us to take into consideration the needs of each individual specialty and department," she says.

One final world of advice from this Merit Award winner: "Think long and hard before going with vinyl composition tile," Buck says. "While it is cheaper, it's also a pain to maintain. We have VCT in some areas of the hospital and wish we'd spent a few more dollars for another material." **dvm360**

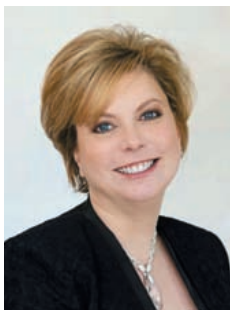
Ashley Griffin is a freelance writer based in Kansas City and a former content specialist for dvm360.

PHOTOS COURTESY OF THOMAS MCCONNELL, THOMAS MCCONNELL LLC.

Veterinary career change: Guiding good health for *all*

A position in research fosters life-changing innovation. *By Mindy Valcarcel*

If walking into the exam room just doesn't get your blood racing anymore—or if it's racing in a way that worries your cardiologist—you may be looking to see if your veterinary skills can take you further than traditional veterinary practice. In this series, we're sitting down with several veterinarians who have taken paths less traveled and found success. Can you find a kernel of inspiration for your own life in these profiles? We hope so!


Dr. Stacy Pritt

First up, Dr. Stacy Pritt and her career in biomedical research. Pritt earned her veterinary degree in 1997 from Washington State University and worked for three and a half years in traditional veterinary practice. "I liked aspects of practice but it just wasn't for me," she says.

Pritt had already been involved in research work during her undergraduate and veterinary school years. And just a year or so into general practice she was already back at school because she wanted to learn more about the business side. "I did this little four-course certificate at a local college," she says. "That started me thinking about a business degree."

Pritt found a love for the business side. "In science, this is the way it is. You memorize it, you regurgitate it and maybe you apply it," she says. "In management it's more of here is a topic, here is a scenario, tell us what you think about it—and back it up." She earned her MBA in healthcare management in 2004 and a master's of science in managerial science in 2009.

Pritt started her research career in a clinical position but says it's common for veterinarians who start out in the clinical arena to move on to the management and the regulatory aspects as they gain more experience.

Pritt is now the director of the Institutional Animal Care and Use Committee (IACUC) at one of the country's leading academic medical centers. What is an IACUC? In a nutshell, it is the group at an institution that is responsible for appropriate research conduct. They review research protocols, visit facilities and make sure their institutions keep current on new regulations for animal research.

As the director of IACUC, Pritt::

- Organizes committee meetings
- Establishes institutional policies for research
- Manages computer software programs
- Implements training programs
- Ensures high-quality research protocols.

She has also become a certified professional IACUC administrator (CPIA), which nowadays is required to be a director of an IACUC. And in 2013, she became one of the three charter diplomates by examination for the American College of Animal Welfare (ACAW).

Nonclinical skills you'll need to study up on

Pritt says several skills are necessary to excel in biomedical research.

- Project management—organization and communication are paramount.
- Computer skills—boot up your inner techie.
- Public speaking—lots of staff training is involved.
- Information gathering—you must be proactive, not reactive about getting regulatory information.
- Document review—make sure it's saying what you want it to say and will be interpreted correctly by your targeted audience.

Skills you already have

Many skills for this job veterinarians have in spades. You'll play well in this field with these strengths:

- Customer service—hours in the exam room mean you can handle about anything people can throw at you.
- Ability to explain complex concepts in a simple matter—remember all those creative analogies you've developed over the years to get across just what disease X means for pet owners?
- Hard workers—veterinarians? Without a doubt.
- Ability to prioritize—the concept of triage transfers well.
- Understand budgets—you're keenly aware of trying to keep the practice in the black.

What you'll love

A lot of these positions are at institutions of higher learning or large companies, so you'll likely get a set Monday-to-Friday, 8-to-5 schedule with full benefits, vacation and sick time. And if you're not in a clinical position, the work is less physical.

"I like research because in the end it's for the greater good of health and medicine," says Pritt. "I have been directly involved in research leading to the development of new medical devices and treatments that are in use today by thousands of patients."

Where to go from here

Interested in a job in biomedical research?

"Network, go to research conferences and learn more about the field," says Pritt. She says you can look for veterinary positions at indeed.com, higheredjobs.com and, for government jobs, usajobs.gov. **dvm360**

Mindy Valcarcel is dvm360's Medicine Channel Director.

Model Bentley
Agency Bayer
Groomer Owner
Coat Model's Own
Collar Seresto

seresto®

SIMPLY SOPHISTICATED, TAILORED FOR COMPLIANCE

8 month PROTECTION

KILLS AND REPELS FLEAS AND TICKS.

Ticks *Fleas* *Sarcoptic Mange** *Biting Lice on dogs*

*Aids in the treatment and control of sarcoptic mange on dogs.

S16693

Lazy **California mountain lions** snack on *house pets*

Big cats would rather not work too hard, apparently—research shows that many are incorporating easier-to-catch dogs, cats into their diets.

California mountain lions have been eating cats and dogs fairly regularly, a study conducted by the California Department of Fish and Wildlife (DFW) found, according to the *San Francisco Chronicle*. Of the 107 mountain lions that were killed in 2015 with special depredation permits, the stomach contents of 83 were analyzed, and 52 percent had eaten cats, dogs or other domestic animals.

Deer, which is supposedly mountain lions' favorite prey—though they're harder to catch than a house pet—had only been eaten by 5 percent of the lions studied. Of the remaining mountain lions in the report, 16 percent weren't studied, 9 percent had empty stomachs and the stomach contents of 18 percent were too digested to be identified, the *Chronicle* states. Hypothetically, if pets could also account for a portion of the diet in the 18 percent of cats whose diet couldn't be analyzed, then more than 60 percent of the cats had turned to domestic animals as a food source.

The DFW told the *Chronicle* that though the report verified a high incidence of mountain lions eating pets, coyotes and other predators also attack and eat pets at high levels. The agency also cautioned pet owners to keep their cats indoors and to leash dogs when outside in areas near open space, and to monitor them in the backyard late at night. **dvm360**

GETTY IMAGES

NEW DOG OLD TRICKS

YOUR **NEW** ANESTHETIC COMPANION

PROVEN AGENT
69% dogs & 77% cats
in Australia rely on Alfaxan[1]

WITH SAFETY COMES CONFIDENCE
Confidence in an anesthetic with the widest registered safety margin[2]

COMFORTABLE CONVERSION
The only pH neutral anesthetic registered for both cats and dogs[3,4]

alfaxan.com/how-to (1 min video)

See how easy it is to have a positive impact on patient care

[1] Independant market research conducted by Fairfax Agricultural Research and Marketing, 2015
[2] Muir, W., et al., Cardiorespiratory and anesthetic effects of clinical and supraclinical doses of alfaxalone in dogs.Vet Anaesth Analg, 2008. 35(6): p. 451-462
[3] Heit, M.C., et al. Safety and efficacy of Alfaxan® CD RTU Administered once to cats subcutaneously at 10 mg/kg.in ACVIM. 2004
[4] Alfaxan USA FDA Approved Leaflet

INDICATIONS: Alfaxan® is indicated for the induction and maintenance of anesthesia and for induction of anesthesia followed by maintenance with an inhalant anesthetic, in cats and dogs.
Important Alfaxan® Risk Information: Warnings, Precautions and Contraindications: When using alfaxalone, patients should be continuously monitored, and facilities for the maintenance of a patent airway, artificial ventilation, and oxygen supplementation must be immediately available. Alfaxan® does not contain an antimicrobial preservative. Do not use if contamination is suspected. Strict aseptic techniques must be maintained because the vehicle is capable of supporting the rapid growth of microorganisms. Careful monitoring of the patient is necessary due to possibility of rapid arousal. Alfaxan® is contraindicated in cats and dogs with a known sensitivity to alfaxalone or its components, or when general anesthesia and/or sedation are contraindicated. Adverse Reactions: The most common side effects of alfaxalone include respiratory and cardiovascular derangements, such as apnea, hypotension and hypertension. Appropriate analgesia should be provided for painful procedures.

® Registered Trademark of Jurox Pty Limited

Alfaxan® (Alfaxalone 10 mg/mL)
Intravenous Anesthetic Injection
Your clear choice for induction

See brief summary on page 22

Fat cats don't hold a diet grudge

Study finds cats still love their owners even when food is restricted.

Will your cat hold it against you if you put it on a restricted diet for weight loss? Turns out that doesn't seem to be the case, according to a recent Cornell University study published in the *Journal of Veterinary Behavior*.

Researchers hypothesized that pet owners are hesitant to put their cats on a diet because they think the cats will beg and become less affectionate. Cat owners held on to the idea that the cat would develop annoying behaviors or—even worse—would no longer love them, according to the study. And yet, of the cats studied, a majority actually increased their affectionate behavior after feeding, even though their food was restricted.

The 47 cats that participated were classified as obese and didn't have any other abnormalities on their physical exams or blood work. Owners brought their cats in to be weighed every four weeks during the study.

Cats' feeding behavior can be divided into three phases, the study says: appetitive behavior, consummatory behavior and satiety. Feline appetitive behavior hasn't been widely documented, but could include "biting or pouncing on their caretakers or vocalization." Satiety behaviors include playful behavior, rest or elimination behavior, according to the study.

Before starting the study cat owners completed a survey about their cat's behaviors when it was hungry and when it was satiated. The surveys were given again at four and eight weeks into the study. Each question asked whether the behavior had been displayed more, less or the same since the diet had begun.

Most of the cats showed an increase and then a decrease in begging, following, meowing or pacing before being fed. But there was generally not a change in the type of appetitive behavior displayed, just a change in frequency. The median time at which the behavior started was 16 to 45 minutes before feeding.

When compared to their behavior before restrictive feeding, the cats were much more likely to increase their purring, sit in their owner's lap, rest and use the litter box after feeding at four or eight weeks, or both. They also were more affectionate at both four and eight weeks, the study found—something that the researchers found could help encourage owners to put their cats on a diet. **dvm360**

Does diet matter?

A secondary objective of this study focused on the composition of feline diets and whether the nutritional makeup of the food would lead to greater weight loss over time. The cats were divided into three groups and fed equicaloric diets of three compositions: a control designed to maintain weight, a high-fiber (HiFi) diet or a low-carbohydrate and high-protein diet. Because cats are obligate carnivores, "one might hypothesize that a low-carbohydrate and high-protein diet would reduce food-demanding behavior more than a HiFi diet and would allow for a greater weight loss."

The researchers were surprised to find that cats lost the most weight overall on the HiFi diet. At four weeks, cats on both of the test diets had lost weight, but at eight weeks the cats on the HiFi diet had lost more weight.

Annual obesity survey finds swelling numbers of overweight dogs and cats

Results highlight lack of standard definition in veterinary industry.

About 58 percent of cats and 54 percent of dogs are overweight in the United States, according to the Association for Pet Obesity Prevention (APOP). APOP conducts an annual survey of obesity prevalence, and the percentage of overweight cats in 2015 is the same as last year's survey but slightly up for dogs—53 percent of dogs were reported to be overweight in the 2014 survey.

The 2015 survey involved 1,224 dogs and cats from 136 veterinary clinics. Participating veterinary practices assessed the body condition score (BCS) of all canine and feline patients that came in for a regular wellness examination on a given day in October. A

BCS based on a five-point scale and actual weight were recorded and used to classify pets as either underweight, ideal, overweight or obese.

Ernie Ward, DVM, author of the book *Chow Hounds* and a frequent dvm360 contributor, founded APOP in 2005 to help document pet obesity levels in United States as well as raise awareness of the negative impact of overabundant weight in pets. One problem is that "overweight" remains largely undefined industry-wide. APOP defines clinical pet obesity as 30 percent above ideal weight.

"Our profession hasn't agreed on what separates 'obese' from 'overweight,'" says APOP board member Steve Budsberg, DVM, MS, DACVS, a veterinary surgeon at the University of Georgia, in an APOP release. "These words have significant clinical meaning and affect treatment recommendations."

Ward says APOP would like to standardize the terminology for "obese" and "overweight." **dvm360**

GETTY IMAGES

NEW

ROYAL CANIN®

A MAGNIFICENT COMBINATION

For over 45 years we've partnered with veterinarians who share our obsession for bringing out the best in cats and dogs. We discovered nearly 1 in every 2 pets suffers from multiple health conditions. That's why, through science and research, we developed a new precise MULTIFUNCTION line. When you prescribe Royal Canin you have the power to transform the health of each cat and dog.

Find out more at royalcanin.com/multifunction

Available in 3 formulas:

- Urinary + Hydrolyzed Protein
- Urinary + Satiety
- Renal Support + Hydrolyzed Protein

Catching pet owners early

> Continued from the cover

humane societies. If we wait that long, we're missing out on allowing these tweens to get in and see what veterinarians do and explore their dream."

With only about 4,500 students accepted to veterinary colleges each year, it stands to reason that most kids who express an interest in the career will likely never become a veterinarian. However, most will become pet owners at some point.

"The message in this, to my colleagues, is that the easiest way to influence a pet owner for tomorrow is to help them learn all they can now," says Carpenter. "If we build the aspiration today, we will influence their care of a pet tomorrow. By teaching youngsters and interacting with them now, they will never forget that the veterinary profession is friendly and welcoming. They will become the pet owners of tomorrow, and they will influence future buying decisions."

And directing more youth toward science-based industry is also a good thing. Even if these kids never become veterinarians, the focus could help point them toward more scientific careers, he says.

The website vetsetgo.com features articles and videos that show what veterinarians do as well as games to test veterinary care knowledge and links to veterinary camps and activities for kids. The idea for the site stems from an early project Carpenter developed in which he recorded veterinary interactions and posted them on YouTube for children to watch, giving them a glimpse into the life of a veterinarian.

Vet Set Go! has been named among the best in family-friendly media, products and services by Mom's Choice Awards. **dvm360**

Sarah A. Moser is a freelance writer and editor in Lenexa, Kan.

>>> Photos from the book *Vet Set Go!* illustrate the opportunities available to older children and teenagers who are interested in veterinary medicine: They can shadow a veterinarian at a clinic or participate in a veterinary camp. Only a fraction of these kids will go on to become veterinarians, but learning about veterinary care early in life prepares them to become responsible pet owners later in life.

PHOTOS AND GRAPHICS COURTESY OF VETSETGO

Duramune® Lyme

Pick the protection that **FITS YOUR PATIENTS.**

Duramune Lyme®

Duramune Lyme® + Max 5-CvK

Duramune Lyme® + Max 5-CvK/4L

Duramune Lyme® + Max 5/4L

Duramune Lyme® + LeptoVax® 4

DURAMUNE LYME. The first and only portfolio of Lyme combination vaccines.

- Proven effectiveness with fewer injections than single-antigen vaccines[1–3]
- Provides a broad antibody response to many OSPs[2,4]
- Multiple opportunities to stop Lyme disease before it starts

Lyme disease is a serious threat to many dogs.

Choose the Lyme protection that's the right fit for your patients and your practice.
DuramuneLyme.com.

References: 1. Levy SA. Use of a C6 ELISA test to evaluate the efficacy of a whole-cell bacterin for the prevention of naturally transmitted canine *Borrelia burgdorferi* infection. *Vet Ther*. 2002;3(4):420–424. **2.** Chu HJ, Chavez LG, Blumer BM, Sebring RW, Wasmoen, TL, Acree WM. Immunogenicity and efficacy study of a commercial *Borrelia burgdorferi* bacterin. *J Am Vet Med Assoc*. 1992;201(3):403–411. **3.** Levy SA, Lissman BA, Ficke CM. Performance of a *Borrelia burgdorferi* bacterin in borreliosis-endemic areas. *J Am Vet Med Assoc*. 1993;202(11):1834–1838. **4.** Levy SA, Millership J, Glover S, et al. Confirmation of presence of *Borrelia burgdorferi* outer surface protein C antigen and production of antibodies to *Borrelia burgdorferi* outer surface protein C in dogs vaccinated with a whole-cell *Borrelia burgdorferi* bacterin. *Intern J Appl Res Vet Med*. 2010;8(3):123–128.

Boehringer Ingelheim

dvm360 sits down with Dr. Pol

> Continued from the cover

to the clinic with a cough. The lungs sounded a little off, but otherwise it was healthy with a normal temperature. The next day it had a high temperature and was off feed, and X-rays didn't show too much. The next day it was comatose and I had to put it down. I did an autopsy, and it had a malignant hemangiosarcoma that had ruptured. With all the testing we could have done, there is no way we could have saved him. I did the autopsy so the people would realize it wasn't their fault. Don't put a guilt trip on people if they can't do something. Do the best you can.

dvm360: Do pet owners come to you because of affordability?

Pol: No. They come to us because they trust us. I think this is another very important thing. Common sense, trust, and yes, treat others the way you want to be treated. And clients will come.

dvm360: Other practitioners have been critical of your approach, particularly regarding sterile protocol and pain management.

Pol: Yeah, but they're watching the show! We gather between 150 and 200 hours of taping a week and use 40 minutes. So they don't see everything. We are sterile. There is no question about it. What they see is not what they think they see. That's the problem.

dvm360: Do you get input on final edited version of the show?

Pol: As long as I do it before it goes to Washington [where the show is created]. The producers have three high-definition cameras with a card that takes about three hours of taping. If I don't want something, I have to say, "Camera down." If it's on the little card and it goes to Washington, D.C., we still have some say, but very little.

But they are making a show that is popular, and they don't show us using our therapeutic laser. That's boring! Yes, we have that. We are not old-fashioned. And people come to us because they trust us; they know we tell the truth and leave it up to the owner. When we do a test or anything, we ask, "I would like to take an X-ray; I would like to take blood work; this is the cost. Can we do it?" Most of 'em will say yes, but every so often we see that look in their eyes. So I say, "OK. This is what I think is wrong, and we'll treat it as such." Ninety-five percent of the time I'm right and everything goes well.

dvm360: How has being a star changed your life as a veterinarian?

Pol: I have become a lot more fluent in talking and thinking at the same time. I can think on my feet. Also, we meet the nicest people. I have said many times, pet owners and animal lovers are good people.

An aside from Dr. Pol's manager, Bob Aniello: *Here at the conference Dr. Pol has received overwhelming support from many veterinarians who have thanked him for doing what he's doing—and also for the notion of care being accessible to everyone. Rural veterinarians especially have come by and said, "Thank you for representing us. We practice the same philosophy."*

>>> dvm360 editors Mindy Valcarcel (left) and Kristi Reimer interview Dr. Jan Pol during WVC.

Pol: Affordable, common-sense pet care is the biggest thing. And this is what we, many of the older veterinarians who walk around here at the conference, have to offer. Everybody wants to use their expensive machines, and that's fine, but you still have to do a physical exam and use your five senses. That'll tell you a lot. Then use whatever you need to confirm your diagnosis.

dvm360: Do you think increasingly high standards of care are pricing veterinary medicine out of reach of the average pet owner?

Pol: It sounds like it. It looks like it. That is a problem. Because so many people have pets that can't afford them. We have rabies clinics in our area. And some of those dogs, that's all they get. But they have the love of their people. So are these animals then worse off than the ones that than the ones that are treated so royally?

Many years ago I had a dog that got hit by a school bus. Broken pelvis. Bad. Sent it to a specialist, and they reset it. Two surgeries and six months later the dog is still limping. The same week a bigger dog gets hit by the school bus. Same fracture of the pelvis. Same scenario. I tell 'em, "This is what I can do. If you want to do more, go to the specialist." But they can't afford it. That dog walked up the stairs within a week. He healed up good! So, what is good care and what is not? Are we doing animals a favor by always doing everything we can?

dvm360: Will the show continue?

Pol: I hope so! I'm an optimist. And I'm having fun. Don't forget that several of those guys have been filming for five years. They're like family. dvm360

STAY ON GARD

against heartworm disease
***PLUS* hookworms**
and roundworms.

