

Toolkit: Tick control

Get tips and tools for advancing your practice's attack on these abominable arachnids.

page 18



The winds of change

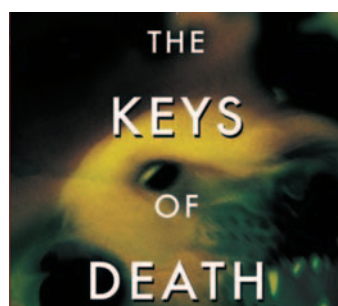
Like any sea change, a vet life transition can range from unsettling to terrifying to joyful. Here we look at personal and professional changes in DVM life: how the individuals involved coped—and what they want to tell their colleagues bracing for similar changes in their own lives.

» Standing up to a storm **page 18**
» The next career step **page 24**



A look at the first Fetch dvm360 conference

page 6



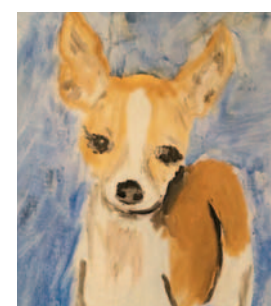
Novel idea: A medical thriller for veterinarians

page 10



Are doctors allowed to tell little white lies?

page 30



Cough! Gasp! 'Is it my heart or my lungs, doc?'

page M1

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Volume 49, Issue 2

NEWS

6 | Industry update

A look at the first Fetch dvm360 conference in San Diego

10 | Veterinary headlines

Novel idea: A medical thriller for vets

12 | Breaking news

Veterinarian killed in plane crash

Aratana receives conditional approval for canine osteosarcoma vaccine

14 | Veterinary headlines

The top 10 news stories of 2017

16 | Louisiana veterinarian charged with shooting neighbor's dog

COMMUNITY

17 | Feedback

Letter to dvm360: Minor changes, major benefits

SPECIAL CONTRIBUTORS

26 | Can we talk?

Give your clients pickles
Michael Paul, DVM

28 | Letter of the law

How to handle a state board sanction
Christopher J. Allen, DVM, JD

30 | The dilemma

Are doctors allowed little white lies?
Marc Rosenberg, VMD

32 | AVMA eye on economics

Debt-to-income ratio: Short-term gains, long-term issues
Michael Dicks, PhD

50 | Mind over Miller

The shoulders we all stand on
Robert M. Miller, DVM

NEWS

35 | Medical update

Update on computed tomography and liposarcomas in dogs

When Coco gets into the cocoa

36 | Product news

IDEXX rolls out in-clinic SDMA test

PRODUCTS360

38 | The latest veterinary products

ON THE COVER



» Standing up to a storm **page 18**
» The next career step **page 24**

MEDICINE360

The small animal section begins after **page 34**.

M1 | Cardiology

Cough! Gasp! 'Is it my heart or my lungs, doc?'
Sarah J. Wooten, DVM

M5 | Dentistry

dvm360's top dentistry tips from 2017

M8 | Rehabilitation

Veterinary laser skeptics—see the light

EQUINE360

The equine section begins after **page 34**.

E1 | News

Fire at San Luis Rey Training Center: A day of tragedy and heroism
Ed Kane, PhD

E5 | Business

Should you give up solo equine practice?
Kyle Palmer, CVT

E8 | Associations

AAEP news: A passing of the baton and the bestowing of awards

READER SERVICES

49 | Calendar

On any given day, you're dealing with ...

Money problems

Job performance woes

Relationship struggles

Medical emergencies




Frustrated coworkers

Fractional furballs ...

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A look at the first Fetch dvm360 conference in San Diego

Reimagined veterinary event launches a new CE experience.

The first Fetch dvm360 conference kicked off in San Diego on Dec. 7, 2017, adding new touches to what was formerly known as the CVC. This brand change was about more than just changing the name and look of the conference, organizers say: The aim of Fetch dvm360 is to create a 360-degree conference experience that veterinary professionals can use to improve their life and practice throughout the year.

A whole new look

Updated colors and signs reflected Fetch dvm360 conference’s aim to be friendly and approachable. While those in San Diego might have noticed signs were a little light on the ground, the aim was to avoid overwhelming attendees with too much information

while still getting the feel across. After all, anyone smart enough to get an advanced degree doesn’t need a sign reminding them to wear their badges at all times.

(Another goal of this approach: remind everyone it’s OK to have some fun, even when getting down to the serious business of CE.)

A new final program

The attendee notebook in San Diego was a major departure from the standard veterinary conference program. Yes, there was practical information for attendees, but plenty of space was devoted for other uses too: namely, to take notes from sessions either as normal or in a doodly format. The book’s creators wanted the final program to be more of a keepsake than a reference

guide. Who says something can’t look great and be functional?

The pillars of Fetch dvm360

Fetch dvm360 conference is centered around four central pillars—organizers want the event to nurture, inspire, connect and equip attendees in all areas of their life as veterinary professionals. As a result, attendees in San Diego could:

- > Take advantage of yoga and meditation or spend a few minutes on reflection (Nurture).
- > Focus on the future and potential of the industry, as in the keynote address on telemedicine by Dr. Eleanor Green, Texas A&M vet school dean (Inspire).


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Adverse Reactions: Field safety was evaluated in 244 dogs. The most common adverse reactions were diarrhea and vomiting. Of the dogs that received ENTYCE (n = 171), 12 experienced diarrhea and 11 experienced vomiting. Of the dogs treated with placebo (n = 73), 5 experienced diarrhea and 4 experienced vomiting.

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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>

NADA 141-457, Approved by FDA

US Patent: 6,107,306

US Patent: 6,673,929

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Please see brief summary on page 06

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Here's a peek at the inside of the notebook and one of the coloring pages provided to blow off steam.

- > Find like-minded people on the new app (see more below) or use the free breakfasts to start building networks (Connect).
- > Avail themselves of resources from dvm360.com tied to sessions in order to improve their practices throughout the year (Equip).

There's now an app for that

Many attendees at Fetch dvm360 in San Diego downloaded the shiny new app. This new conference app delivered up-to-date information concerning session locations and titles, speaker names and session proceedings. In addition, attendees could mark favorite sessions they wanted to attend to build a custom schedule right in the app.

In San Diego, the app's activity stream let attendees share photos of what they were up to, ask questions on points of confusion and share opportunities with other people who were at the conference.

Customer service for the modern age

It's no secret that introverts hate calling a customer service number (especially if they're out of breath and running down the hallway to get to the next session). A new "text your question" service offered in San Diego got attendees the answers they needed without making it necessary to find the registration desk or spending too much time on the phone. Ah, the beauty of 21st-century technology.

Find a place of zen

Practice life is busy. So are veterinary conferences. It's important to step back from all the chaos for a few minutes and take the time to get grounded and feel refreshed. That's why Fetch dvm360 offered a few different opportunities to recharge. There was dog yoga in the mornings, which involved walking and stretching outside. There was cat yoga on several evenings, which involved doing yoga while cats wandered around. And there was a meditation room, where attendees could go for some quiet time or for guided sessions.

Taking adult learning to the next level

Most everyone is used to the typical lecture where a speaker goes through the material in 50 minutes and takes 10 minutes of questions at the end. But research has shown that shaking things up a bit helps everyone in the room retain more information. At Fetch dvm360, taking a few short breaks throughout the hour to talk a little, stand up or ask questions allowed attendees to refocus on the material at hand instead of trying to stay engaged through sheer willpower. (It turns out adult attention spans are only about 20 minutes long.) This approach will carry over into 2018 through the conference's partnership with seasoned veterinary facilitators.

Fun in the exhibit hall

Sitting in sessions all day just isn't possible. At some point, information goes in one ear and out the other.



Fetch dvm360 attendees get prepared to do some cat yoga at The Cat Cafe.



Bo the therapy pig was a big hit in the Fetch dvm360 exhibit hall.

That's why the exhibit hall was full of opportunities to take a break. There was the Vet Confessionals Project, where attendees could read secrets written by their colleagues or submit one of their own. There were selfie booths to take photos with friends (or with kittens!) that let anyone not at the conference know what they were missing out on. There was a caricature artist, who could capture likenesses and

transform anyone into the animal of their choice. And there were the therapy dogs and adoption societies that provide some much-needed furry comfort. (And in the case of San Diego, a pig!)

The team is already hot on the ground to bring another fetching experience to Virginia Beach May 17-20. Be on the lookout for all these new great additions and more for all the 2018 shows!



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References: **1.** Flanagan J *et al.* Success of a weight loss plan for overweight dogs: the results of an international weight loss study. *PLoS One* 2017;12(9):e0184199. **2.** Hours MA *et al.* Factors affecting weight loss in client owned cats and dogs: data from an international weight loss study. Proc of 16th Annual AAVN Clinical Nutrition and Research Symposium; Denver (USA); June 8, 2016. **3.** Murphy M. Obesity treatment. Environment and behavior modification. *Vet Clin North Am Small Anim Pract.* 2016;46:883-898. **4.** Satiety Consumer Study (11- 21-14), IPSOS 2014. **5.** Courcier EA *et al.* Prevalence and risk factors for feline obesity in a first opinion practice in Glasgow, Scotland. *J Feline Med Surg.* 2010;12(10):746-53. **6.** Rohlf VI *et al.* Dog obesity: can dog caregivers' (owners') feeding and exercise intentions and behaviors be predicted from attitudes. *J Appl Anim Welfare Sci.* 2010;13(3):213-236. **7.** McGreevy PD *et al.* Prevalence of obesity in dogs examined by Australian veterinary practices and the risk factors involved. *Vet Rec.* 2005;156(22):695-702. **8.** Royal Canin Internal Study, data on file.