- PREVENTS HEARTWORM DISEASE
- TREATS AND CONTROLS 3 SPECIES OF HOOKWORMS
- TREATS AND CONTROLS 2 SPECIES OF ROUNDWORMS
- #1 RECOMMENDED HEARTWORM DISEASE PREVENTIVE[1]
- SAFE FOR PUPPIES AT 6 WEEKS

[1] Data on file at Merial.

MERIAL
A SANOFI COMPANY

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

Heartgard® Plus
(ivermectin/pyrantel)

See brief summary on page 28

Here's one political cause veterinarians can support wholeheartedly

Congressman and veterinarian Kurt Schrader needs your help in his reelection campaign. *By Mark Cushing, JD*

It's hard to think about any political topic other than the presidential primaries these days. The two-year race for party nominations dominates the political landscape in unprecedented ways: money, media, phone calls, office conversations—however you measure it, it's off the charts.

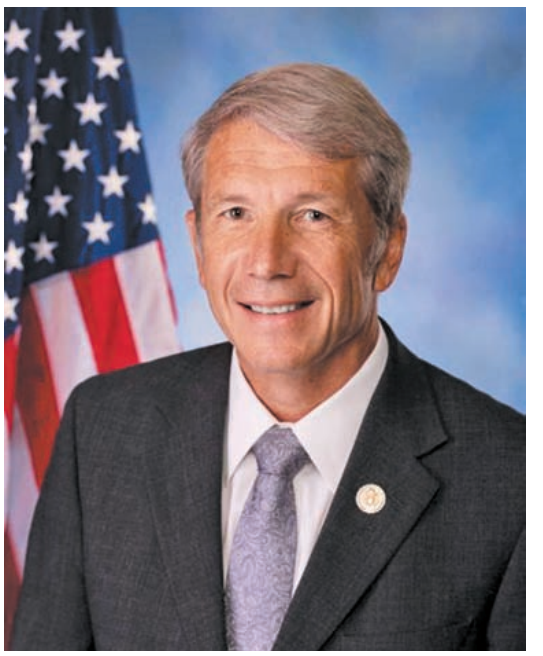
But there is something else going on of real concern for veterinarians, so with your indulgence please remove the presidential blinders for a moment and consider this.

The veterinary and animal health industry has no greater champion than Congressman Kurt Schrader, DVM, of Oregon. He is a successful veterinarian who embodies the classic idea of a citizen legislator. He was a leader in the Oregon state legislature and now represents a truly bipartisan philosophy in Congress at a time when bipartisanship is in short supply—perhaps even dying.

Schrader has stepped up time after time for animal welfare, for veterinarian rights when they were under attack from the Drug Enforcement Administration (DEA) or big-box retailers, and on behalf of practical, sensible reforms for the Food and Drug Administration and other federal agencies responsible for regulating animal health in this country. Although he is in the minority party and only in his fourth term, Congressman Schrader has had an outsized impact for his district and our industry.

Schrader now faces a very liberal challenger in the Oregon Democratic Primary on May 17. Suffice it to say that Oregon is a *very* blue state, and despite Schrader's popularity and broad base of support, he cannot take this challenge lightly, nor should his supporters in the veterinary profession. The political highway is littered with good leaders, all too often the moderate or pragmatic legislators who seek bipartisan solutions and who suffer defeat in partisan primaries from single-issue candidates.

Please consider supporting Kurt Schrader wherever you live in the United States. Visit www.kurtschrader.com or his Facebook page to learn more about Kurt or donate to his campaign. Now you are free return to the presidential hunting grounds. **dvm360**


U.S. Congressman Kurt Schrader, DVM

Schrader now faces a very liberal challenger in the Oregon Democratic Primary on May 17. Suffice it to say that Oregon is a very blue state, and despite Schrader's popularity and broad support, he cannot take this challenge lightly, nor should his supporters in the veterinary profession.

Mark Cushing, JD, is the founding partner of the Animal Policy Group, providing government relations and strategic services for various animal health, veterinary and educational interests. He maintains offices in Portland, Oregon, and Washington, D.C., and is a frequent speaker at veterinary conferences.

URINARY TRACT DISEASE

Meet the only solution with **Triple Barrier Protection**

- **DISSOLVE STRUVITE STONES**
- **REDUCE THE RISK OF OXALATE AND STRUVITE STONES**
- **REDUCE INFLAMMATION FROM UTIs AND STONES**

PRESCRIPTION DIET®

c/d® Multicare Canine

Breakthrough **Triple Barrier Protection** is shown to:

1. **Restore and fortify GAG layer**
2. **Reduce inflammation from UTIs and stones**
3. **Optimize the bladder environment to prevent crystals and potential for uroliths**

Together we can now help reduce the risk of stones coming back for better days ahead.

HillsVet.com

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

Thanks to Dr. Marty Becker for his honesty about depression

Medications are necessary for both physical and mental illnesses.

Thanks to Marty Becker ("Putting my darkness into the light," March 2016) for sharing his experience with depression and helping to diminish the stigma of mental illness and the legitimate need for medications at times to treat both physical and mental health. I am on my third antibiotic for a cat bite abscess that is finally healing and several of my loved ones are being successfully treated for mental health illnesses with medications, many of which require trial-and-error to determine the one(s) that work. Successful treatment of illness and disease is what allows many of us to stay healthy, happy and caring for ourselves and others who love and need us. Keep up the good work!

Julie Dahlke, DVM, St. Paul, Minnesota

Successful treatment of illness and disease is what allows many of us to stay healthy, happy and caring for ourselves and others.

Warning about wellness care misguided

Practices impact pets' well-being most through preventive services.

The recent article "Focus on veterinary wellness care could be 'dangerous'" (March 2016) says that, according to Nationwide and Purdue, veterinarians have increased their fees for medical services by 5.6 percent but have increased their fees for well-care services only by 3.8 percent. The conclusion is that it could be dangerous for veterinarians to focus on preventive care.

I disagree. How can it be a mistake to see pets on a regular basis to help protect them from diseases and catch health problems early? Wellness care today goes far beyond simple vaccinations and often includes preventive bloodwork, dental prophylaxis, and diet and behavior advice to optimize the health and well-being of pets, not just to prevent diseases.

Without wellness exams, veterinary practices would become nothing more than urgent care facilities for sick and injured pets. In fact there is nothing we can do in practice that will impact the health of more pets than wellness care.

Karyn Gavzer, CVPM
KG Marketing & Training
Dayton, Ohio

'Veterinary nurse' describes a technician's job perfectly

Changing terminology is a 'no-brainer' for the profession.

Regarding the recent commentary "It's time for technicians to be called 'veterinary nurses'" (February 2016): This is a no-brainer. I have been managing clinics for nearly 15 years and I have always referred to technicians as veterinary nurses. I used the term when I was working as a tech. The description "veterinary nurse" more accurately describes the job, functions and care that technicians do and provide.

Tom Vollert-Morrison,
Practice manager,
Village Animal Clinic,
Voorheesville, New York

Texas doesn't need another vet school

Graduates already having a hard time finding well-paying jobs.

I would like to comment on the article "Texas Tech announces plans for new veterinary school" (January 2016). The last thing our graduating veterinarians need is another school. I had the privilege of working at Texas A&M for nearly 10 years. The new graduates are having a hard enough time finding jobs as it is, and they work for pennies on the dollar compared to their student loans. Hiring veterinarians know new graduates are in need of experience and pay accordingly. Everyone wants to work in small animal practice now because that's where all the money is. Find the ones who will work in rural areas and shave money off of their loans, and the shortage will magically go away.

Nanette Lorton, LVT
Boerne, Texas

Confidence in every drop.

FRONTLINE® Plus Brand Products deliver proven efficacy against adult fleas, flea eggs, flea larvae and ticks. If your clients are not completely satisfied with the FRONTLINE Plus Brand Product that they purchase from your practice, they may be eligible for:

- A replacement product or
- A refund, or
- A free home inspection by TERMINIX®* and in-home treatment if necessary.

It's the only guarantee of its kind, available only when the products are purchased from veterinarians.

For complete details including terms and conditions, visit www.FRONTLINE.com

*Inspection and treatment may be performed by TERMINIX or its designee.

FRONTLINE® Plus BRAND PRODUCTS

SATISFACTION Plus GUARANTEE™

The devil's in the (contract) details

Drs. Greenskin and Codger lock horns over salary vs. production-based compensation and the stickier elements of a contract.

The dust has settled since "the Mrs. Pincer Incident," and it's business as usual at the practice. Mrs. Pincer has asked not to be scheduled with Dr. Greenskin in the future, and all parties agree this is a good idea. Otherwise, Dr. Greenskin is settling nicely into her work routine and finding ample time during the week to pursue her hobbies and spend time with the people who are most important to her. She's also become more

ILLUSTRATION IDEA: ANNE MCDONALD CAMPFIELD, DVM;
ILLUSTRATOR: RYAN OSTRANDER

NEW!

From the leader in canine influenza vaccines

Introducing Canine Influenza Vaccine H3N2*

Recommended for dogs 6 weeks or older as an aid in the control of disease associated with canine influenza virus H3N2 infection

- A minimum of 2 doses is required for primary immunization
- Initial dose may be given at 6 weeks of age or older. A second dose is given 2 to 4 weeks later
- Annual revaccination is recommended

Canine Infectious Respiratory Disease Complex Vaccines

	Bordetella (Avirulent live)	Parainfluenza (MLV)	Adenovirus Type 2 (MLV)	Canine Influenza Virus (Killed)	Non-adjuvanted
Vaccines for Lower Respiratory Tract Infections:					
Canine Influenza Vaccine H3N2				●	
Nobivac® Canine Flu H3N8				●	
Vaccines for Upper Respiratory Tract Infections:					
Nobivac® Intra-Trac® KC	●	●			●
Nobivac® Intra-Trac®$_3$	●	●	●		●
Nobivac® Intra-Trac®$_3$ ADT	●	●	●		●

Supported by the **Nobivac® Guarantee** and the **Merck Animal Health Diagnostic Support Program**

MLV=modified live virus.

*This product is conditionally licensed. There is a reasonable expectation of efficacy and safety.

To learn more visit **www.doginfluenza.com**

Nobivac
Essential protection for essential bonds

PERPETUAL INNOVATION

MERCK Animal Health

personable with clients, and those who are getting to know her have expressed their approval directly to Dr. Codger. This pleases the old-timer, since he's increasingly viewing Dr. Greenskin as a potential partner and considering asking about her interest in eventually buying him out.

A friendly debate ...

Today the two doctors have cleared one appointment slot so they can sit down and finalize Dr. Greenskin's work contract. In true veterinarian style, Dr. Greenskin had started her first workday after little more than a handshake and a rough idea of what her compensation might be. But now she's planning a vacation, and she wants to work on her personal budget to manage her student loan payments and other obligations more efficiently.

Dr. Codger has his gameface on, and he's ready to squash any notion of Dr. Greenskin asking for more than what she's worth to the practice right now. Dr. Greenskin comes to the table hoping to negotiate a sufficient salary to survive her high debt burden for the time being, with perhaps enough left over to keep her Netflix subscription.

A friendly debate ensues regarding the ups and downs of salary vs. production-based compensation. Since starting her job, Dr. Greenskin has experienced a few of those not-so-busy days at the hospital. She's worried that if she commits to a purely production system, a quiet couple of weeks for the practice could cause her some serious financial dilemmas.

Dr. Greenskin comes to the table hoping to negotiate a sufficient salary to survive her high debt burden for the time being, with perhaps enough left over to keep her Netflix subscription.

Coming to terms with the employment terms

Dr. Codger offers to Dr. Greenskin these terms:

> $60,000 yearly salary

> Two weeks of vacation

> $500 allowance for professional dues and CE

> The possibility of production bonus if the practice is busy.

Dr. Codger scribbles the terms on the back of an old medical chart he found, then slides it over to Dr. Greenskin for a quick signature so they can get on with their day.

As the young Dr. Greenskin tries to decipher Dr. Codger's handwriting, her mind clouds with questions and apprehensions:

> Will she be paid during those two weeks of vacation days?

> Does two weeks mean 14 days, or does it mean two weeks' equivalent of working days? Come to think of it, they haven't even specified how many days a workweek actually entails.

> Only $500 for professional dues? Really?! That will barely cover her licensing and VMA dues, let alone any CE or travel.

> What does the "possibility of production bonus if the practice is busy" really mean? Dr. Greenskin is skeptical. She knows Dr. Codger does all of the bookkeeping himself, and she's seen him crunching numbers from three to four months ago. The accounting is questionable at best, and Dr. Greenskin wonders if and how he'll actually handle any production bonus.

Dr. Codger peers down at his associate, wondering why she's poking around about signing. As Dr. Greenskin smiles and begins to review some of her concerns, the flabbergasted receptionist bursts into the office.

"Mrs. Craycray is here with another one of her blocked cats! She said the cat hasn't moved in three days and I think he's dying!" the receptionist shrieks out.

Both veterinarians rush to the treatment area, leaving Mr. Biscuits the clinic cat purring happily on the desk, rolling around on the fateful work agreement. Who knows when the two veterinarians will get a chance to sit down again and finalize things …

Is Dr. Greenskin going to confront Dr. Codger with her concerns or will she just sign it and move along? How might Dr. Codger handle the young doctor's questions? Will they reach an agreement? We'll find out next time, in Old School, New School! dvm360

Dr. Jeremy Campfield works in emergency and critical care private practice in Southern California. This series originally appeared in Pulse, *the publication of the Southern California Veterinary Medical Association.*

dvm360 Find it all here

Are you a Dr. Codger or Dr. Greenskin?

One of the more obvious discrepancies in veterinary medicine stems from the natural antagonism that arises between the old farts and newbies. Get caught up on previous installments to learn how the two good doctors first met at dvm360.com/oldschool. Then share your opinions about those young upstart doctors or their meddling senior practice owners by emailing dvmnews@advanstar.com. Need help with contracts? Check out the advice at dvm360.com/contracttips.

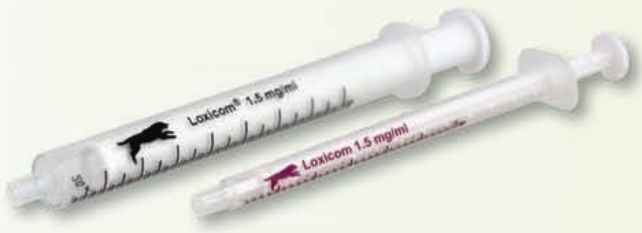
NOW AVAILABLE!

Loxicom®
(meloxicam)
1.5 mg/mL Oral Suspension

Keep Your Patients Running Back To You

New FDA-Approved Loxicom® (meloxicam) Oral Suspension For Dogs:

- **Contains the same active ingredient and is bioequivalent to Metacam® (meloxicam) Oral Suspension**
- **Priced to keep your clients coming back to your clinic for prolonged OA therapy**
- **When asked what would motivate clients to visit their veterinarian more often, the top 3 responses were cost related***
- **Available in convenient 10 mL, 32 mL and 100 mL bottles with small and large syringes calibrated for accurate dosing**



Loxicom Injection ALSO AVAILABLE!

Loxicom Oral Suspension for Dogs ...
Keep them *Running* Back For More

*Source: Bayer Veterinary Care Usage Study III, 2013

Observe label directions. **Do not use Loxicom Oral Suspension in cats. Acute renal failure and death have been associated with the use of meloxicam in cats.** As with any medication, side effects may occur. These are usually mild, but may be serious. The most common side effects reported in field studies were vomiting, soft stool/diarrhea and decreased appetite. If side effects occur, discontinue treatment immediately and consult a veterinarian. Dogs should be evaluated for pre-existing medical conditions prior to treatment and monitored during therapy. See product labeling for full product information.

www.norbrookinc.com

0315-497-I01B

Norbrook®

Headed in the right DIR-ection

The bad news? Veterinary debt-to-income ratios are on a fast track to disaster. The good news? Our professionwide DIR might improve if we implement these strategies.

Whether they acknowledge it or not, veterinarians do have control, in whole or in part, of every component of the veterinary markets. Veterinarians control the college application process, veterinary education and the practices that provide services to animal owners.

While veterinarians have little direct control over the amount of public funding provided for veterinary education, they do have control over how to best use those funds to develop veterinarians who are prepared to provide the services animal owners demand at prices they are willing to pay. The veterinary profession can essentially affect the performance of the veterinary markets.

The current DIR is at 2:1 for graduates of U.S. colleges of veterinary medicine. This has grown over the last 15 years from its 2001 level of less than 1.2:1.

The interaction of short- and longer-term trends in the veterinary market (things like rates of unemployment, income growth and job applicant-to-job ratios in the short term and the decline in veterinary school applicants, increased veterinary school class sizes and sensitivity of incomes to the business cycle in the long term) can be measured by debt-to-income ratio (DIR). DIR is one of the most important key performance indicators the profession can look to to determine its health and viability.

At its most basic level, DIR is computed by dividing an individual's reported debt by his or her reported income. However, aggregating these individuals in order to present a fair, representative DIR that accurately reflects the economic performance of the profession requires a more exacting procedure.

The ties that bind

The DIR ties the market for education and the market for veterinarians together. The debt is directly related to the costs incurred to earn a DVM degree, while the income is the payoff a veterinarian receives upon completion of the DVM program. Thus, the DIR provides an initial measure for what animal owners are willing to pay for veterinary services in relation to what it costs veterinarians to provide those services.

The current DIR is at 2:1 for graduates of U.S. colleges of veterinary medicine. This has grown over the last 15 years from its 2001 level of less than 1.2:1. However, this mean obscures the fact that the debt-to-income ratio is over 10:1 for some U.S. students. Currently the short-term performance of the veterinary markets has enabled the DIR to hold at near 2:1. But the longer-term trends and the increasing probability of an economic downturn suggest that the persistent increase in

the DIR may continue into the future. This is not good news.

What's the goal?

Total debt for the 2015 graduates from U.S. veterinary colleges was estimated at $427,502,116. Total estimated cost (which includes tuition, fees and living expenses) was $623,183,030 for all of the 3,018 U.S. veterinary college graduates in 2015. The interest expense for borrowing these funds would have been an additional $81,924,168, bringing the total cost of the education to $705,107,198. However, students applied various outside funds to pay for some or all of these expenses, thus total debt was only 61 percent of total cost.

A partnership among the public, the colleges of veterinary medicine, veterinary students and veterinary employers could help the profession achieve four major goals:

1 Eliminate the excessive debt of veterinary students through better management of expenditures. This would create a savings of $9,181,368 and a reduction to 1.95 in the debt-to-income ratio.

2 Eliminate the interest on student loans while the student is in veterinary school. This would create a savings of

GETTYIMAGES/HONG LI

$22,020,185 and a reduction to 1.89 in the debt-to-income ratio.

3 Reduce veterinary students' education outlays by 10 percent. This would create a savings of $39,630,056 and a reduction to 1.79 in the debt-to-income ratio.

4 Increase starting salaries by 10 percent. This would create increased revenue of $21,482,518.38 and a reduction to 1.81 in the debt-to-income ratio.

The combination of these goals would lower the mean debt-to-income ratio from 2:1 to 1.38:1.

Crafting viable strategies

The first overarching strategy is to gain a professionwide referendum on the debt-to-income ratio so that every veterinary professional understands that he or she owns this problem. This is not just a public tax/revenue problem; a problem of veterinary colleges having too high of costs, too many seats or too many non-discounted seats; or veterinary practices leaving too much demand unrealized. The high DIR is a problem for the profession, and this key performance indicator should be considered by every veterinarian in every business and professional decision.

The American Veterinary Medical Association (AVMA) has come up with a set of strategies that can be used to accomplish each of the goals based on economic factors that affect supply and demand in each veterinary market. This is not an exhaustive list, but it does provide a look at the types of strategies required to improve the long-term performance of the markets.

Strategies for the general public

- Eliminate the interest payment on student loans while in school.
- Reduce the interest rate to be more in line with the risk of the loan.

Strategies for veterinary college applicants and students

- Reduce the hours of potential veterinary applicants' unpaid experience.
- Increase awareness of veterinary education costs and the implications for postgraduate living standards.
- Reduce cost-of-living expenses for veterinary students.

Strategies for veterinary colleges

- Increase scholarships for students.
- Institutionalize a connection between the education and veterinary markets.
- Conduct research to develop the same or better quality medical treatments at lower cost.
- Develop pilot projects to measure the economic implications of new veterinary teaching models.
- Explore the differences between schools that have the highest and lowest internship rates.
- Require financial education for faculty to improve awareness of the economics of practice.
- Seek economies of size, specialization of schools or both.
- Improve veterinary graduates' readiness and confidence.

Strategies for private practices

- Increase the financial literacy of veterinary practice owners.
- Enhance demand for veterinarians.
- Increase the value of graduates.

The high debt-to-income ratio is a problem for the profession, and this key performance indicator should be considered by every veterinarian in every business and professional decision.

The most important takeaway here? That the persistently increasing DIR is unsustainable. At some point the rising DIR will induce a market correction that will produce results highly unfavorable to many veterinarians. A more favorable outcome may be obtainable if we implement strategies to reduce the DIR immediately.

We will provide greater detail on this topic in the 2016 AVMA Report on the Market for Education. A profession-wide summit on the issue will be held at Michigan State University April 21-22. **dvm360**

Dr. Michael Dicks, director of the AVMA's Veterinary Economics Division, holds a doctorate in agricultural economics from the University of Missouri. He has worked in Africa on water delivery and energy production technologies and served with the USDA's Economic Research Service.

FLEA AND TICK control dogs run to, not from...

NexGard® (afoxolaner) for dogs is:

POWERFUL so it keeps killing fleas and ticks all month long

EASY to give because it's soft and beef-flavored

Dogs love it![1]

NexGard
(afoxolaner) Chewables

See brief summary on page 40

IMPORTANT SAFETY INFORMATION: NexGard is for use in dogs only. The most frequently reported adverse reactions included vomiting, dry/flaky skin, diarrhea, lethargy, and lack of appetite. The safe use of NexGard in pregnant, breeding, or lactating dogs has not been evaluated. Use with caution in dogs with a history of seizures. For more information, see full prescribing information or visit www.NexGardForDogs.com.

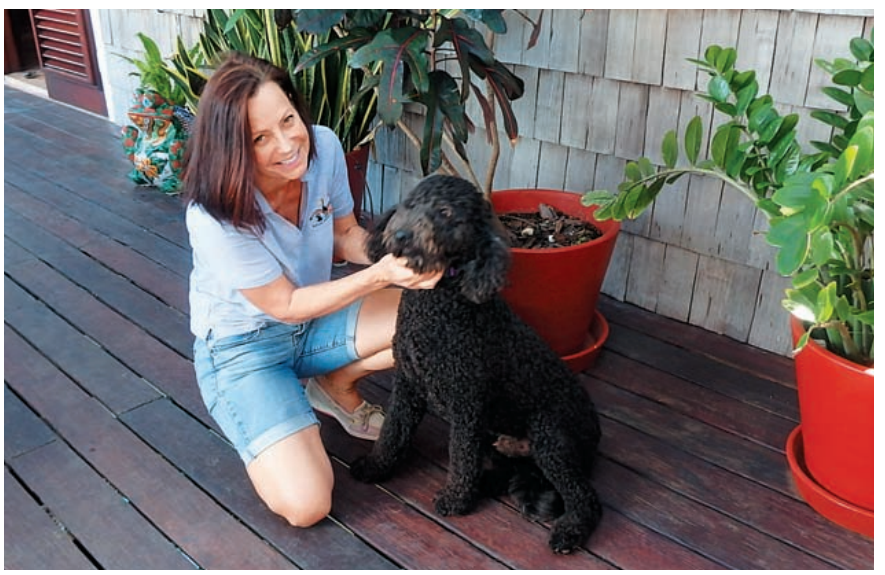
[1] Data on file at Merial.

MERIAL
A SANOFI COMPANY

Veterinary practice island-style

Our concierge practice on the Caribbean island of Anguilla shows that high-quality care is not dictated by geography or income level.

Fifteen years ago, after a combined 45 years in veterinary practice, my wife and I moved to a tiny island in the Caribbean called Anguilla, a British overseas territory with an area of about 35 square miles and a population of about 13,500. We built our home and hoped to develop a companion animal practice to meet the needs of the island's residents and their pets. Unfortunately the creation of our practice took a very circuitous route.



>>> Georgia Paul, VMD, the author's wife and business partner, with a patient on Anguilla.

The best-laid plans

Our plans first took shape all those years ago when we met an elderly veterinarian who had moved to Anguilla years earlier and started a clinic, and we talked and dreamed with him about taking over that practice. When it came time to make the dream a reality, however, things didn't go as anticipated. Both my wife and I believe every client and every patient deserves the best we can offer, but we were admonished to "remember where you're practicing" and were told that a poor standard of care was what people not only expected but wanted!

Georgia told Dr. X that she only knew one way to offer veterinary care and it was not dictated by geography. She insisted that island pets and their people deserved the option of high-quality care. Needless to say our relationship soon ended—in fact that evening!

We decided to strike out on our own, but those plans were thwarted as well, at least initially. In Anguilla business permits and licenses are for the most part granted to those with special government "connections," so for years we had to content ourselves with offering simple suggestions to our friends regarding their animals' health. Without a permit we were not able to provide real veterinary care.

Finally—a practice!

Then last year, after 15 years of being unable to practice, we became naturalized citizens and decided to pursue our original intention of practicing on our island, which is commonly referred to as "tranquility wrapped in blue." We started Pelican Mobile Pet Care, a unique practice model that allowed us to provide care—under what we soon came to realize were less than ideal circumstances. Initially we had planned to do a mobile wellness clinic, but soon we changed our emphasis.

Instead we developed a concierge-type practice, a strictly in-home model that we have built with growing cooperation and support from island healthcare providers and with the aid of long-distance telemedicine consultations and our friends at DHL.

Imagine if you walked into your practice tomorrow and there was no radiography machine, no lab, no surgery suite. What would you do? How would you adjust? How would you provide care? You would probably do what we do—improvise. We make the best of current technology when we can and otherwise work within limitations we never thought we could adjust to. In some ways our practice is a time machine in which we practice in different eras depending on what resources we have available.

Since we don't have a clinic, our practice is conducted from our home and our old Subaru Outback. We've repaired lacerations and hematomas on veranda picnic tables and performed

PHOTO COURTESY OF DR. MIKE PAUL

biopsies and lumpectomies where we could hear waves crashing. We've diagnosed conditions we never saw in the States, treated scads of *Ehrlichia* cases known locally as "tick fever," managed a number of cases of heartworm infection in part because of erratic use of preventive, and diagnosed and treated several uncommon malignancies.

We soon realized that in an exceptional veterianry environment, clients, pets and medical conditions were all out of the ordinary. Oh, I still treated my share of goats, but increasingly we were able to impress on people the need for parasite prevention and control and early intervention. A large expatriate community, along with increasingly sophisticated local pet owners, were soon presenting us with challenging cases and wanting the best care we could provide.

There is a well-equipped and fully staffed private human healthcare clinic on the island, and they have opened their doors to us for things like urine cultures, emergency blood tests, digital radiographs and even ultrasound. They sell us obscure supplies, and we have access to some drugs at local pharmacies (that's another story) and the hospital. Most of our supplies are ordered and shipped from U.S. suppliers, but nothing is easy nor cheap. International shipping is expensive, and together with import duties our costs are roughly double what folks in the States pay.

So we have developed our own pricing model that allows us to provide affordable care while compensating ourselves adequately for our services. Georgia provides most of the care (my joints are not very amenable to working on the floor). I have been repurposed into a veterinary assistant—and I am told not a very good one.

We have a few dozen clients and patients, and believe me they receive personalized care and lots of our time. Most of our clients know us personally and socially, and all of them have our home phone number, our mobile number and our email. We are rarely called at unreasonable hours; in fact most of our clients reach us by email. Because our lab tests are usually sent to the United States, we batch tests when possible to reduce shipping costs. We have developed a driving route that lets us deliver products, perform repeat evaluations and even administer medications for some clients.

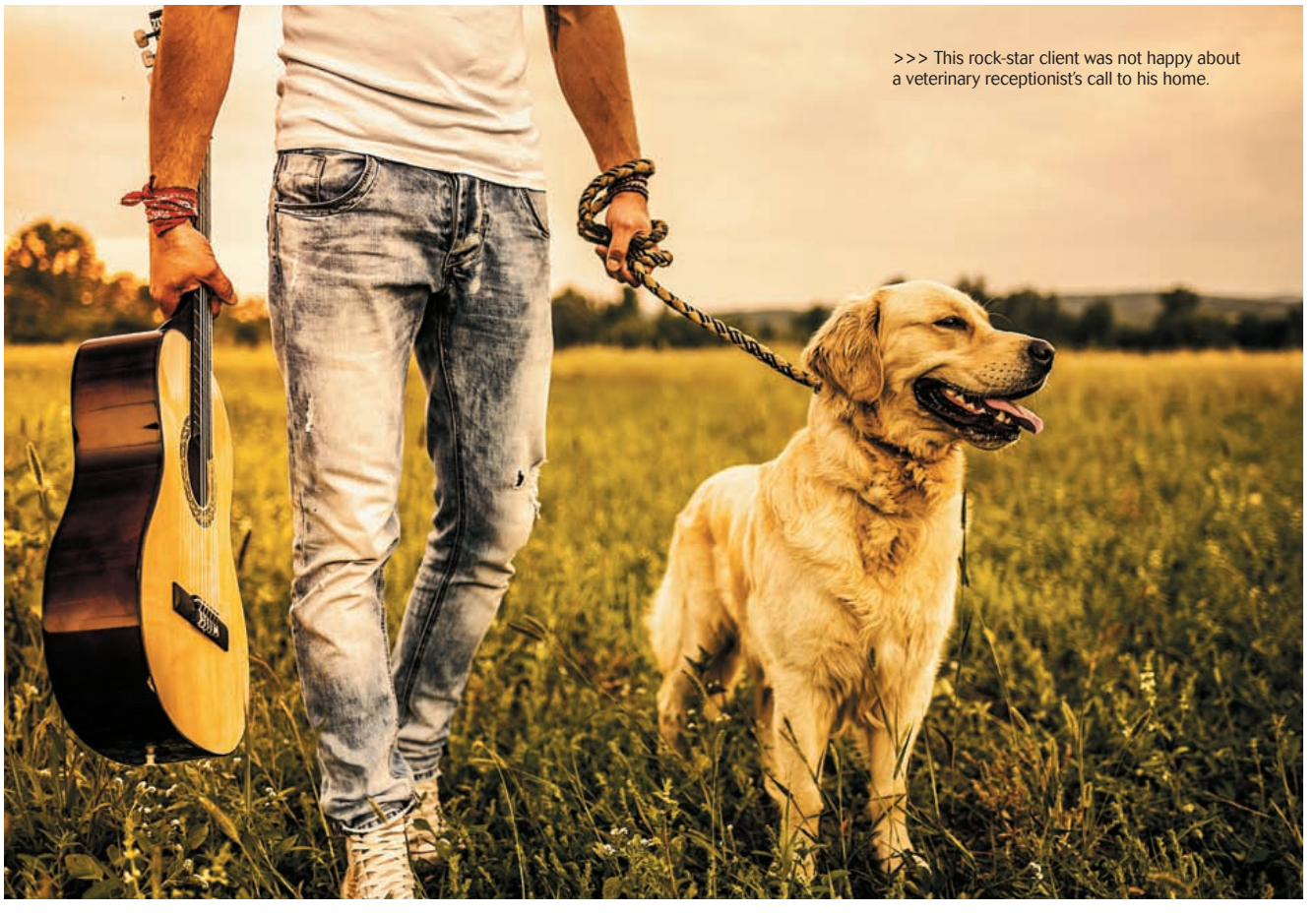
Because time is rarely urgent and we operate on our clients' schedule (but on our hours), we spend a lot of time talking to clients and educating them.

What does this mean for you?

All of you have favorite clients and patients. You might consider our practice as a model for providing care for those special people. Pet owners are less inconvenienced since we go to them on their schedule and pets are less stressed because they are in their own home.

Look at your elderly clients. Look at your differently abled clients. Consider what makes your "difficult" patients so difficult. Look at your underutilized team members. Then ask yourself if a concierge arm of your practice would enhance your services. **dvm360**

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



>>> This rock-star client was not happy about a veterinary receptionist's call to his home.

Celebrity stalking … *or friendly* **solicitation?**

Receptionist calls rock-star client's home number offering to pet sit—and the practice owner gets a letter from the state veterinary board.

Haywood Veterinary Clinic was located in an affluent West Coast suburb. Dr. Haywood had two associates, five technicians and four receptionists. After 15 years he saw his clinic as a well-oiled machine. The clinic atmosphere was congenial and informal, yet all the staff members knew their responsibilities and were highly efficient.

The clinic clientele was a mixture of senior retirees, suburban families, and a fair number of the "rich and famous." Claire was the chief clinic receptionist. It was her responsibility to coordinate the very active front desk. Between getting pet information, sending email reminders and greeting pets and people, it seemed as if her day was never done.

One of Haywood Veterinary Clinic's high-profile clients recently visited with his new puppy. It had been some years, but Claire thought she recognized the now-famous personality from her days at the local community college. She was thrilled. She hadn't realized the fellow she knew at community college was now a big star. She thought it would be a neighborly gesture if she called his home, renewed their acquaintance and advised him of her pet-sitting availability.

So Claire accessed the client's file and noted that he actually owned two dogs, and his wife Janine had a cat. She put in a call to his home and reached voicemail. She stated that this was Claire calling from Haywood Veterinary Clinic, recounted her remembrance of being a community college classmate, and went on to say that she was available if he or Janine wanted to use her pet-sitter services. She ended by saying it would be nice to catch up sometime on old times.

Not long after that Dr. Haywood received a message that the celebrity's wife had called asking to speak to him. The practice owner returned the call. When he did he got quite an earful.

GETTYIMAGES/MILOSSTANKOVIC

The client was upset that the personal information in their patient record files had been used to contact them for nonveterinary patient business. She went on to state that his employee was in fact stalking her rock-star husband. Dr. Haywood responded by saying he was disappointed this had happened and would look into it immediately.

When Dr. Haywood spoke to Claire, she admitted that she had called the client but insisted that her intentions were admirable and that the use of the word "stalking" was absurd. Dr. Haywood advised her that all the information in a client's medical record was confidential and should not be accessed for personal use.

Claire did not believe her use of the information was personal since she was calling to offer pet-sitting services. Dr. Haywood was insistent. He thought an apology to the client was in order and Claire reluctantly acceded to his wishes. It would have been nice if things ended there, but the dreaded letter from the state board arrived a week later.

The client accused Dr. Haywood of professional misconduct in that he allowed his staff to use confidential client record information for personal use. This led to an invasion of privacy and unwanted solicitation. Dr. Haywood responded by acknowledging the fact that a staff member had used the client record. He maintained that her intentions were benign and she was only offering pet-related services. Nevertheless, he had instructed his staff to respect the confidentiality of client information in the veterinary records and would continue to do so.

The board responded in a letter stating that the licensee was responsible to inform all staff members of the confidential nature of clients' personal information. Utilizing this information for nonveterinary purposes was in fact unprofessional behavior and a violation of the state practice act. That said, Dr. Haywood could not be held directly accountable for the actions and poor judgment of his receptionist. After the issuance of the board's letter of advisement, the matter was considered closed.

Do you agree with the board's position in this scenario?

Rosenberg's response

Unfortunately, identity theft, stalking and criminal deception have become commonplace in 2016. As a rule, we really don't think these things are an issue in our veterinary clinics. Yet it's always better to be safe than sorry.

Clinicians should advise their staff members to respect clients' medical record information, just as we should see that all controlled substances are kept under lock and key and prescription pads are not left lying around. In my view, the state veterinary board offered sound advice and appropriately declined to impose any sanctions.

The celebrity clients overreacted and the receptionist used poor judgment, but fortunately no true harm was done to anyone.

That's showbiz! **dvm360**

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

>>> John Singer Sargent's portrait of "Madame X" after he repaired the faulty strap.

Internet reputation lessons from 19th century art

Your professional reputation can be just as fragile as a socialite's honor in the 19th century salons of Paris. Protect yourself.

What's the best legal response to negative or defamatory online postings to sites like Yelp or Facebook? As it happens, a few clues may lie in the 19th century scandal of Madame X and the Paris Salon, the official art exhibition of the Académie des Beaux-Arts in Paris.

The Royal Ballet of London dramatized the story of Madame X in a new production called "Strapless." Ironically, the story line of "Strapless" amounts to a 19th century version of the topic veterinarians can relate to: the importance of protecting your reputation.

In a nutshell, Virginie Amélie Avegno Gautreau was the American socialite wife of a well-known French banker in 1884. "Madame X," as she came to be known in Parisian high society, was a ravishing beauty, and artists competed for the honor of painting her portrait.

John Singer Sargent was the portraitist who won the competition and he produced an elegant but provocative painting of the beautiful Gautreau, which went on display at the high-brow Paris Salon. The portrait showed Madame X with one strap of her gown dangling off her shoulder. Parisian society was aghast at the salaciousness of the image. Although the artist repainted the piece in short order, fair Virginie was immediately and forever after deemed a pariah by the European upper class.

Fast-forward to today's world where the effective equivalent of the Paris Salon is the Internet. And whereas the reputation of Gautreau was ruined through the artistic interpretation of an American painter whose work inaccurately implied that his subject was promiscuous, a 21st century false comment about a veterinarian can damage or destroy a reputation, a practice and a livelihood.

Today's reputation damage is more problematic

Artist Sargent was known to the public, and the identity of each person

PORTIA STEWART

20

RECOMBITEK® lyme

CELEBRATING 20 YEARS

OF THE FIRST RECOMBINANT LYME VACCINE

Dogs take enough risks on their own.

Why add unnecessary proteins to the list?

Give dogs all the Lyme protection they need and none of the antigens they don't.

It only takes a single protein, OspA, to block the transmission of *Borrelia burgdorferi* in the United States.[1,2,3]

RECOMBITEK® Lyme - *the only vaccine with OspA in a nonadjuvanted formula*

Advance program

MERIAL PET VACCINES CUSTOMER SATISFACTION GUARANTEE

RECOMBITEK® lyme

VaccinateYourPet.net

MERIAL
A SANOFI COMPANY

[1] Straubinger RK, Chang YF, Jacobson RH, Appel MJ. Sera from OspA-vaccinated dogs, but not those from tick-infected dogs, inhibit *in vitro* growth of *Borrelia burgdorferi*. *J Clin Microbiol*. 1995;33(10):2745-2751.

[2] Rice Conlon JA, Mather TN, Tanner P, Gallo G, Jacobson RH. Efficacy of a nonadjuvanted, outer surface protein A, recombinant vaccine in dogs after challenge by ticks naturally infected with *Borrelia burgdorferi*. *Vet Ther*. 2000;1(2):96-107.

[3] Probert WS, Crawford M, Cadiz RB, LeFebvre RB. Immunization with outer surface protein (Osp) A, but not OspC, provides cross-protection of mice challenged with North American isolates of *Borrelia burgdorferi*. *J Infect Dis*. 1997;175(2):400-405.

>>> A closer look at the portrait that launched "Strapgate."

who viewed the painting at the Paris Salon was well-known by all. Sargent graciously repainted the errant strap forthwith. He never intended to impugn the reputation of his subject but, alas, the damage to Madame X's reputation was done. Gautreau was finished within the halls of French society: a pure and simple victim of unintended consequences.