Novel idea: A medical thriller for veterinarians

While a ‘veterinary medical thriller’ may sound like Monday at your clinic, it’s also a new literary subgenre employed by veterinarian and author Clare T. Walker. *By Sarah Mouton Dowdy*

Clare T. Walker, DVM, was working as a veterinarian in a small animal hospital when she heard a rumor that the nearby emergency clinic was haunted—and that’s when her mental gears started turning.

Dr. Walker had grown up wanting to be a veterinarian, but she was also a voracious reader of fantasy, mystery and adventure books. And though she majored in animal science in college, she admits entertaining thoughts of ditching the clinical path in favor of an English degree.

“My practical side kicked in and I decided to continue on my veterinary course,” she tells *dvm360*. “It seemed more stable at the time.”

But when Dr. Walker heard about the supposedly haunted clinic, she let her “impractical” side have more say and the rumor served as the inspiration for her first novel, *The Keys of Death* (which doubled as her thesis project while working toward a master’s degree in written communication).

Dr. Walker describes *The Keys of Death* as a veterinary medical thriller, and though she was inspired by the idea of a haunted clinic, that’s not

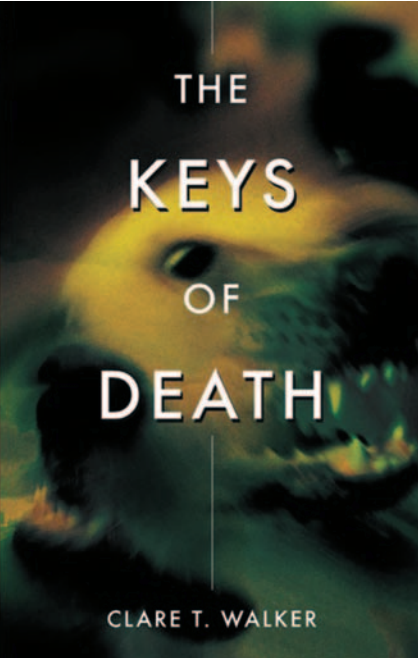


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Warnings: Not for use in humans. Keep this and all medications out of reach of children and pets. Consult a physician in case of accidental ingestion by humans. **For use in dogs only.** Store GALLIPRANT out of reach of dogs and other pets in a secured location in order to prevent accidental ingestion or overdose.
Precautions: The safe use of GALLIPRANT has not been evaluated in dogs younger than 9 months of age and less than 8 lbs (3.6 kg), dogs used for breeding, or in pregnant or lactating dogs. Adverse reactions in dogs receiving GALLIPRANT may include vomiting, diarrhea, decreased appetite, mucoid, watery or bloody stools, and decreases in serum albumin and total protein. If GALLIPRANT is used long term, appropriate monitoring is recommended. Concurrent use with other anti-inflammatory drugs has not been studied. Concomitant use of GALLIPRANT with other anti-inflammatory drugs, such as COX-inhibiting NSAIDs or corticosteroids, should be avoided. If additional pain medication is needed after a daily dose of GALLIPRANT, a non-NSAID/non-corticosteroid class of analgesic may be necessary. The concomitant use of protein-bound drugs with GALLIPRANT has not been studied. Commonly used protein-bound drugs include cardiac, anticonvulsant and behavioral medications. Drug compatibility should be monitored in patients requiring adjunctive therapy. Consider appropriate washout times when switching from one anti-inflammatory to another or when switching from corticosteroids or COX-inhibiting NSAIDs to GALLIPRANT use. The use of GALLIPRANT in dogs with cardiac disease has not been studied. It is not known whether dogs with a history of hypersensitivity to sulfonamide drugs will exhibit hypersensitivity to GALLIPRANT. GALLIPRANT is a methylbenzenesulfonamide.
Adverse Reactions: In a controlled field study, 285 dogs were evaluated for safety when given either GALLIPRANT or a vehicle control (tablet minus grapiprant) at a dose of 2 mg/kg (0.9 mg/lb) once daily for 28 days. GALLIPRANT-treated dogs ranged in age from 2 yrs to 16.75 years. The following adverse reactions were observed:

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Diarrhea, soft stool	17	13
Anorexia, inappetence	9	7
Lethargy	6	2
Buccal ulcer	1	0
Immune mediated hemolytic anemia	1	0