With that said, remember that victims of online disparagement don't enjoy the benefit of any of the potentially mitigating circumstances surrounding the "Strapless" debacle. Online postings that injure a veterinarian's reputation are often entirely anonymous. They often are also mean-spirited or downright vindictive. Further, the identity of persons viewing online derogatory content is unavailable to its victim. Speaking plainly, false online postings about a professional person or practice are carried out by "cyber-snipers" who target unsuspecting individuals and their reputations. This nameless, faceless sniping kills hard-earned public trust, using words instead of bullets.

Dueling is out. So what can you legally do?

The Internet is in its infancy, and the laws and regulations designed to control its improper use are even younger. Technology is expanding faster and further than government and private efforts to control its use. This is a reality not only with respect to libel and slander but for online predatory activity and hate speech as well as a panoply of other distasteful content.

When veterinarians or their practices become the subject of false online disparagement, it's important to take the problem under due consideration. Consider legal action with an eye toward the difficulty and potential reward of undertaking it. The potential victims and litigants should also carefully weigh the possibility of cyber-retaliation by friends and family of the target of any lawsuit.

And one more thing. Remember that prosecuting a claim for libel or slander—slander being verbal (think YouTube) and libel being written (think Yelp)—is difficult even when you know the perpetrator's identity. The considerable anonymity of the web makes a difficult claim even more difficult to pursue.

The elements of a claim for Internet disparagement

OK, let's assume that you know who posted a derogatory review or statement about you or your practice. There are several elements to meeting the initial threshold for a libel or slander claim.

To be actionable, the statement must be published (seen or heard by a third party), it must be false and it must be damaging to the reputation or financial well-being of the subject. That may sound simple enough, but consider the hurdles that exist in attempting to prove these elements.

Publication. This is probably the least difficult to prove. The veterinarian will likely get word of the derogatory posting from a client or an employee who saw it. But knowing who received the allegedly illegal message is one thing: compelling their testimony in a case against the writer is another. That may require a subpoena or other method to compel a witness to prove the publication requirement. And if Suzy saw Jessica's post on Facebook, there's a fair chance that compelling Suzy to testify against her "Facebook friend" may result in its own "mini-scandal" and additional damage to the plaintiff-doctor's local reputation.

Falsity. At first blush it might not seem difficult to demonstrate in court that a posting contained false accusations. But it's actually much more complicated than merely demonstrating that a published Internet comment is hurtful, inappropriate or even damaging. Remember, the standard that must be met in a veterinarian's legal complaint is that the negative statement was false.

So which of these statements is false?

> Dr. Jones euthanized my cat without my permission. (The husband was co-owner and had authority to have the cat euthanized.)

> Dr. Jones didn't give me the most effective antibiotic for my pet. (The writer had a budget and couldn't afford the proprietary medication originally suggested by Jones.)

> Dr. Jones killed my dog. (The surgery had a high likelihood that the patient wouldn't survive the procedure and the owner signed off on the surgery.)

> Dr. Jones committed malpractice with respect to my pet. (This can be pleaded and proven to be false.)

> Dr. Jones should have given my cat much better treatment. (This is an opinion, not a fact, true or false. Consequently, it is protected by the First Amendment.)

Damages. There's no doubt that false, derogatory statements can hurt a veterinarian's reputation and income. But how does the veterinarian demonstrate a correlation between the alleged Internet lie and a loss of patients or potential patients? It's tough.

The number of visitors to a "local veterinarian's" page within a website such as Yelp, even visits originating in a specific community, may be relatively easy to uncover from the company that hosts the site. Chances are a plaintiff would need a court order to obtain that information, but it's possible to obtain.

But how do you go about establishing that a customer left Dr. Jones because of something she read about him on a website or because her visit to that site revealed that a competitor had particularly glowing reviews?

The biggest hurdle: Anonymity

You can sue when a false and derogatory statement is made on social media. But the biggest hurdle can be the first hurdle: How do you figure out who to sue?

Let's assume that Dr. Jones has just plain had enough of a certain client who he suspects is jerkclient4321@whiz.com. Well, suspicion isn't proof, and determining the identity of that client may require a court action brought against the website where the disparaging statements were posted.

Websites are protected by law against liability for much of the content posted by subscribers. But it's possible to successfully obtain the identity of an anonymous contributor to a page. That said, social media websites are notoriously protective of their customers' rights both to legally protected speech and privacy. So if you elect to pursue legal action against someone for posting defamatory language online, you may have to prepare for some significant up-front expenses. 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.

- MADE IN USA
- 2-YEAR WARRANTY
- AVERAGES 6 IOP PRESSURES
- EASIER TO GET PRESSURES
- NO DAILY CALIBRATION
- 2-YEAR BATTERY LIFE

Eye Pressure in Seconds

Tono-Pen AVIA® VET

Trade in old Tono-Pen or TonoVET Program

AVAILABLE EXCLUSIVELY AT:

Dan Scott & Associates
614-890-0370 / 888-Tono-Pen
www.danscottandassociates.com

CAP IM Supply

Topical flea preventive

ParaDefense, a new flea preventive manufactured by CAP IM Supply, is a once-a-month topical flea preventive utilizing imidacloprid and the insect growth regulator pyriproxyfen. Distributed exclusively to veterinarians, this new product allows veterinarians to defend against lost revenue by providing a more affordable solution to pet owners who are leaving the clinic without flea protection. It is available in two sizes for cats and four sizes for dogs and is sold through Henry Schein Animal Health.

For fastest response visit paradefensepet.com/vet

iVet360

Expanded services

iVet360 has introduced two new service levels. In addition to the original platinum service level, there are now silver and gold levels to choose from. The silver level gives veterinary hospitals the resources to accelerate their marketing, including assistance with branding, online presence, call tracking and existing pet owner communications. It also includes access to creative services and a dedicated marketing manager. The gold level adds to this package iVet360's customized analytics dashboard. The software provides real-time operational analysis of hospital activity and tools to improve pet owner compliance.

For fastest response visit iVET360.com

Strategic Partners Inc.

Medical apparel

Strategic Partners Inc. (SPI), a designer, manufacturer and distributor of branded medical apparel, has launched Sapphire Scrubs, combining functional luxury and Certainty antimicrobial fabric technology. Sapphire Scrubs were designed for fashion-discerning healthcare professionals who value quality and desire to look and feel their best. They feature four-way stretch fabric in poly-rayon-spandex that is soft, breathable and sophisticated. Signature embroidery, gemstone-inspired buttons, a zipper pull and rhinestone detailing adorn the scrubs. There are six styles and 10 colors to choose from.

For fastest response visit sapphirescrubs.com

CareFlash

Online pet care communities

CareFlash, a new-media healthcare company, has released PrizedPals, an online community platform for the pet care industry. PrizedPals offers branded, secure, invitation-only web and mobile microcommunities called CareCorrals, which are designed to support families of pets that are healing, aging, living with chronic illness, facing end of life or grieving. The communities are created and run by families and include a voice-activated interactive storytelling tool, community blog, photo upload library, interactive calendar, 3D pet health animations and other features.

For fastest response visit prizedpals.com

Dechra to buy Putney for $200 million

Dechra Pharmaceuticals has announced its acquisition of Putney Inc., a developer of generic veterinary pharmaceuticals based in Portland, Maine, for $200 million cash subject to federal approval.

The acquisition provides Dechra access to Putney's existing product portfolio and development pipeline, both of which are high-quality and in complementary therapeutic focus areas, while adding critical mass to Dechra's existing U.S. operations and infrastructure, according to a Dechra release.

Putney markets 11 veterinary drugs, including pain-management, anti-infective and dermatology products, with 10 more in the pipeline. The companies anticipate that the sale will close in April.

Virbac

Rebranded dental test

Virbac has launched the OraStrip Dental Diagnostic Test under the C.E.T. brand. The test detects periodontal infection in dogs through the presence of thiols, providing visual test results to support treatment recommendations and enhance compliance. Periodontal disease can affect dogs as young as 5 months and is the only disease in dogs that has historically been identified only visually. Early detection of periodontal disease with this diagnostic test helps veterinarians discuss with pet owners the importance of at-home care and in-clinic dental treatments.

For fastest response visit virbacvet.com

Zoetis

Flea and tick chewable

Zoetis has received FDA approval for Simparica (sarolaner) Chewables to kill adult fleas and prevent flea infestations, as well as treat and control tick infestations due to the lone star tick, the Gulf Coast tick, the American dog tick and the brown dog tick. It is approved for use in dogs 6 months of age or older weighing 2.8 lbs or more. In a single-dose chewable tablet, once-monthly Simparica's peak protection from fleas and ticks lasts for a full 35 days, without losing efficacy at the end of the month, according to the company.

For fastest response visit zoetisUS.com/Simparica

Products360 continues after Medicine360>

MEDICINE | Surgery STAT

The *finer points* of laparoscopic liver biopsies

Less pain and a quicker recovery than a traditional laparotomy. Your patients will thank you, or at least give you a tail wag. *By Marc Hirshenson, DVM, DACVS*

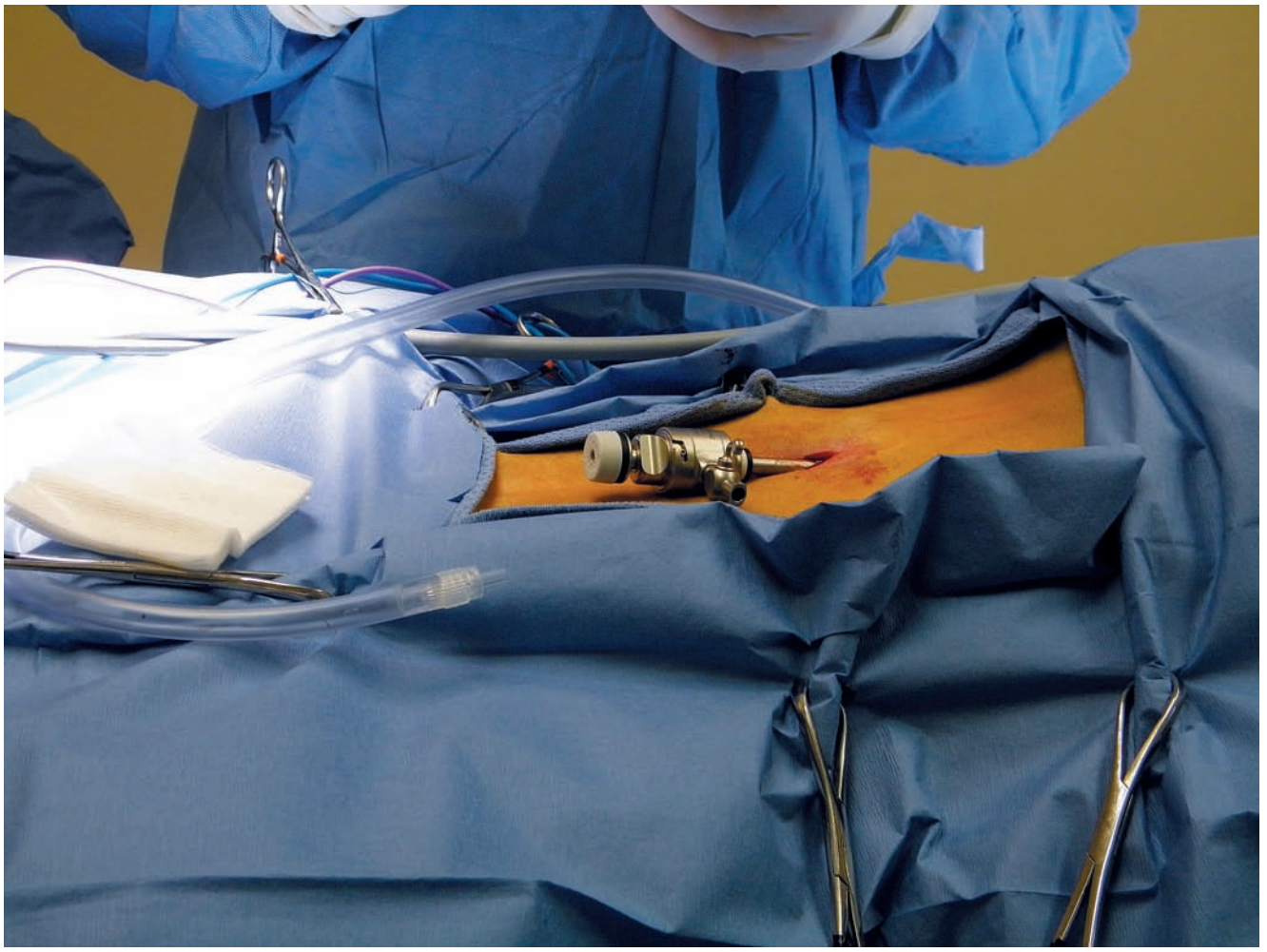
When you suspect hepatic disease in a patient, a liver biopsy is indicated to obtain a definitive diagnosis. A histopathologic diagnosis can help you differentiate among and guide treatment of neoplastic, infectious, inflammatory and metabolic conditions within the liver. Traditional methods of obtaining a diagnosis have included percutaneous fine-needle aspiration, ultrasound-guided percutaneous biopsy or a laparotomy.[1] The use of laparoscopic equipment allows for traditionally open surgical procedures to be performed with minimally invasive techniques, resulting in less postoperative pain and faster recovery.[2,3] More specifically, laparoscopic liver biopsy is now a useful procedure that results in diagnostic histopathologic samples and minimal morbidity to the patient.

Required equipment

Here's what you will need to peform the biopsy procedure:

- A laparoscopic tower (monitor, camera, light source, insufflator and carbon dioxide canister)
- A 5-mm telescope (0 or 30 degrees)
- 1 to 2 trocar cannulas
- A laparoscopic biopsy instrument (often a cup biopsy forceps)

Additional laparoscopic instruments



>>> Figure 1. Placement of a trocar just caudal to the umbilicus for insertion of a 5-mm telescope.

PHOTOS COURTESY OF DR. MARC HIRSHENSON

(such as a blunt probe and liver fan) may be useful for manipulation of abdominal organs and ideal visualization.

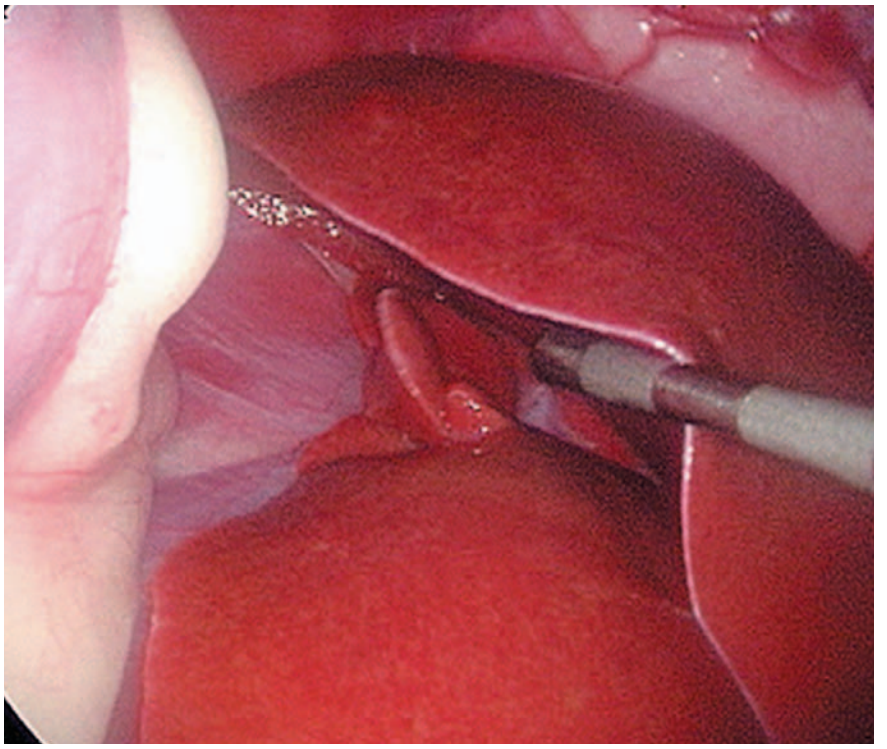
Patient considerations

Factors such as diaphragmatic hernia, significant ascites or large solitary liver masses may be considered reasons to elect an alternative method of diagnosis. Appropriate abdominal insufflation is necessary (maximum of 15 mm Hg intra-abdominal pressure), which may result in respiratory difficulty and necessitate mechanical ventilation.

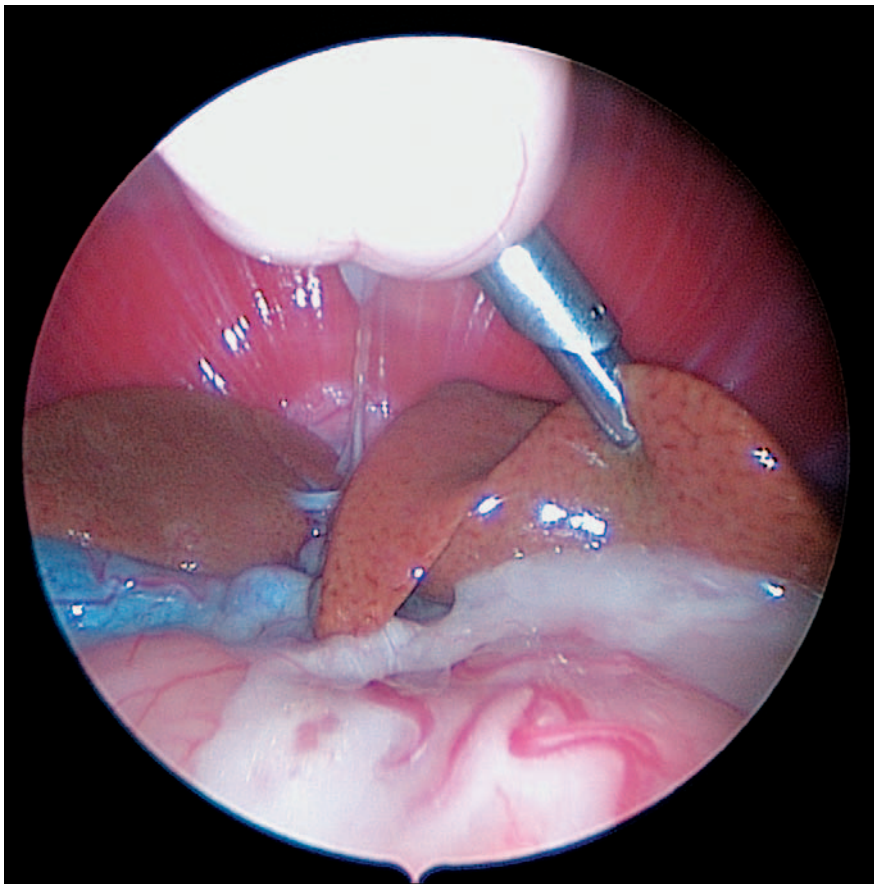
Additionally, appropriate preanesthetic testing (complete blood count, serum chemistry profile, urinalysis and coagulation profile) as clinically indicated should be performed, and specific patient risk factors should be assessed. Before the procedure, always discuss with the client the possibility of needing to convert to an open laparotomy midprocedure because of equipment failure, poor visualization or patient complications.

Patient preparation

Place the patient in dorsal recumbency. I prefer to have the patient tilted in a cranial-caudal position (head slightly elevated). Prep the patient's abdomen in a standard fashion in case conversion to an open laparotomy is necessary. Use a standard four-point draping method.



>>> Figure 2. Using a blunt probe to isolate and visualize the desired liver lobes.

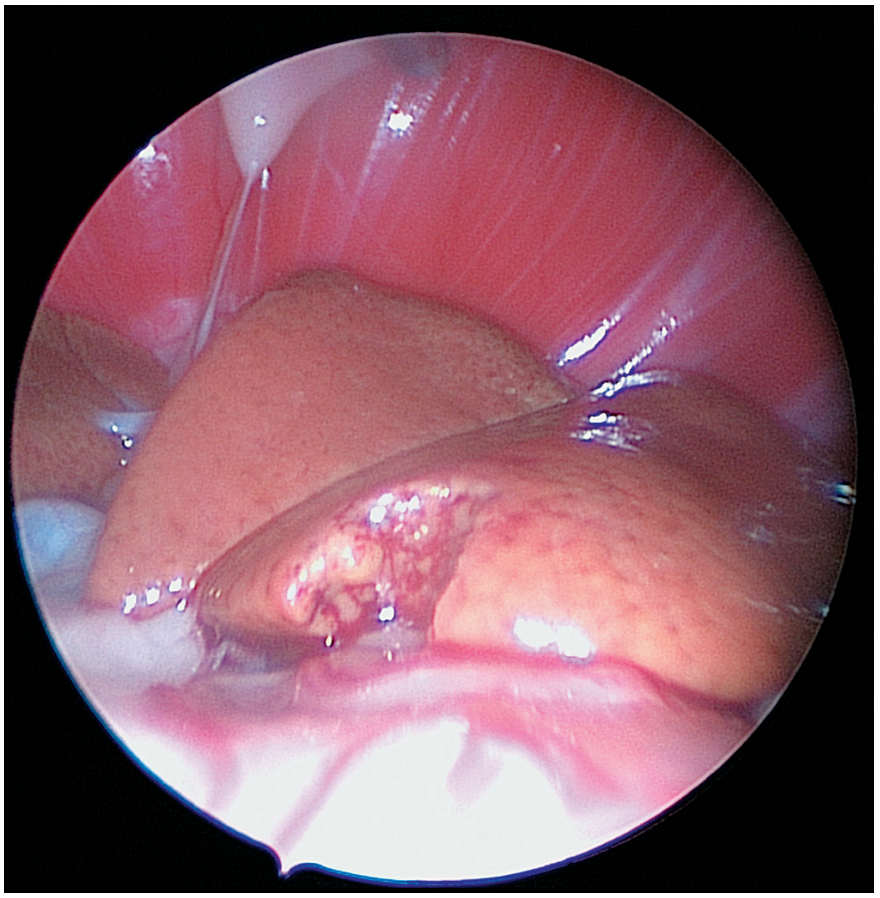


>>> Figure 3. Using a laparoscopic cup forceps to obtain a sample from lobe periphery.

Procedure

Insufflate the abdomen using a Veress needle or Hasson technique—whichever you prefer. (Briefly, a Veress needle involves using a specially constructed needle to penetrate the abdomen and insufflate the abdomen before trocar placement, while the Hasson technique requires dissection through the body wall and placement of the first trocar with a blunt obturator.)

Insert a single trocar port along midline just caudal to the umbilicus (Figure 1). Once the abdomen is insufflated, insert the telescope to visualize the abdominal organs. Depending on your preference, a single multi-trocar port can be used for instrumentation, or a second port can be created more cranially for instrumentation. While



>>> Figure 4. The biopsy site immediately after procurement of the laparoscopic liver biopsy sample, showing mild post-sample hemorrhage.

some surgeons prefer to place the second port to the right or left off midline, I prefer placement of the second port along midline to minimize bleeding and discomfort from the abdominal wall musculature.

Process the samples for submission for histopathologic analysis or culture as appropriate. Remove the instrument and camera, evacuate the carbon dioxide manually from the abdominal cavity, and close the abdominal wall, subcutaneous tissues and skin routinely.

While some surgeons prefer to place the second port to the right or left off midline, I prefer placement of the second port along midline to minimize bleeding and discomfort from the abdominal wall musculature.

Under telescope visualization and using a laparoscopic biopsy instrument, obtain samples (Figures 2-4). I use a technique of grasping a piece of tissue, waiting 10 to 15 seconds and then pulling the sample in a twisting motion. Obtaining several samples from different lobes is recommended.

While sampling the periphery of liver lobes is easier, it is possible to obtain more centrally located samples, as well. The placement of a small piece of hemostatic agent through the instrument port at the site of liver biopsy can be considered to assist clot formation. Appropriate clotting can typically be visualized during the procedure.

Postoperative care

Perform standard postoperative care for the patient, including pain medication and supportive care. Tell the owners to care for the incision just the same as you would for an open laparotomy. Depending on the patient and client, you might consider performing the procedure on an outpatient basis. Postoperative complications can include hemorrhage, pain, nausea or infection, and the patient should be monitored for these and treated as appropriate.

Conclusion

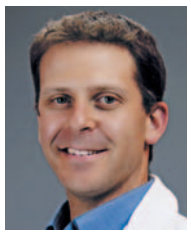
Laparoscopic liver biopsy is a technically simple procedure once you have been trained appropriately in the use of laparoscopic equipment. It results in excellent visualization of the liver and procurement of diagnostic samples with less morbidity than traditional open surgical techniques. **dvm360**

References

1. McDevitt HL, Mayhew PD, Giuffrida MA, et al. Short-term clinical outcome of laparoscopic liver biopsy in dogs: 106 cases (2003-2013). *J Am Vet Med Assoc* 2016;248:83-90.

2. Devitt CM, Cox RE, Hailey JJ. Duration, complications, stress, and pain of open ovariohysterectomy versus a simple method of laparoscopic-assisted ovariohysterectomy in dogs. *J Am Vet Med Assoc* 2005;227:921-927.

3. Culp WT, Mayhew PD, Brown DC. The effect of laparoscopic versus open ovariectomy on postsurgical activity in small dogs. *Vet Surg* 2009;38:811-817.



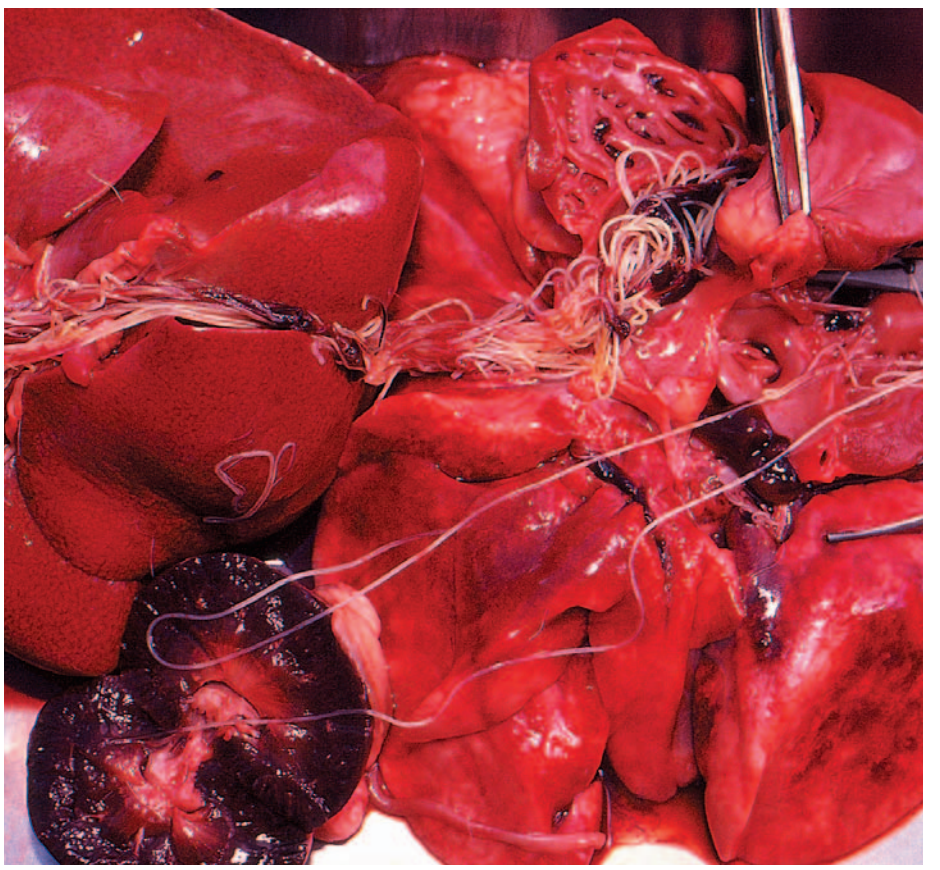
Dr. Marc Hirshenson is an ACVS board-certified veterinary surgeon practicing at Gold Coast Center for Veterinary Care and West Hills Animal Hospital and Emergency Center in Huntington, New York. Aside from his experience with minimally invasive surgery, his professional interests include surgical oncology, wound management and cruciate ligament disease. In his spare time, he enjoys running, swimming, relaxing on the beach and traveling with his wife.

ACVS®
AMERICAN COLLEGE of VETERINARY SURGEONS

Surgery STAT is a collaborative column between the American College of Veterinary Surgeons (ACVS) and dvm360. *To locate a diplomate, visit ACVS's online directory at acvs.org/VeterinaryProfessionals/FindaSurgeon.*

Heartworm Q&A: **The reminder quagmire**

Forgetting that monthly preventive—it's so easy to do, even for veterinarians and their own pets (you know you've forgotten a time or two!). Here's why and how to not let clients skip a dose again.



While the American Heartworm Society (AHS) recommends that pets be protected from heartworms year-round, spring is the season when heartworm checks tend to be top of mind for both veterinarians and pet owners. It follows that spring is also when troubling questions about heartworm tend to surface.


Dr. Tom Nelson

Thus, here is the first of a series of Q&As with AHS board members that address the questions that commonly vex veterinarians. First up, the importance of reminders from Tom Nelson, DVM, owner of Animal Medical Center in Anniston, Alabama.

Q Do heartworm reminders matter?

A Years ago when the six-month injectable heartworm preventive was introduced, I created an automatic reminder system for owners to bring their dogs in for injections. That prompted one of my technicians to ask a very good question: Why don't we have a reminder system for clients who give monthly preventives? So we created one for those clients, too.

When I give talks to veterinarians and ask them how many send reminders for heartworm tests, more than 80 percent raise their hands. But when I ask how many send reminders about giving preventives, only 20 to 25 percent do so. If we consider what a challenge heartworm compliance presents for our clients, it's clear this needs to change.

Issue 1: Getting a preventive on board in the first place. Studies have consistently borne out that less than half of owners whose dogs receive veterinary care give preventives. In the South and Southeast, where heartworm disease is very common, percentages range from 42 to 45 percent. In the far West, only 18 percent of owners give preventives, in spite of the fact that roundworm incidence is actually much higher in the West than the Southeast—and most heartworm preventives protect against roundworms as well as heartworms. The Midwest and Northeast fall somewhere in between, with roughly 38 percent of owners giving preventives.[1]

My practice in Alabama is no exception. In spite of my conviction that heartworm prevention is vital for canine health, more than half of the dogs in my practice leave the veterinary office without their owners' purchasing heartworm preventives.

Issue 2: Giving a preventive reliably and year-round. When you make reminder calls to pet owners about refills, what do they usually say? "I still have medication left." Giving preventives on time, every time, isn't happening enough of the time. Sadly, I've been guilty of this myself. In the 1980s, when we only had daily heartworm preventives, I was extremely compliant with my two Labradors—each had their pill every morning when I fed them. However, a year after I switched to a monthly medication in the late 90s, my own dog turned up positive for heartworm disease. I couldn't believe it. But when I looked at the medication I had been using, I had only given nine of the 12 pills. Unfortunately, this is what happens with our clients, too.

Just jog their memory

As veterinarians, we tend to be sensitive about making recommendations that cost our clients money. However, research on heartworm compliance tells us that cost is not the barrier—it's simple forgetfulness. That's why communication is key. Back in 2001, when my practice started sending routine reminders about giving monthly preventives, we saw a 33 percent increase in our monthly preventive sales. Refill reminders work because they can help overcome the obstacle of forgetfulness.

Fortunately, reminding clients to give heartworm preventives has never been easier. It's not like the old days when we had to send handwritten postcards—we can readily set up email or text reminders, and both veterinary companies and associations have programs to help us. So take the time, and help your clients be compliant. Heartworms are easy to prevent but difficult to treat.

This question and others are the focus of a new series of 15-minute videos designed to offer practical information on heartworm prevention, diagnosis and treatment. The "Eye on Heartworm" videos, which are made available by the AHS, can be found at heartwormsociety.org (click "Veterinary Resources," "Veterinary Education," "Videos"). dvm360

Reference

1. Data on file, Zoetis. Vetinsite Analytics, 9/2013.

dvm360 Find it all here

The rest of the series

Visit dvm360.com/HW2 and dvm360.com/HW3 for the other two Q&As in this series, from Drs. Clarke Atkins and Matt Miller, on what to do about missed doses and best practices in low-mosquito areas.

GETTYIMAGES/NANCY NEHRING

The two most common derm mistakes veterinarians make

Avoid these pitfalls for the sake of your patients—and your clients.

Veterinary dermatologist Paul Bloom, DVM, DACVD, DABVP, of Allergy, Skin and Ear Clinic for Animals in Livonia, Michigan, sees two persistent mistakes general practitioners make when dealing with dermatology cases. They are:

Dr. Paul Bloom

1. Not finding the "due to"

Bloom says the No. 1 mistake doctors make in dermatology cases is not working these patients up completely but simply treating their symptoms—"trying to get the patient over the crisis without formulating a long-term plan," he says.

Instead, Bloom says every diagnosis in dermatology should be followed by the words "due to." For example: alopecia "due to," pruritis "due to," pyoderma "due to" or otitis externa "due to." "If we find the 'due to' we'll be less likely to play whack-a-mole," he says.

2. Not scheduling the rechecks

If veterinarians aren't establishing a long-term treatment plan, Bloom says they're missing the opportunity to schedule rechecks with the patient. "They're going from crisis to crisis rather than engaging in proactive management," he says. "We have to get these patients back for rechecks, and if we see that they've had recurrent problems, to schedule rechecks before they become symptomatic."

Furthermore, he says, dispensing medications such as antibiotics or glucocorticoids without performing a recheck can be downright dangerous. "It set us up for resistance and for complications associated with administration of those drugs," Bloom says.

Nip these two problems in the bud by finding the "due to" and scheduling rechecks, Bloom says, "and I think you'll be a much happier veterinarian—and you'll have much happier clients." **dvm360**

A booster should do it! Updated rabies guidelines advise less dire protocols

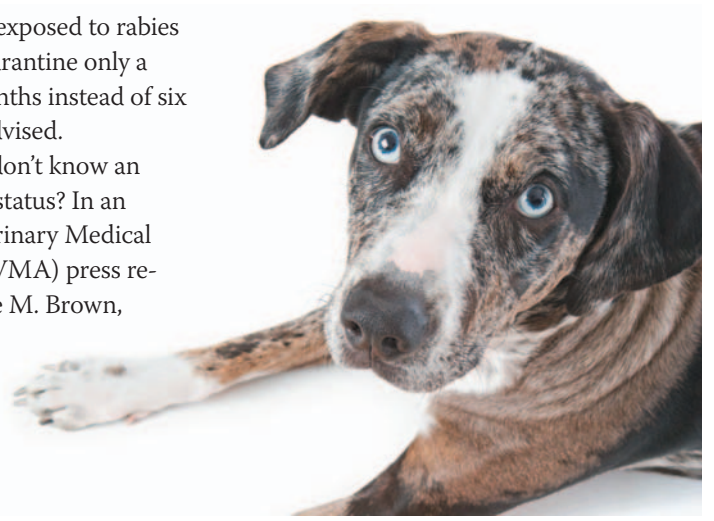
Quarantine or euthanasia no longer called for in exposed animals with an out-of-date rabies vaccination status.

Has a rabid animal bitten one of your veterinary patients that isn't quite up to date on its rabies vaccination? You may be able to hold off on the quarantine or, worse, euthanasia. The Compendium of Animals Rabies Prevention and Control, 2016, appearing in the March 1, 2016, issue of the *Journal of the American Veterinary Medical Association*, has updated the protocol for such animals to receiving a booster and then putting them under observation.

The change came about after a study conducted at the Kansas State Diagnostic Laboratory found that "dogs with out-of-date vaccination status were not inferior in their antibody response following booster rabies vaccination, compared with dogs with current vaccination status."[1]

Other changes from the 2011 compendium—the last time the rabies recommendations were updated—are for dogs and cats that have never been vaccinated but exposed to rabies to be under quarantine only a period four months instead of six as previously advised.

What if you don't know an animal's rabies status? In an American Veterinary Medical Association (AVMA) press release, Catherine M. Brown, DVM, MSc, MPH, co-chair of the compendium committee, says, "The most confusing category is dogs and cats that are overdue for a booster vaccination—so, they have received a rabies vaccination at some point, but there is no appropriate documentation. The simplest thing to do is go ahead and booster that animal—get them to veterinary medical care, give them a booster—and then place them in strict quarantine for four months. So, essentially, you're treating them as an unvaccinated animal." **dvm360**



>>> Now you can take much of the worry away when a pet with a not-quite-up-to-date vaccination status has been exposed to a rabid animal.

GETTY IMAGES

Reference

1. Moore MC, Davis RD, Kang Q, et al. Comparison of anamnestic responses to rabies vaccination in dogs and cats with current and out-of-date vaccination status. *J Am Vet Med Assoc* 2015;246(2):205-211.

"I need steroids, STAT!" But do you? *Do you?*

Are corticosteroids always lifesavers? A veterinary criticalist weighs in with this tip: Use the "CIA." Find out how below. *By Mindy Valcarcel*

Many veterinarians think that patients should never die without the use of corticosteroids. But is this really true? If all else fails, reach for a corticosteroid?

Not always, says emergency and critical care specialist Daniel Fletcher, PhD, DVM, DACVECC. Corticosteroids can do wonders in some cases, and he advises that you use the acronym CIA to guide you in when their use is indicated in emergency cases. (Note: This is a mnemonic device, not the actual CIA. No men in black suits here.)

Fletcher says because of the multitude of corticosteroid use recommendations in emergency cases out there—some of which corticosteroids are indeed useful for and some of which they can actually be harmful for—he and a fellow criticalist came up with the CIA for acceptable corticosteroid use:

C … is for cancer since some types of cancer that will respond well to corticosteroids.

I … is for immune-mediated diseases such as immune-mediated hemolytic anemia, immune-mediated thrombocytopenia and immune-mediated skin disease.

A … is for conditions such as atopy, asthma, allergy, anaphylaxis and Addison's disease. "It seems like a lot of them seem to fall under the As," says Fletcher.

So when are corticosteroids a no-no? Fletcher says new evidence in the literature—much in human literature—suggests that corticosteroid use is not a good idea in some diseases that veterinarians have classically used them for—spinal cord injury, head trauma and shock. "I think those are three that a lot of people use steroids for, and I would argue that if you look at the current literature, it's not very well supported," he says. The harm: They can cause complications such as infection, immunosuppression and gastric ulceration.