*Dogs may have experienced more than one type or occurrence during the study. GALLIPRANT was used safely during the field studies with other concurrent therapies, including antibiotics, parasiticides and vaccinations. To report suspected adverse drug events and/or obtain a copy of the Safety Data Sheet (SDS) or for technical assistance, call 1-888-545-5973. 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>
Information for Dog Owners: Owners should be advised of the potential for adverse reactions and be informed of the clinical signs associated with drug intolerance. Adverse reactions may include vomiting, diarrhea, decreased appetite, and decreasing albumin and total protein. Appetite and stools should be monitored and owners should be advised to consult with their veterinarian if appetite decreases or stools become abnormal.
Effectiveness: Two hundred and eighty five (285) client-owned dogs were enrolled in the study and evaluated for field safety. GALLIPRANT-treated dogs ranging in age from 2 to 16.75 years and weighing between 4.1 and 59.6 kgs (9-131 lbs) with radiographic and clinical signs of osteoarthritis were enrolled in a placebo-controlled, masked field study. Dogs had a 7-day washout from NSAID or other current OA therapy. Two hundred and sixty two (262) of the 285 dogs were included in the effectiveness evaluation. Dogs were assessed for improvements in pain and function by the owners using the Canine Brief Pain Inventory (CBPI) scoring system.¹ A statistically significant difference in the proportion of treatment successes in the GALLIPRANT group (63/131 or 48.1%) was observed compared to the vehicle control group (41/131 or 31.3%). GALLIPRANT demonstrated statistically significant differences in owner assessed pain and function. The results of the field study demonstrate that GALLIPRANT, administered at 2 mg/kg (0.9 mg/pound) once daily for 28 days was effective for the control of pain and inflammation associated with osteoarthritis.
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Brief Summary: AT1-040-16

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1. Kirkby Shaw, K., Rausch-Derra, L., and Rhodes, L. 2016. “Grapiprant: an EP4 prostaglandin receptor antagonist and novel therapy for pain and inflammation.” *Vet. Med. Sci.* 2: 3-9.
2. Rausch-Derra, L., Huebner, M., and Rhodes, L. 2015. “Evaluation of the safety of long-term, daily oral administration of grapiprant, a novel drug for treatment of osteoarthritis pain and inflammation, in healthy dogs.” *Am. J. Vet. Res.* 76.10: 853-859.
3. Rausch-Derra, L., Rhodes, L., Freshwater, L., et al. 2016. “Pharmacokinetic comparison of oral tablet and suspension formulations of grapiprant, a novel therapeutic for the pain and inflammation of osteoarthritis in dogs.” *J. Vet. Pharmacol.* March 29. DOI: 10.1111/jvp.12306.



what this book is about.

“A haunted veterinary hospital would be interesting, but I wanted to take it a step further,” says Dr. Walker. “I asked myself what a veterinarian’s worst nightmare would be and went from there. The veterinarian in my novel ends up getting involved in a whistle-blowing scheme against a big biotech company.”

The book may sound like a far cry

from a James Herriot memoir, but Dr. Walker tells a story from early in her veterinary career to illustrate one of the similarities.

“During my veterinary training, I was never on call during lambing season,” she says. “But my first year out of vet school, I was working at a suburban animal hospital in an area with a lot of hobby sheep and goat farmers. When a client called one day and said

her ewe was having a difficult time giving birth, I volunteered my services and ended up delivering twin lambs using information I’d learned from James Herriot and his step-by-step accounts of how to deliver lambs. The veterinary technician who’d accompanied me was shocked to learn it was my first lamb delivery.”

Dr. Walker says *The Keys of Death* is a bit like that.

“I had to learn a lot about how to break into a car and hotwire it. If people were to look at my internet searches, they’d think I was planning a heist.”

—Dr. Clare T. Walker

“I get pretty clinical and descriptive because of the nature of the genre. Readers of medical thrillers tend to be pretty interested in learning the nuts and bolts and behind-the-scenes details of what they’re reading about. A veterinarian who reads this will notice some shortcuts and shorthand, of course, but readers outside the veterinary field can learn, for example, how to intubate a dog from my book,” she says.

While Dr. Walker regularly calls upon her own experiences and training in her writing, she also does a lot of research.

“I had to learn a lot about how to break into a car and hotwire it. If people were to look at my internet searches, they’d think I was planning a heist,” she says.

But don’t let the thriller genre fool you. Dr. Walker’s goals for the book go beyond entertainment.

“I would really like to encourage veterinarians with this book and see them built up in our culture. I’ve noticed that we’ve been getting some bad press lately—between upselling accusations and controversial reality TV show veterinarians,” she says. “The veterinarian protagonist in my book is a hero and is everything that is great about veterinarians. But, she does have flaws and wounds that need to be addressed, and what she goes through in the novel deals with these things. There’s a lot of heart to this story.”

Dr. Walker hasn’t ruled out authoring a novel about a haunted veterinary hospital someday and continues to write while working as a relief veterinarian at various clinics two or three days a week. But she knows what it’s like to have to write on her lunch break in the midst of a full-time job. Her advice to other veterinary professionals hoping to dip their toes in the literary field? Read good books—even when it seems like you don’t have time.

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INDICATION

Galliprant is indicated for the control of pain and inflammation associated with osteoarthritis in dogs.

Veterinarian killed in plane crash during Fetch dvm360

Dr. Mike Zareski and another passenger unable to escape light craft after it hits private home in San Diego County.

Among two passengers killed in the December 9, 2017 crash of a light plane in San Diego County was well-known South Bay veterinarian Mike Zareski, DVM, owner and clinical director of Western Veterinary Group in Torrance, California. He was returning home after attending the Fetch dvm360 conference in San Diego when his plane crash-landed, according to published reports.

“On Saturday, Mike was returning from a veterinary conference with long-time friends and colleagues when the aircraft experienced catastrophic engine failure and was unable to land safely,” reads an open letter from Dr. Zareski’s wife, Shanna, on his clinic’s website.

Along with Dr. Zareski, four others were involved in the crash, including the pilot and his wife, who have yet to be named, and fellow veterinarian Dawn Stelling, DVM, with her husband

Robert Stelling, the second fatality, local news outlets report.

According to a release from the San Diego County Medical Examiner’s Office, “The pilot attempted to land the plane in the schoolyard of Lafayette Elementary School and was unable to fully stop the plane, striking a private residence in San Diego.” Dr. Zareski and Stelling were trapped inside the plane and did not survive, while the pilot, his wife and Dr. Stelling managed to escape and were transported to a local hospital, the report reads.

Dr. Zareski was known for enjoying “sunny days here in the South Bay with his wife, Shanna, daughters Jordana and Hannah, sons Christopher and Drew and their cats, Delilah and King Solomon,” the clinic’s website states.

While he spent much of his time as a veterinarian and practice owner, Dr. Zareski also founded the 4Ever Founda-

tion, a nonprofit organization that helps cats and kittens find adoptive homes. The family is requesting donations to the foundation in lieu of flowers.

“Mike personified everything a veterinarian should be,” his wife’s letter reads, “kind, loving, compassionate. He had a heart that never stopped giving. Mike was even known to extend his help to those who didn’t know they needed help at the time.”

Shanna Zareski says she intends to carry on and grow her husband’s practice and that his associates will also continue the legacy of care Dr. Zareski established. “Our WVG staff and families know that Mike touched a tremendous number of people with his overwhelming compassion, generosity and kindness. His legacy will live on in our four beautiful children and in Western Veterinary Group,” she says in her letter.

Aratana receives conditional approval for canine osteosarcoma vaccine

Aratana Therapeutics has been granted conditional approval for its canine osteosarcoma vaccine, live *Listeria* vector (AT-014) by the USDA’s Center for Veterinary Biologics, according to a release from the company. It has been approved for treatment of dogs diagnosed with osteosarcoma that are 1 year of age or older.

“Osteosarcoma is the most common

primary bone tumor in dogs and, since there haven’t been advances to raise the standard of care in nearly 20 years, dogs often face a poor prognosis,” says Ernst Heinen, DVM, PhD, chief development officer for Aratana, in the release. “We are hopeful that our canine osteosarcoma vaccine will be a new tool for veterinary oncologists to prolong survival in dogs with osteosarcoma.”

The canine osteosarcoma vaccine is a novel immunotherapeutic developed using a *Listeria*-based antigen delivery system licensed from Advaxis. It’s a lyophilized formulation of a modified live, attenuated strain of *Listeria* that activates cytotoxic T-cells. Because the therapeutic expresses a tumor-associated antigen, it directs the T-cells to fight cancer cells, even after the bacteria is cleared, which means the therapeutic builds on the dog’s immune system and its ability to attack bacterial infections, redirecting it to fight the cancer cells, the release states.

In a clinical study of 18 client-owned dogs with osteosarcoma, the data suggest

that the vaccine may delay or prevent metastatic disease and may prolong overall survival in these patients. The single-arm study evaluated dogs that had undergone tumor removal and four doses of carboplatin chemotherapy, followed by the therapeutic vaccine every three weeks for three doses, according to the release. The median survival time was 956 days compared with 423 days for a historical control group ($p<0.05$).