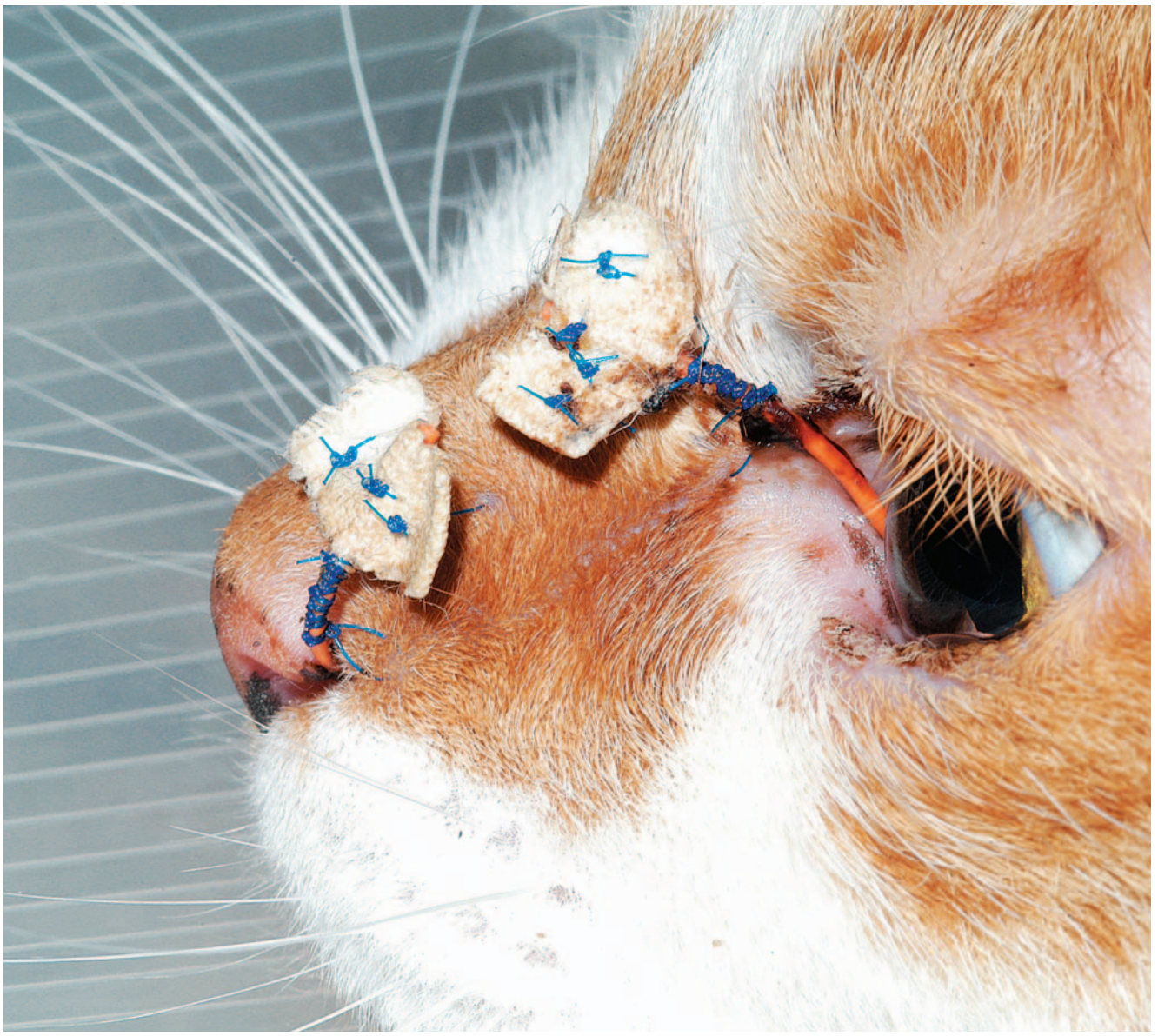
Fletcher says because of the multitude of corticosteroid use recommendations in emergency cases out there—some of which corticosteroids are indeed useful for and some of which they can actually be harmful for—he and a fellow criticalist came up with the acronym CIA for acceptable corticosteroid use.

If you're not sure when to reach for a corticosteroid, Fletcher has three questions to ask yourself to help make that determination:

- Is there a definite benefit associated with it for the disease you are treating?
- Are there risks associated with it? ("There are always risks associated with steroids for any patient you give them to," says Fletcher.)
- Do the benefits outweigh the risks in those cases?

As for which corticosteroid to use, Fletcher likes injectable dexamethasone sodium phosphate for his emergency cases. "It's important to remember, though, that dexamethasone is a whole lot more potent that prednisone, which is what we're using for chronic therapy," says Fletcher. "So if you're thinking you want 0.5 mg/kg of prednisone, don't pick up the dexamethasone bottle and give 0.5 mg/kg of that. Remember that dexamethasone is about 10 times as potent, so you really want to cut that dose way down." **dvm360**

GETTY IMAGES/INNOVATEDCAPTURES



>>> A work in progress. Kinako, recovering after the placement of a temporary stent to correct an obstructed nasolacrimal duct. The stent was left in place for two months to allow adequate time for the duct to heal in an open position.

Dry-eyed at last thanks to **nasolacrimal stenting procedure**

Pioneering technique keeps cat's tear ducts permanently unobstructed.

After a computed tomography (CT) scan revealed a tear duct obstruction in Kinako, an 8-year-old female domestic shorthaired cat, she underwent a new procedure pioneered at the University of California, Davis, Ophthalmology Service to permanently reopen the duct.

David Maggs, BVSc, DACVO, and Ann Strom, DVM, MS, suggested this new, minimally invasive approach that involves placing a stent to treat the cat. This therapeutic approach to nasolacrimal obstructions had already shown great promise in one horse and a number of dogs, but, until Kinako, the procedure had not yet been performed in a cat.

The stent technique

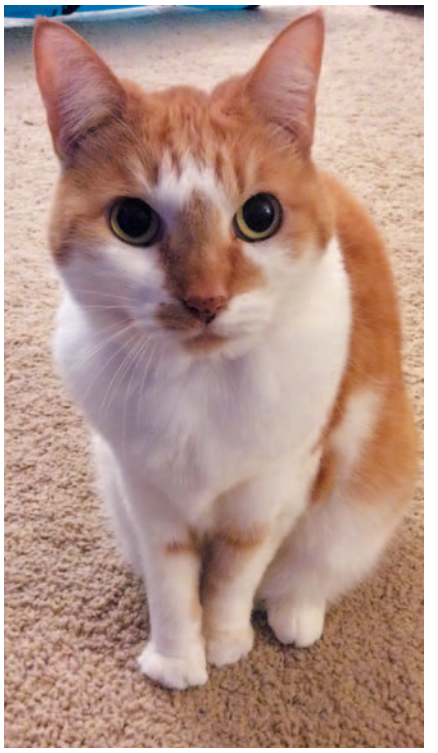
Kinako had been referred to UC Davis because of a continual buildup of tears in her left eye, sometimes resulting in infections. While the situation was not life-threatening, Kinako's owner did not want her to suffer needlessly for the rest of her life.

As they had done before for the

PHOTOS COURTESY OF UNIVERSITY OF CALIFORNIA, DAVIS

equine and canine patients, a multidisciplinary team of clinicians from UC Davis' Ophthalmology, Internal Medicine, Soft Tissue Surgery, Anesthesia and Diagnostic Imaging Services came together to successfully unobstruct and temporarily stent Kinako's left nasolacrimal passage. After the surgery, the stent was left in place for two months to allow adequate time for the duct to heal in an open position.

The UC Davis team used endoscopy, CT and fluoroscopy to identify and bypass or remove the nasolacrimal obstruction. Whether a scarred duct or a foreign body causes an obstruction, temporary stents can usually be placed to reopen the duct from eye to nose.



>>> A tear-free success. Kinako was the first cat treated for a blocked nasolacrimal duct using UC Davis' pioneering procedure.

Cheers for no tears

Although Kinako initially had some persistent ocular discharge caused by an infection in the tissue around the eye, this cleared with antibiotics, and Kinako's left eye no longer shows signs of buildup or excessive tearing. Her nasolacrimal duct remains clear. About three months after surgery, Kinako's owner reported that the cat's left eye demonstrated what he defined as a complete resolution of signs.

To date, UC Davis has treated 15 dogs, two cats and one horse with this procedure that now offers a minimally invasive alternative for referring veterinarians who have been faced with treating nasolacrimal obstructions using conventional, more invasive and typically less successful methods.

A clinical trial is underway at the veterinary hospital to evaluate the procedure so it can become the standard-of-care for this otherwise frustrating disease complex. dvm360

About three months after surgery, Kinako's owner reported that the cat's left eye demonstrated what he called a complete resolution of signs.

EQUINE | Lameness

Equine lameness: Subjective *versus* objective assessment

Veterinary researchers are weighing in on this question critical to optimal horse health and owners' pocketbooks.

By Ed Kane, PhD

Lameness is a common reason horses present to equine practitioners. Federal researchers note that lameness has the highest annual incident density of all medical problems in horses—half of all horse operations with five or more horses experience one or more cases of lameness annually.[1] Another report estimates lameness incidence at 7.5% to 13.7% annually.[2]

Assuming there are 9.2 million horses in the United States, at $432 spent on veterinary services per lameness incident, more than $500 million is being spent on lameness diagnosis and treatment per year. Horse owners' annual total financial loss attributable to lameness—that is, the loss of use cost as well as veterinary spending—is estimated to exceed $1 billion.[1]

Fortunately, about 70% of all lameness incidents result in recovery. Successfully treating the 30% that won't recover without proper diagnosis and treatment is the predicament. Aids in detecting and measuring lameness are most helpful in these cases.

Subjective classification and assessment

The American Association of Equine Practitioners' lameness guidelines judge lameness according to a five-point scale, with zero noted as normal or sound and five representing maximum lameness.

> Grades 1 and 2, which are more difficult to observe or discern, are assessed while the horse is walking or trotting in a straight line with some difficulty.

> Grade 3 is further lameness, determined while the horse is trotting.

> Grade 4 lameness is detectable at the walk.

> Grade 5 is lameness so severe it causes the horse to bear minimal or no weight in motion or at rest, or to be unable to move.

Compensatory lameness involves asymmetric movement when the horse shifts weight from a painful to a normal limb. Over time this can lead to pain in an otherwise normal limb from overloading, a condition known as secondary lameness.

Subjective lameness evaluation, in which a clinician visualizes local, regional and whole-body movements, is the accepted standard for clinical lameness detection, says Josh Donnell, DVM, of Colorado State University and his colleagues.[3] Unfortunately, there can be poor agreement among veterinary evaluators even about the same animal's type and degree of lameness. Therefore, researchers have been seeking more objective assessment measures.

>>> A horse being evaluated for lameness by subjective observation.

PHOTO COURTESY OF DR. KEVIN KEEGAN, UNIVERSITY OF MISSOURI COLLEGE OF VETERINARY MEDICINE

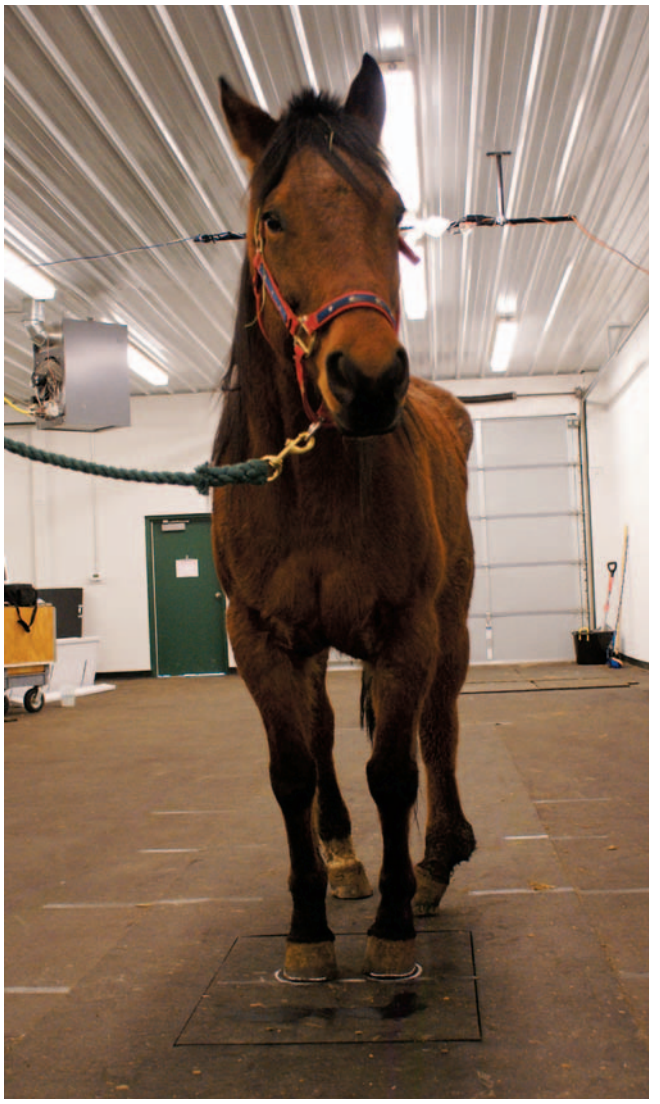
Two objective methods

Soundness and lameness in horses can be objectively quantified through biomechanics, using mechanical principles to observe the horse in motion. Video capture and other line-of-sight techniques are the most straightforward, but for practical reasons they are difficult to implement routinely in over-ground situations. The other two potentially useful methods are the force plate or platform (FP) and the body-mounted inertial sensor system (ISS).

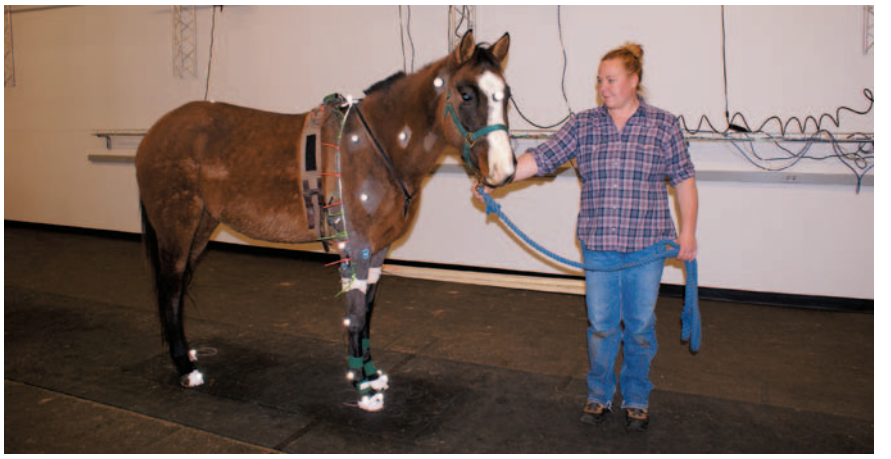
With a force plate, the horse strikes a flat piece of metal that measures force of weight-bearing. The FP can measure ground reaction forces in the three axes—X, Y and Z (three-dimensional space)—giving a reading of each. "It also tells you how much impulse the horse is going through, as well as how long the horse is putting weight on [an affected limb]," says David Frisbie, DVM, PhD, DACVS, DACVSMR, professor at Colorado State University College of Veterinary Medicine.

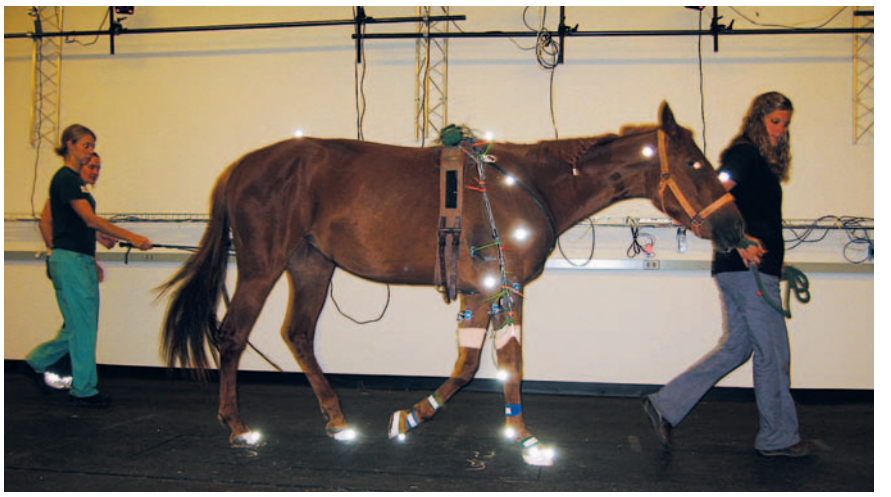
NUTRITION E5
Feeding the broodmare for the health of the foal

dvm360.com/equine
News, medicine and business information for equine veterinarians



>>> A horse standing with its forelimbs positioned on a force plate to assess compensatory forelimb weight bearing changes in response to a chronic left hind fetlock injury.





>>> Horses standing and trotting on two force plates with reflective markers attached to measure forelimb joint movements with kinematics and electromyography to measure forelimb muscle activation.

A close look at the difference

FP is a direct measure of force, or weight-bearing, while ISS measures symmetry. With FP, the lesser the force, the greater the limb lameness. "The detriment is that FP is a little more finicky piece of machinery," says Frisbie. "The unit is mounted flush with the ground the horses trot on, and the horses can see it as they strike it." ISS measures head and pelvic movement with a greater number of strides, Frisbie says, and the horse can simply "wear" it in a more natural way, allowing examination of the horse in motion in its natural environment.

One such ISS includes two sensors—one that attaches to the head and one to the pelvis. ISS senses lameness as asymmetric acceleration of the head or pelvis during weight-bearing of one side of the body to the other. A third sensor on a limb (the right front limb in the system used by Frisbie and Donnell), a gyroscope, is necessary only to determine when the right foot is on the ground and when it's not and signals where the analysis should start.

"By knowing that, and knowing what gait a horse is at, you can then tell what leg should be on the ground, and therefore determine its movement, right front to left hind, letting you know how the horse is acting in its gait as it walks or trots," Frisbie explains. "The ISS produces an output based on that acceleration, which limb it thinks the lameness is coming from and where the asymmetry is greatest.

"Basically, it determines a baseline degree of asymmetry," Frisbie continues. "And once that baseline has been exceeded, the horse is considered lame. ISS gives the practitioner an indication of the soreness severity and where the soreness is coming from. It also tells you whether the lameness occurs when the horse is attempting to push off or when it's landing."

Lessons for all equine practitioners

"One thing the user has to accept in order to understand the utility of this type of equipment is that vertical motion of the torso is more critical to assessing lameness than observing motion of the legs," says Kevin Keegan, DVM, MS, DACVS, professor of equine surgery at the University of Missouri College of Veterinary Medicine and director of the E. Paige Laurie Endowed Program in Equine Lameness.

Because the head is a massive object connected to the center of body mass on a long lever arm, its vertical movement is a highly efficient method of unloading a painful forelimb—so much so that it trumps all other movement adjustments available to a horse that's trying to minimize limb pain, Keegan says. He teaches his students to stop looking at the legs, at least in the initial lameness evaluation. Limb-movement parameters such as decreased stride length can confirm but not negate vertical head-movement parameters.

"The same can be said, but to a lesser extent, for vertical movement of the pelvis in hind-limb lameness," Keegan continues. "Limb movement and pelvis rotation, because they're affected by other causes besides lameness, can confirm but not negate vertical movement of the entire pelvis."

The other concept for practitioners to understand? Lameness is a clinical sign, not a disease. "The sensors are stupid,"

PHOTOS COURTESY OF DR. KEVIN HAUSSLER, COLORADO STATE UNIVERSITY EQUINE ORTHOPEDIC RESEARCH CENTER

Animals speak louder than words.™

If there's greatness on the inside, it shows on the outside.

purinamills.com/horse-feed

FEED GREATNESS™

>>> An inertial sensor system (ISS; Lameness Locator—Equinosis) captures live motion data through wireless sensors for analysis.

Keegan says. "They detect only the lameness. But they never lie, as long as they're put on properly. They can detect but not evaluate lameness. The veterinarian still has to do the heavy work."

The results of an ISS evaluation correlate with limb pain, because it's a simple physical relationship, but pain in the leg is not the only cause of lameness, Keegan says. "I've always stressed that the better one is, and the more experience one has, at evaluating lameness in horses [subjectively], the more benefit one will realize measuring it objectively," he says.

Comparative studies to more accurately determine lameness

In cases of lameness, "horses don't tell us what's painful and how painful it is," Frisbie says. "It's difficult to determine, and that's the problem. We're searching for a gold standard where, unfortunately, there's clearly none obtainable at this time."

Frisbie's goal in a recent study was to compare the relationships between FP, ISS and a subjective exam.[3] In the study, researchers looked at each diagnostic tool in a group of 16 horses. Using a surgical model that resulted in a consistent mild lameness, they increased the lameness—induced by creating a unilateral carpal osteochondral fragment (OCF) in the middle carpal joint—for a short period of time.

"That's about as good as we can get right now in comparatively assessing mild lameness in horses as it relates to joint problems and trying to approach a gold standard," says Frisbie. "Horses are somewhat like us: One day they get up and their neck hurts, on another day their hip or lower limb hurts. The horses in this study are subject to those same issues—more than just the carpus may be a source of everyday pain."

In the horses studied, once researchers looked at the correlation of their accepted method—a subjective lameness exam compared with objective measurements—the relationship was stronger with the ISS than with the FP. "There could be some bias, because the ISS was built around trying to emulate what we saw subjectively," Frisbie notes. "The FP is not. It's objective; you can't sway its results in any way—a matter of measuring the force as the foot strikes the FP. Lack of force or lesser force equates to lameness to a specific degree as measured."

A role for both methods

Asymmetry is something the ISS does very well. And determining the amount of force in raw numbers—how much force is put on a limb in multiple axes—is what the FP does better, the researchers note. "Each is going to work better than the other in different situations," states Frisbie. "Because in this study the ISS was better in most outcomes, we don't want to insinuate that the FP is not a useful tool."

In their study, though, based on evaluating what would be expected, the ISS did better than the FP.[3] Forelimb lameness was assessed in the 16 horses at four time points using subjective assessment, FP and ISS. Independent of time, blinded subjective evaluation (54%) and ISS (60%) identified a higher percentage of horses as lame in the OFC limb compared with FP (40%). Blinded subjective evaluation and the ISS agreed which forelimb was lame more often (50%), compared with blinded subjective evaluation and the FP (38%). The percentage of horses identified as lame in the OCF limb, independent of time, was highest with the ISS (60%), followed by subjective evaluation (51%) and FP (42%).[3]

"With the FP, they have only five strikes, but that's what's accepted, versus 20 strikes with the ISS, and the horse has to hit it just right," says Frisbie. "There are several parameters you have to work with when you use it. With the ISS, you're collecting more data; it's going to be a little tighter. Some of those things are going to help the assessor make a better determination."

Keegan agrees that precise lameness detection, regardless of method, requires collection of multiple contiguous strides. "You cannot do it precisely looking at a few single stride samples," he says.

But Frisbie also notes that some horses have pain in both front limbs, which makes ISS less useful. "If pain is identical on the left and the right, we would not be able to see that with the ISS, but we would be able to detect that change with the FP," he says. "There has to be significantly more pain on one side versus the other for the ISS to detect it."

Frisbie continues that some studies show FP working better than the ISS. "It depends on the nature of [the horse's] pain, whether it's bilateral or ipsilateral," Frisbie says. "But this study concluded that subjective lameness assessment plus ISS produced better agreement of lameness—superior to the FP and subjective assessment." **dvm360**

References

1. USDA. Lameness and laminitis in U.S. horses. USDA:APHIS:VS, National Animal Health Monitoring System. Information Sheet. Fort Collins, Colorado: October, 2000. #N318.0400

2. USDA. National economic cost of equine lameness, colic, and equine protozoal myeloencephalitis in the United States. USDA:APHIS:VS, National Health Monitoring System. Information Sheet. Fort Collins, Colorado: October, 2001. #N348.1001.

3. Donnell JR, Frisbie DD, King MR, et al. Comparison of subjective lameness evaluation, force platforms and an inertial-sensor system to identify mild lameness in an equine osteoarthritis model. *Vet J* 2015;206:136-142.

Suggested reading

> Keegan KG. Evidence-based lameness detection and quantification. *Vet Clin North Am Equine Pract* 2007;23:403-423.

> Keegan KG, Kramer J, Yonezawa Y, et al. Assessment of repeatability of a wireless inertial sensor-based lameness evaluation system for horses. *Am J Vet Res* 2011;72(9):1156-1163.

> Keegan KG, Yonezawa Y, Pai PF, et al. Evaluation of a sensor-based system for analysis for detection and quantification of forelimb and hind limb lameness in horses. *Am J Vet Res* 2004;65(5):665-670.

> Keegan KG, Dent EV, Wilson DA, et al. Repeatability of subjective evaluation of lameness in horses. *Equine Vet J* 2010;42(2):92-97.

> Donnell JR, Frisbie DD. Correlation between an inertial-sensor system and clinical evaluation for estimating degree of improvement post-diagnostic analgesia, in *Proceedings*. Am Assoc Equine Pract 2015;61:455.

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.

PHOTO COURTESY OF EQUINOSIS

Feeding the broodmare for the health of the foal

Proper diet is important throughout equine gestation, but it's especially critical in the first and third trimesters. *By Ed Kane, PhD*

To produce a healthy foal, a broodmare must take in adequate nutrients prior to and throughout gestation, but nutrition is especially critical during the first and last trimester of pregnancy. In horses, much of the fetus's development takes place in latter gestation.

The National Research Council (NRC) notes that during gestation, dietary energy provides not only for the mare's maintenance but also for deposition of fetal and placental tissues, uterine hypertrophy, mammary development and fetal maintenance.[1]

As gestation proceeds, the mare gains weight—0.3 to 0.8 lbs per day. Mares have been observed to gain a lot of weight during midgestation (second trimester), and some gain little or no weight during latter gestation yet deliver a healthy, normal foal. At parturition, fetal tissue generally accounts for about 10% of dam weight.

During most of pregnancy (from conception to eight months), food intake and body weight should be monitored carefully; most equine nutritionists and practitioners don't believe pregnant mares need an excess of dietary energy. Once a mare reaches late pregnancy (months nine to 11), her needs change. At that time proper foal development requires a modest increase in energy content and protein concentration, which is best achieved by adding some grain and maximizing protein rather than feeding solely timothy or other grass sources.

During the final trimester, a fetus increases its weight by 1 lb per day, accounting for two-thirds of fetal growth. Naturally, mares are inclined to eat sufficient amounts when available to build up fat stores to be used during latter gestation. However, some tend to back off feed due to the lack of room in the gastrointestinal tract from the fetus's presence in the body cavity.

Although it's been suggested that one can feed a mare at maintenance energy during the first two-thirds of pregnancy, recent data suggests that the first trimester is a critical time for the fetus and certain nutrients may need to be monitored carefully.[2,3] For one thing, underfeeding may cause embryonic loss in the first 36 days of gestation. As Dirk Vanderwall, DVM, PhD, DACT, of Utah State University states, "Proper nutrition is important for optimum fertility in the mare. All indications are that to maximize reproductive efficiency and minimize early embryonic loss, mares should receive good quality feedstuffs in sufficient quantity to maintain optimum body condition."[3]

GETTY IMAGES

Body condition score

Here's what to consider regarding body condition score (BCS) when you're examining a mare:

> A BCS of 5 to 6 (moderate to fleshy) means a mare is not too thrifty nor overweight and is at an optimal weight; the mare has a better chance of conceiving.

> During pregnancy, a BCS significantly more than 6 is not ideal. A BCS greater than 6 is apparent in extra rump fat in a mare; this is as unhealthy as if the mare were underfed.

> Prior to breeding and in pregnant mares, a BCS of 7 to 9 is a definite concern. With a score of 7 a mare feels "fleshy"; fat begins to fill in among the ribs, around the tailhead, along the withers, behind the shoulders and along the neck.

> A BCS of 8 indicates fat, with a crease down the back. It's difficult to feel the horse's ribs and the fat around the tailhead is very soft. The area along the withers is filled in with fat and there is a thickening of the neck and along the inner buttocks. This is undesirable.

> A BCS of 9 indicates extreme fat and is highly undesirable for a mare before and during pregnancy.

Fetal development

Although the impact of maternal nutrition on fetal development in the equine has not been thoroughly investigated, over-nutrition is a common occurrence in the industry.[2] According to Josie Coverdale, PhD, associate professor of equine science at Texas A&M University (TAMU), and her colleagues, permanent changes in the fetus due to improper nutrition of the mare during gestation can lead to abnormalities in the adult horse: "The long-term influences of maternal over-nutrition can affect fetal development, and impact placental function and transfer of nutrients to the fetus. The resultant reduction of transfer

of nutrients to the fetus may result in slower cell division, which can reduce organ cell number."[2]

They note particularly that mare glucose and insulin dynamics are influenced by maternal nutrition. In their study, mare glucose and insulin increased with more concentrate supplementation, resulting in altered glucose tolerance in the mare and foal. In mares, a high-starch diet promotes higher levels of insulin and may lead to unfavorable metabolic programming of the foal. Obesity in mares due to feeding of high-energy (high-concentrate) diets may lead to reduced glucose tolerance, altered pancreatic function, reduced insulin sensitivity and modified body composition in the foal.

In addition, improper micronutrient levels may affect the balance of antioxidants and free radical formation; therefore, copper, zinc, iron, selenium, vitamin E and beta-carotene may have significant roles to play in mitigating intrauterine growth retardation (IUGR).[2]

Overfeeding problems

"The concept of fetal programming is not new," Coverdale says. "IUGR was first a clinical observation in Dutch women who experienced famine at various times during gestation."

The children of the women who endured the Dutch famine had higher incidences of obesity, cardiovascular disturbances and health-related problems later in life, she explains. "We know from that initial Dutch observation that there's an effect of nutrition of the dam, regardless of species, that impacts fetal growth and development," Coverdale says.

Of course, overnutrition is more likely to be a problem than undernutrition in thoroughbreds and quarter horses. "Wanting to take good care of those mares, we overfeed them rather than underfeed them," she says.

Coverdale has investigated whether the equine fetus's metabolism (e.g., glucose and insulin levels) can be permanently altered based on the mare's diet. "The general premise is that the diet the dam receives results in long-term changes in the fetus," she says. "We've yet to see a substantial difference on gestation length, birth weight or growth patterns in horses. But we have seen differences in metabolism, especially alterations in glucose and insulin."

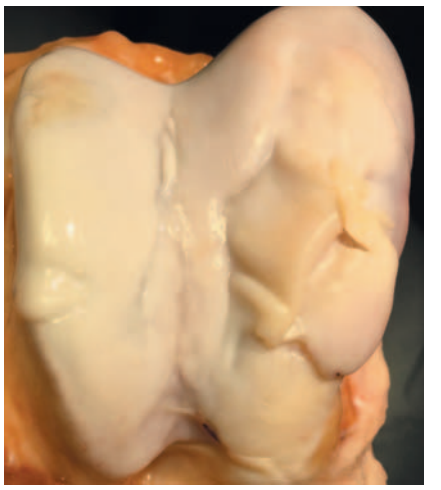
>>> A mare with a body condition score (BCS) of 6+. This is the ideal BCS for a broodmare—slightly fleshier than the performance-horse ideal of BCS 5. (Photo courtesy of Dr. Josie Coverdale.)

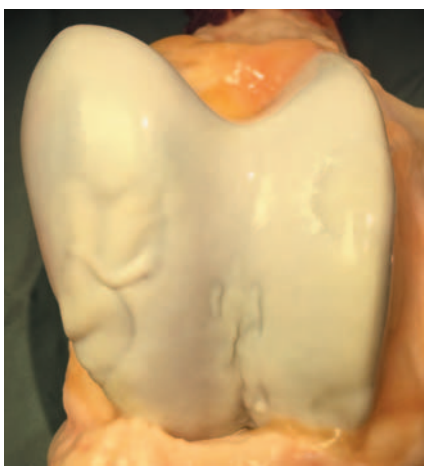
So what take-home message did Coverdale find for equine practitioners and horse owners? That "the equine nutrient guidelines we have from the NRC are spot-on," she says. "The BCS system developed during the mid-1980s is still fairly accurate. The only correction I would make is that while a BCS of 6 is ideal, a BCS of substantially greater than 6 is most likely detrimental." While a BCS below 6 might harm a mare's reproductive efficiency, she says, a BCS greater than 6 can harm fetal development.

While feeding a mare at maintenance energy during early pregnancy is still recommended, the role of functional nutrients such as amino acids, vitamins and trace minerals during early gestation is poorly understood. "We still lack sufficient data on those nutrients that are involved with metabolism, enzyme pathways and so on," she says. "There's a lot more complexity to it; they do more than solely meet a mare's energy requirements.

"Is there a way to enhance embryonic survival and perfect the initial stages of genetic development as well?" Coverdale continues. "That's what we believe the nutrient demand of the first trimester does—it's involved in the expression of genes. Certainly a fetus is programmed to be what it is genetically, but is there a nutritional component we're still not aware of that affects foal phenotype during the first trimester?"

Still, she says, "We've got to be cautious not to concede to the adage that if a little bit is good, a lot must be better. Our data provide justification for keeping mares more at the traditionally acceptable BCS of 6. It's unwise to spend extra money on excessive amounts of high-concentrate diets. It's not only an unsafe management practice for the mare, it could potentially limit the metabolism of the developing foal."





>>> Postmortem photographs of the stifle joints in a quarter horse weanling with severe osteochondrosis dissecans (OCD). Some experts wonder if feeding a broodmare differently during early pregnancy could prevent OCD and other muskuloskeletal problems. (Photos courtesy of Dr. Holly Mason.)

Musculoskeletal development

Holly Mason, DVM, is an assistant professor at Utah State University School of Veterinary Medicine. In practice she has seen a fair number of acquired contractural limb deformities, physitis (swelling around the growth plates of certain long bones in foals) and osteochondritis dissecans (OCD). "I wonder if we should be doing something different early on with these mares," she says.

It's not uncommon for broodmares to inadvertently be fed an unbalanced ration throughout gestation, Mason continues. "What we're beginning to know about trace nutrients such as copper, zinc, vitamin E, selenium and the calcium-phosphorus ratio is critical," she says. "I'd like to see more work

OBITUARY

A life too soon ended

Tragically, as the editors of dvm360 were preparing this article for publication, Dr. Josie Coverdale, 38, died Feb. 13, 2016, from complications resulting from injuries sustained in a car accident. Here is a statement from Dr. Ed Kane, this article's author:

Dr. Coverdale worked with me on this article on broodmare nutrition. It was not only her expertise in equine nutrition that drew me to her, but her graciousness, her kind help, her enthusiasm and our genuine relationship as colleagues. As a fellow equine nutritionist, I hoped I would continue to be able to share her expertise with readers. Even though we had only just met, I will miss her, and my heart goes out to her family, friends and colleagues in the wake of this sudden tragic loss.

—Ed Kane, PhD

Coverdale is survived by her husband, parents, in-laws, and several aunts, uncles and cousins.

done with mares during early pregnancy, as well as follow-up with subsequent foal crops with radiographs and clinical exams for any acquired contractural limb deformities, physitis or OCD."

Mason agrees with Coverdale's assessment that a mare in early pregnancy should be fed at maintenance energy per NRC recommendations. Additionally, she accedes that the role amino acids, vitamins and trace minerals is not entirely understood in the pregnant mare. "It can be a challenge to differentiate between nutrition, genetics, environment and other factors that impact animal health and development when you are trying to solve a problem or optimize an outcome," Mason says.

Mason says she tries to work with her clients' goals, whether they're conservative or aggressive in exploring new strategies in broodmare nutrition. "I usually start by looking at their hay and evaluate what they're currently feeding, looking at their concentrate if they're feeding one or if it's a vitamin-mineral supplement or a mineral salt block," she says. "I get them to read the feed tag to ensure they're providing the proper amount of daily feeding. When we neglect to reference the feed tag, it increases the chance that our horses are not receiving the recommended amounts of that product," she says.

Mason also recommends a hay analysis. "If a client is feeding a thoroughbred on the East Coast during January through March, they're likely to not be on the best pasture, and therefore hay quality is critical," she says. "If owners really want to do what's right from a nutritional perspective, they need to test hay frequently, testing every new batch or different portions of the batch. It's not cost-prohibitive."

Not only is there general variability among types of hay, but also geographic and price variability, she says. It's common in Texas, for example, to feed coastal Bermuda grass hay. In California, it can be common to feed 100% alfalfa hay because it's so readily available—even though it isn't necessarily the best option, Mason says.

She says she likes to see a balanced intake of vitamins and minerals throughout gestation. "When we're getting toward those last three months, I believe on focusing on the energy intake and protein content," she says. "I caution my clients that, during a horse's midgestation, they need to think about the mare's BCS. And since BCS is a subjective measure, I recommend using scales or body weight tapes. Once we're heading into the home stretch of gestation, mares should be on an increase of energy/concentrate and protein intake, but not too much."

During the latter portion of gestation, the reproductive tract can compete with the gastrointestinal tract for space within the abdomen, and some mares won't consume enough forage to meet their needs. "That's when we emphasize concentrate feeds to ensure adequate daily energy intake," Mason states. "If you're noticing a decline of consumption during month 10, and the mare is leaving the bulkier roughages behind, it's important to compensate by feeding concentrate or a pelleted or cubed roughage source."

Final thoughts

Mason says she would like to see further research on IUGR and associated endocrine abnormalities that might have lifelong influences. "It could have a

significant impact on the industry if we had a better understanding," she says.

"The work by Dr. Coverdale and her colleagues provokes thought about a lot of things that foals are exposed to in utero," Mason continues. "There are still many open questions about how the nutritional plane of the mare affects the health of the foal."

Still, thanks to the work of Coverdale and the practical insights of practitioners such as Mason, wise veterinarians will consider a mare's nutrition from conception to parturition, keeping an eye on critical fetal programming issues, following the nutrition basics from the NRC and carefully monitoring the mare's BCS. **dvm360**

References
1. National Research Council (NRC). Nutrient Requirements of Horses, 6th ed. Washington, DC: National Academy Press, 2007.
2. Coverdale JA, Hammer CJ, Walter KW. Horse Species Symposium: Nutritional programming and the impact on mare and foal performance. *J Anim Sci* 2015;93:3261-3267.
3. Vanderwall DK. Early embryonic loss in the mare. *J Equine Vet Sci* 2008;28:691-702.
4. Lawrence L, Camargo F. University of Kentucky Cooperative Extension Service. Feeding the broodmare: Four easy steps. Available at www2.a.uky.edu/agc/pubs/ASC/ASC185/ASC185.pdf.

GUIDELINES

Nutrients for equine gestation

The need for increased nutrients during early and late pregnancy—whether amino acids for tissue development, minerals for proper cartilage and bone development, or vitamins—is still somewhat unknown. However, some general guidelines are as follows.

Good-quality pasture or hay can sustain a mare. During the early part of gestation, the mare should be fed at the maintenance level of 1 Mcal/per lb feed, which may be met solely by good pasture and forage, at about 15 lbs for the average light mare (1,100 to 1,200 lbs), along with a trace-mineral salt block free choice. The diet should provide about 8% crude protein, 0.3% calcium, and 0.2% phosphorus.

NRC data suggest that the nutrient requirements of pregnant mares increase at five months of pregnancy, rather than the previously suggested eight months.[1]

According to the University of Kentucky Cooperative Extension, many mares in Kentucky will graze good-quality pasture during midgestation, which provides sufficient energy to keep her in proper body condition score (BCS) without much concentrate feed supplementation.[4] Though pasture is sufficient in digestible energy, it may not meet the mineral requirements; therefore a daily mineral supplement is recommended, sometimes noted as a "balancer pellet" (at 1 to 2 lbs per day), during midgestation.

A typical diet for gestating mares during latter pregnancy is 20 to 25 lbs good-quality hay, plus 6 to 8 lbs of concentrate. If a mare is on poor winter pasture, the hay and concentrate may need to be increased. During the last 90 days of pregnancy, mares should be fed crude protein at 10%, digestible energy 1.2 Mcal/lb, 0.45% calcium, 0.35% phosphorus, and 1,150 IU/lb vitamin A.

products 360

Patterson Veterinary

Practice management analytics

Patterson Veterinary is partnering with VetSuccess, a membership service that provides performance statistics and analytics to veterinary practices, in an effort to provide the veterinary market with a greater ability to realize the value of practice data. VetSuccess delivers key business metrics to help practice owners better understand the practice's business and customers. Reports include an assessment of practice performance each month and help to identify revenue and cost saving opportunities.