The most common adverse events included lethargy, diarrhea and fever, according to a separate field safety study that was submitted to the USDA for the conditional licensing process.

To progress from conditional licensure to full licensure as required by the USDA, Aratana plans to conduct an extended field study in a clinical setting, anticipating an early 2018 start to that study, the release notes. Initially, the therapeutic will be available for purchase at about two dozen veterinary oncology practice groups across the United States that participate in the study.



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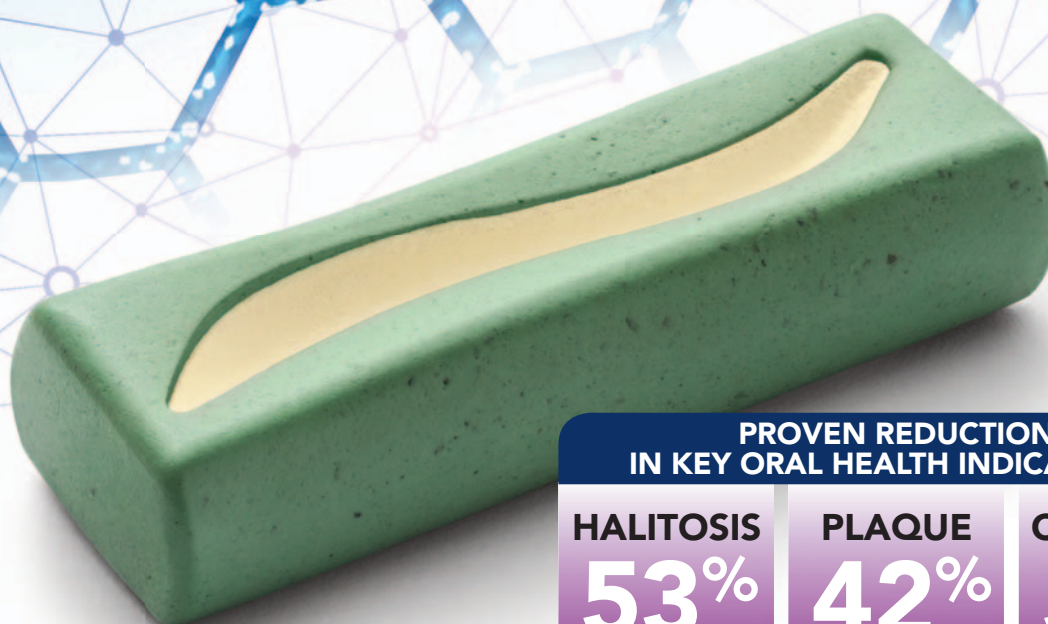
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*Compared with dry diet alone.

References: 1. Data on file. 2. Steinberg D, Beeman D, Bowen W. The effect of delmopinol on glucosyltransferase adsorbed on to saliva-coated hydroxyapatite. *Archs Oral Biol.* 1992;37:33-38. 3. Vassilakos N, Arnebrant T, Rundegren J. In vitro interactions of delmopinol hydrochloride with salivary films adsorbed at solid/liquid interfaces. *Caries Res.* 1993;27:176-182.



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The top 10 news stories of 2017

From the lurid to the practical, from the inspirational to the heartbreaking, the dvm360 news stories of 2017 run the full gamut of veterinary life. Revisit them here—and shudder, sigh or cheer all over again.

10. Practical products to ease your workday

Who can resist reading about new veterinary practice toys—er, tools? Transport tables. E-collars. Low-dose digital imaging systems. Inflatable positioning systems. This roundup of practical product highlights from the NAVC conference in February had something for everyone in the practice.



9. Houston veterinarian charged with plot to murder her ex

Valerie McDaniel, DVM, a practice owner in Houston, Texas, was charged with solicitation of capital murder after trying to hire a hitman to kill her ex-husband. Tragically, Dr. McDaniel later died by suicide.

8. Galliprant now available for canine osteoarthritis patients

Galliprant (grapiprant), a first-in-class pain drug developed by Aratana and marketed by Elanco, was made available to veterinarians in January after much buzz and anticipation in the industry. Galliprant is a non-COX-inhibiting prostaglandin receptor antagonist for use in dogs with osteoarthritis.



7. Making a difference for dogs with atopic dermatitis: When to use Apoquel and when to use Cytopoint

These two new dermatology drugs from Zoetis have given veterinarians and pet owners great new options for managing pruritus—but how do you use each one most effectively? The answers are here.

6. Where have all the technicians gone?

Many practices are finding it difficult to hire—and keep—credentialed veterinary technicians. This article examined why are there so few of these elusive creatures and what practices can do to help them flourish.

5. dvm360 exclusive interview: Behind the Mars-VCA merger

In a move that shook up the veterinary world and generated lots of discussion about the destiny of the profession, Mars Petcare, owner of the Banfield, BluePearl and Pet Partners veterinary practice groups, acquired VCA, Antech Diagnostics, Sound Technologies and Camp Bow Wow.

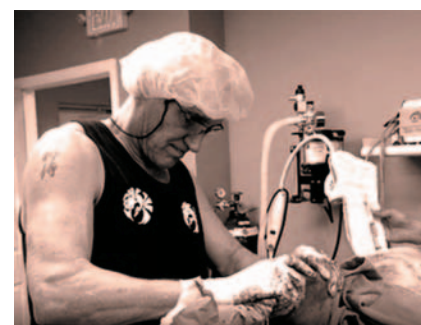
4. 10 veterinary dental products you can recommend with a smile

Veterinary dentist Dr. Jan Bellows compiled this list of food, treats and more that are proven effective in maintaining the health of pets' teeth.

3. The myth of compassion fatigue in veterinary medicine

Is it compassion fatigue that's plaguing the profession? Or is it something else? When Dr. Dani McVety took an honest look at how she was feeling, she realized that there was a better term for her exhaustion and sadness.

2. AVMA criticizes TV veterinarian for lousy surgical hygiene



Footage of Animal Planet's Jeff Young, DVM, performing surgery with bare arms, no gown and no mask got "in the way of his message," the AVMA

president and CEO said in a letter to the star of reality show *Dr. Jeff: Rocky Mountain Vet*.

1. An open letter from a disillusioned veterinary school graduate

Nothing else we published in 2017 generated such a storm of responses—many sympathetic, many critical. The anonymous author says it's time to talk about the dark side of vet school—the things that occur behind closed doors and within closed minds.



What a year, huh?

We sure thought so. If any (or all) of these stories caught your interest, there's more to see. Check out the top 10 news articles in full at dvm360.com/top10news2017.



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¹Kruger JM, Lulich JP, MacLeay J, et al. Comparison of foods with differing nutritional profiles for long-term management of acute nonobstructive idiopathic cystitis in cats. *J Am Vet Med Assoc.* 2015;247(5):508-517.

²Lulich JP, Kruger JM, MacLeay JM, et al. Efficacy of two commercially available, low-magnesium, urine acidifying dry foods for the dissolution of struvite uroliths in cats. *J Am Vet Med Assoc.* 2013;243(8):1147-1153. Average 27 days *in vivo* study in urolith forming cats.

³Urine calcium directly measured and risk of calcium oxalate crystal formation measured by Hill's COT test v. US ROYAL CANIN VETERINARY DIET® Urinary SO® cat dry formula.

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Reference: 1. Data on file. Vet Innovations, Inc., Pet Owner Field Trial, 10/17.

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Louisiana veterinarian charged with shooting neighbor's dog

Dr. Kelly Folse implicated in connection with the incident.

Kelly Folse, DVM, 35, of River Ridge, Louisiana, was arrested Dec. 19, 2017, in connection with the shooting death of a neighbor's dog, according to a report from the Jefferson Parish Sheriff's Office. Dr. Folse, an associate at Abadie Veterinary Hospital, was charged with aggravated cruelty to animals, illegal discharge of a firearm, and possession of schedule II and schedule IV drugs.

On Dec. 13, deputies responded to a report that a dog at a veterinary hospital was being treated for a gunshot wound. The dog, which was owned by a resident of River Ridge, presented with severe injuries and died the next day, the sheriff's office reports.

The resulting investigation came to focus on Dr. Folse, who lived next door to the dog's owner. "Folse is believed to have made numerous prior threats towards the dog because she thought it barked too much and she alleged it to be aggressive," the sheriff's report reads. "Our investigators were not able to find any evidence that the dog had shown prior aggressive behavior, even after several interviews in the neighborhood."

A sheriff's detective later obtained a search warrant for Dr. Folse's home and recovered two different types of narcotics, leading to the drug charges. Detectives believe Dr. Folse obtained one of the narcotics through prescriptions intended for her own pets.

While Dr. Folse worked at the hospital that treated the dog, she wasn't involved in the dog's care after the shooting, the sheriff's office states.

Dr. Folse's attorney has told local news outlets that his client did not shoot the dog. However, she appears to have lost her job as a result of the



Dr. Kelly Folse

incident. Scott Abadie, DVM, owner of the clinic where Dr. Folse worked, wrote in a Facebook post, "All of us at Abadie Veterinary Hospital are shocked and disgusted by the actions of Kelly Folse. Our practice has always strived to provide the best medical care in a compassionate environment to our clients pets. The minute Kelly Folse was suspected in the incident with Bruizer she was terminated immediately."