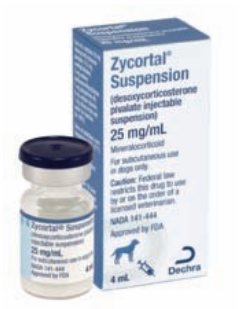
For fastest response visit pattersonvet.com

NovaVive

Immunotherapeutic for sarcoid tumors

NovaVive Inc. has obtained USDA approval for Immunocidin to treat equine sarcoid tumors. The company believes there is no other approved equine sarcoid therapy in North America. Current treatment options, including surgery, ligation, chemotherapy, radiation and laser removal, can incur side effects. Immunotherapy is a new, safe and effective treatment option. Immunocidin is administered by intratumoral injection, but the response is generalized and untreated sites often undergo regression as well.

For fastest response visit NovaVive.ca



Dechra Veterinary Products

Canine endocrine medication

Dechra Veterinary Products announces the FDA approval and availability of Zycortal Suspension (desoxycorticosterone pivalate injectable suspension), a mineralocorticoid hormone approved for use as replacement therapy for mineralocorticoid deficiency in dogs with primary hypoadrenocorticism. It will be available through all major veterinary distributors.

For fastest response visit dechra-us.com

Modern Veterinary Therapeutics

Equine sedative-analgesic drug

Modern Veterinary Therapeutics announces that the Veterinary Drugs Directorate has approved Nerfasin 100 (xylazine injection) in Canada. The product is available in a 50-ml vial and is indicated for use in horses when it is desirable to produce a state of sedation accompanied by a shorter period of analgesia.

For fastest response visit modernveterinarytherapeutics.com

ARCHITECTS BUILDERS

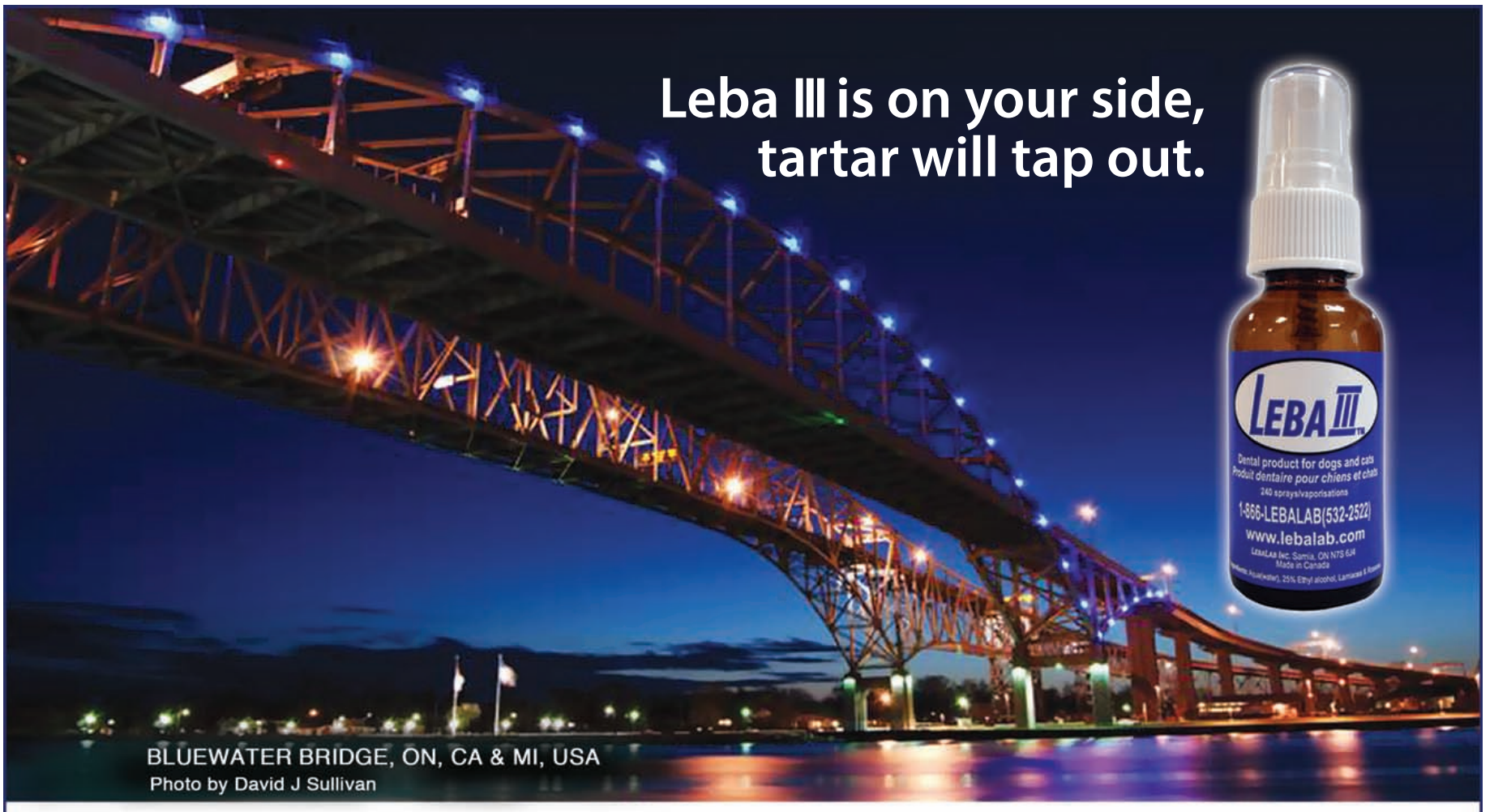
CLEANING EQUIPMENT & SUPPLIES

CLEANING PRODUCTS & SUPPLIES

Search for the company name you see in each of the ads in this section for FREE INFORMATION!

Search for the company name you see in each of the ads in this section for FREE INFORMATION!

DENTAL



100% response in Double Blind Tests
See the results on www.lebalab.com

Cleans Teeth with the Ease of a Spray

The LebaLab difference:

Leba III stimulates the good flora in the saliva. The longer Leba III is used, the cleaner the teeth and the healthier the chemistry of the mouth becomes. Antibacterial products kill the good bacteria in the mouth leading to imbalance and repeated dental procedures.

Pets ingest dental products, they cannot rinse. They can become subject to the side effects of the components, that's why Leba III contains no Grapefruit Seed Extract, no chlorides or chemical agents.

Used by veterinarians since 1994.

GUELPH UNIVERSITY Double Blind Testing PROTOCOL

TO ORDER, CALL 1.866.532.2522

Questions? Call 1.519.542.4236 | www.lebalab.com | tellus@lebalab.com

La Boit

Specialty Vehicles Inc.

"If you buy *strictly* on price, you're gonna pay twice!

visit us on facebook

800-776-9984

www.laboit.com

MEDICAL EQUIPMENT

PET ID PRODUCTS

SURGICAL SUPPLIES

Search for the company name you see in each of the ads in this section for FREE INFORMATION!

REHABILITATION PRODUCTS

Search for the company name you see in each of the ads in this section for FREE INFORMATION!

Anesthesia Equipment

Employment

Blood Supplies

Dental

Continuing Education

Diagnostic Imaging

Identification Systems

Medical Equipment

Parasitology

Pet ID Products

Rehabilitation Prod

Medical Services

Rehabilitation Prod

Medical Products

Mobile Veterinary

Practice for Sale

National

North Carolina: Thriving Equine Practice! Unique opportunity for equine surgeon with room and clientele to add SA services. 6,250sf facility with +/-5.5 acres. NC12.
Montana: Mixed Animal! Modern facility with state-of-the-art equipment. MT1.
Texas: Turn-Key, Mixed Animal. Multi-Doctor. Gross Income nearly $2.8. +/-15,000sf SA and +/-18,500sf LA with +/-5.5 acres. TX5.
Iowa: Mixed Animal. 3,696sf facility w/RE. Approximately 95% companion/5% Large Animal. ADI +/-$113,000. IA1.
PS Broker, 800-636-4740, psbroker.com
info@psbroker.com

Georgia

Well established one Doctor Veterinary practice located in Augusta Georgia. Small animal clinic grossing $225,000 based on a 25 hour work week. Clinic has plenty of potential to increase revenue with more office time and added services. Owner ready to retire, priced to sell. Financial available. Truly a unique opportunity. 706-394-8145.

Recruitment

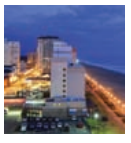
Ohio

Part time Veterinarian wanted for progressive small animal hospital in the Cleveland area. We are a modern, well equipped, newly remodeled hospital with no after hour emergencies. We are looking for someone who is motivated, caring, with good communication skills. Please fax or email your resume to 216-381-2929 or Kelly@greenroadanimalhospital.com

Iowa

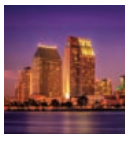
Iowa Veterinary Specialties is located in Des Moines, Iowa and is a well-equipped facility, well established and supported by a highly skilled and dedicated staff. We are seeking full and part time veterinarians to join a fast paced, progressive Emergency Department. IVS doctors practice high-quality medicine in a friendly, supportive and professional environment. We offer competitive pay and excellent benefits. We strive for best client and patient care, exceeding expectations. Applicant must be a compassionate individual with good interpersonal skills, a positive attitude and excellent communication skills. Contact Julie Kelso at jkelso@ivsdsm.com

For a full listing of events in 2016, visit dvm360.com/calendar



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

August 26-29
CVC Kansas City
(800) 255-6864, ext. 6
thecvc.com/kc



December 8-11
CVC San Diego
(800) 255-6864, ext. 6
thecvc.com/sd

CVC unconventional

Here are the CE opportunities coming in the next few months

April 15-17
West Virginia VMA 2016 Annual Spring Meeting
White Sulphur Springs, WV
(804) 346-0170
wvvma.org

April 30-May 1
Infectious & Vector Borne Disease for the General Practitioner Conference
San Diego, CA
(619) 640-9583
sdcvma.org

May 4
North Carolina Academy of Small Animal Medicine Meeting
Sanford , NC
(910) 452-3899
ncasam.org

May 11
2016 MVMA Spring CE Conference
Marlborough, MA
(508) 460-9333
massvet.org

May 12
Mid-Atlantic States Veterinary Clinic
West Friendship, MD
(410) 268-1311
mdvma.org

May 13-15
Animal Chiropractic Program 3 of 6
Dallas, TX
(800) 266-4723
ce.parker.edu/programs/animal-chiropractic-program

May 13-15
2016 New York State Veterinary Conference
Rye Brook, NY
(607) 253-3200
vet.cornell.edu/events

May 25-26
17th Annual Spring Clinic
State College, PA
(888) 550-7862
pavma.org

June 1-5
2016 Emerald Coast Veterinary Conference
Destin, FL
(678) 309-9800
emeraldcoastvc.com

June 8-11
2016 ACVIM Forum
Denver, CO
(303) 231-9933
acvim.org

June 10-12
Animal Chiropractic Program Module 4 of 6
Dallas, TX
(800) 266-4723
ce.parker.edu/programs/animal-chiropractic-program

June 19-22
2016 Southeast Veterinary Conference
Hilton Head Island, SC
(803) 254-1027
scav.org

June 23-26
Pacific Veterinary Conference (PacVet)
San Francisco, CA
(916) 649-0599
pacvet.net

June 26-28
Montana Veterinary Medical Association Summer Meeting
Helena, MT
(406) 447-4259
mtvma.org

June 26-28
Maryland Veterinary Medical AssociationSummer Conference
Annapolis, MD
(410) 268-1311
mdvma.org

July 7-10
2016 Canadian Veterinary Medical Association Convention
Niagara Falls, Ontario, Canada
(800) 567-2862
cvma-acmv.org

July 15-17
Animal Chiropractic Program Module 5 of 6
Dallas, TX
(800) 266-4723
ce.parker.edu/programs/animal-chiropractic-program

July 27-30
2016 Therio Conference
Asheville, NC
(334) 395-4666
therio.org/event/2016Asheville

August 11-14
10th Keystone Veterinary Conference
Hershey, PA
(717) 220-1437
keystonevetconference.org

August 11-14
10th Keystone Veterinary Conference
Hershey, PA
(717) 220-1437
keystonevetconference.org

August 12-14
Animal Chiropractic Program Module 6 of 6
Dallas, TX
(800) 266-4723
ce.parker.edu/programs/animal-chiropractic-program

September 7-11
International Veterinary Emergency & Critical Care Symposium
Grapevine, TX
(210) 698-5575
www.veccs.org

September 7
North Carolina Academy of Small Animal Medicine Meeting
Sanford, NC
(910) 452-3899
ncasam.org

September 8-9
Montana Veterinary Medical Association Fall Symposium
Miles City, MT
(406) 447-4259
mtvma.org

September 23-25
105th Annual KVMA Meeting/43rd Mid-America Veterinary Conference Symposium
Louisville, KY
(502) 226-5862
kvma.org

September 24-25
Infectious & Vector Borne Disease for the General Practitioner Conference
San Diego, CA
(619) 640-9583
sdcvma.org

September 27-30
41st World Small Animal Veterinary Association Congress
Dundas, Ontario, Canada
(905) 627-8540
wsava2016.com

September 30 to October 2
California VMA Annual Fall Seminar, Palm Springs
Indian Wells, CA
(916) 649-0599
cvma.net

dvm360™ (Print ISSN: 2326-0688, Digital ISSN: 2326-070X) is published monthly by UBM Life Sciences 131 W First St., Duluth MN 55802-2065. Subscription rates: $40 for one year in the United States & Possessions, Canada and Mexico; all other countries $87.50. Single copies (prepaid only): $18 in the United States; $20 in Canada and Mexico; $24 all other countries. Back issues, if available: U.S. $23; Canada/Mexico $28; all other countries $46. International pricing includes air-expedited service. Include $6.50 per order plus $2 per additional copy for U.S. postage and handling. Periodicals postage paid at Duluth MN 55806 and additional mailing offices. POSTMASTER: Please send address changes to DVM360, P. O. Box 6309, Duluth, MN 55806-6309. Canadian GST number: R-124213133RT001, Publications Mail Agreement Number 40612608. Return undeliverable Canadian addresses to: IMEX Global Solutions, P.O. Box 25542, London, ON N6C 6B2, Canada. Printed in the U.S.A.

Sorry! Wrong number!

Technology is a great tool for connecting with clients. Just use it carefully.

I purchased my first cell phone in 1993. It was a "bag phone" and was about as easy to carry around as a suitcase, so I never took it out of the truck. My, how things have changed. I typed this article while riding shotgun in the middle of nowhere, on my iPhone, which has more capabilities than the space shuttle.

I have to say that for an old dude, I feel like I've ridden the cell phone craze pretty well. I've learned to use it to communicate with my clients, keeping them in the loop through text messages and pictures. I probably send 20 to 30 texts a day to clients and referring veterinarians. I love it. It lets them know you're thinking of them and gives them an update on their critter without having to carry on a long conversation.

I had sent three pictures of a pink horse penis (which didn't look like a horse penis) to a total stranger—the last two revealing surgical amputation.

Mrs. Craig's horse's name was Olaf. He was an extremely pink-skinned paint horse that had befallen the curse of many pink-skinned geldings—skin cancer. On the penis. Horses with pink-skinned penises have a very high risk for squamous cell carcinoma as they age, and Olaf was no exception.

The cancer had become invasive and conservative treatments were no longer working. The only solution was to amputate the penis to remove the cancer cells. It's a fairly routine surgery that equine surgeons perform quite often, but it can be bloody. It also requires a surgeon and an assistant surgeon. One person needs to hold the penis in the proper position while the other performs the surgery.

Mrs. Craig insisted that I text her pictures of her horse's surgery as it happened. I assured her that I'd have a technician take pictures and I'd send them to her when we were finished.

We began the surgery and I instructed one of the technicians to photograph the process step by step so I could send three or four to Mrs. Craig.

After the surgery, I went to Mrs. Craig's chart to look up her phone number. I glanced at the photos with the eye of a veterinarian but never really stopped to think about how the "before" photo—a pink penis with a hand grasping the base—might look to nonveterinary eyes.

I sent the photo to Mrs. Craig. But before I could get the second picture downloaded and sent, my phone rang with a call from another client I needed to talk to. I chatted with that client for about 10 minutes.

When I finished the call and returned to my task of sending the next two pictures, I was surprised to see that Mrs. Craig had already responded. I read, "That is the most perverted thing I've ever seen. You're gross and disgusting and should be turned over to the police. I have your phone number and I'm going to send this to the police. You will never send women horrible pictures again!"

I couldn't imagine what all the fuss was about. I hadn't had a chance to send the next two photos, or a description, but what would have made Mrs. Craig go off like that? I looked at the picture and tried to imagine what I would have thought if someone had sent it to me with no explanation. Oh my … I figured Mrs. Craig didn't know my phone number and when she saw the next two pictures of the surgery, she would know it was her horse and would be just fine. So I sent them.

Not one minute later I got an enraged reply with more threats of prison. It was then that I checked the phone number closely. I was one number off! I had sent three pictures of a pink horse penis (which didn't look like a horse penis) to a total stranger—the last two revealing surgical amputation.

I panicked. Somewhere someone was looking at an equine surgery and thinking I was a pervert. They had seen the first picture and were disgusted; there was no telling what they thought about the others. I decided there was nothing to do but call and explain.

The voice at the other end of the line sounded like an older lady. I began with a profuse apology and did my best to explain the situation, while using a respectful tone and as many "Yes ma'am's" as I could muster up.

When she finally believed that I was a veterinarian sending pictures to a client, and looked close enough at the photos to see it really was a horse, she laughed for a good five minutes. She told me she was going to send the pictures to her grandson, who was studying to be a veterinarian in Wisconsin.

I hung up and thought of that giant phone from 23 years ago. This would have never happened back then. **dvm360**

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

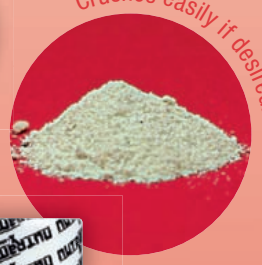
ILLUSTRATION BY MATT COLLINS

COBALEQUIN™ B_{12}

SAVORY CHICKEN FLAVOR FOR DOGS & CATS– SWEET COMPLIANCE FOR THEIR HUMAN PARENTS.

Cobalequin contains an oral cobalamin form that is bioavailable and has been shown in studies to increase serum cobalamin concentrations in dogs and cats.[1,2]

Tablets not to size.



Crushes easily if desired.

COBALEQUIN.com

nutramax LABORATORIES
VETERINARY SCIENCES, INC.
946 Quality Drive • Lancaster, SC 29720
nutramaxlabs.com • 1-888-886-6442

To learn more about Cobalequin™, contact your Nutramax Laboratories Veterinary Sciences, Inc. sales representative.

Our customer service and technical advisors are available Monday thru Friday 8:30am to 5:00pm ET at 888-886-6442.

1. Steiner JM. Paradigm shift for cobalamin supplementation--Are we done with injections?, in *Proceedings.* North American Veterinary Conference 2016.
2. Toresson L, Steiner JM, Suchodolski JS, et al. Oral cobalamin supplementation in dogs with chronic enteropathies and hypocobalaminemia, in *Proceedings.* American College of Veterinary Internal Medicine 2014.

010.1200.01

One SNAP® can change everything

It's the snap that tells you you're getting reference laboratory ELISA technology—technology that ensures you make the right decisions for your patients.

One result can change everything: trust the only pet-side test that snaps, the IDEXX SNAP® Test.

REFERENCE LAB QUALITY IN THE PALM OF YOUR HAND SNAP® ELISA

Watch how SNAP® ELISA technology protects your patients' health at **idexx.com/idexxsnap1**

Strengthen **the bonds.**™

IDEXX