Dr. Abadie and his employees worked with the sheriff's office in its investigation, providing "as much information as we could to help with the arrest of Kelly Folse," the post continues.

Dr. Folse was incarcerated after the arrest at the Jefferson Parish Correctional Center.

Letter to dvm360: Minor changes, major benefits

A reader (and veterinary practice manager) explains how small aesthetic upgrades in her hospital changed the attitudes of clients and team members for the better.

The owner of our practice has been a practicing veterinarian and practice owner for over 35 years. The practice had remained almost unchanged during this time—until last year when she surprisingly decided to do a remodel. Many of us (from team members to associate veterinarians) had suggested a remodel for many years, but she wouldn't budge.

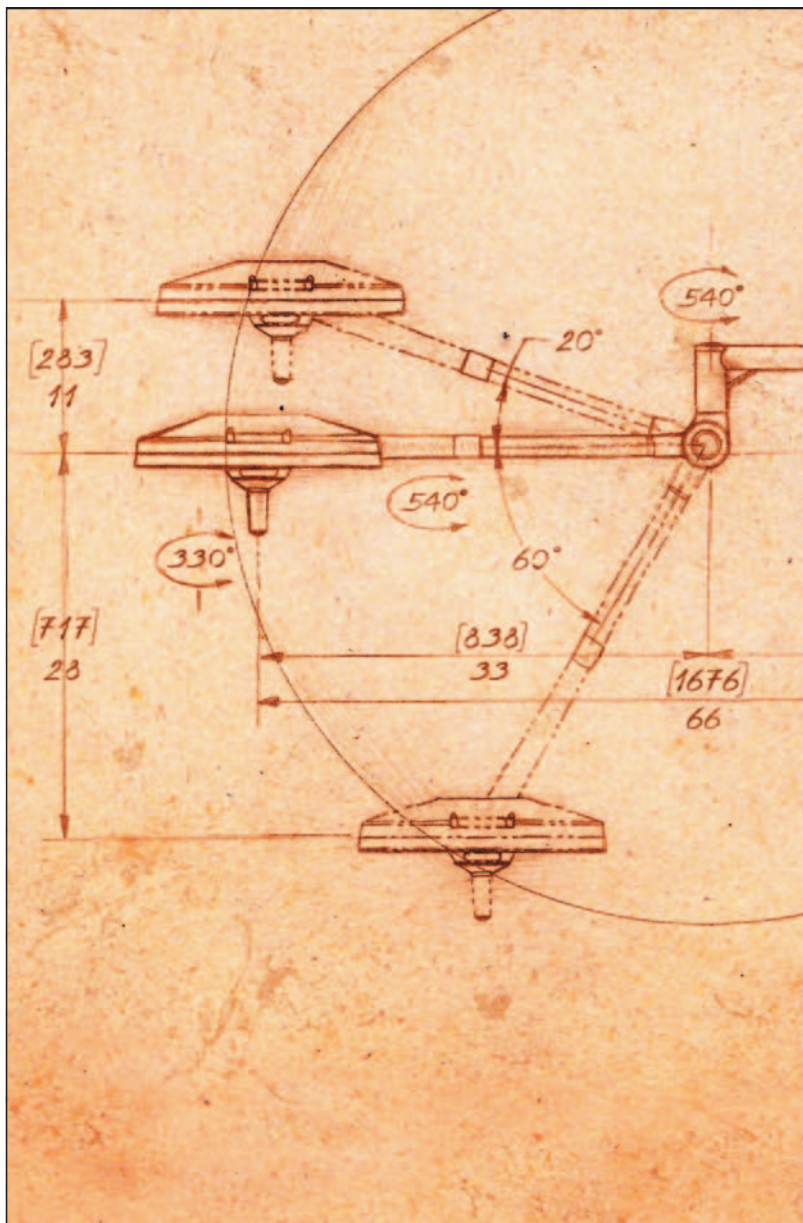
New floors, paint, chart shelves and art, as well as a TV in the waiting area, were the major changes made to the hospital. The practice definitely looks cleaner with our new floors, livelier with our new artwork and paint, and much more organized. I believe our team members were happier than anyone since they are at work for most of their days, but our longtime clients made positive com-

ments about the remodel too.

In the past, clients had complained to us and put reviews on social media about our "dirty" hospital. In reality it was more worn than dirty, but the aging appearance of the floors and walls gave that impression. Making these changes gave our practice a fresh look and a fresh attitude from our staff and clients. Who doesn't love being in a space that's clean, fresh and organized?

I agree with the young associate in Dr. Rosenberg's column (December *dvm360*) and give him props for suggesting similar changes to the Doctors Harp. The old-school mentality can be challenging, but we have to remember that the Harp brothers' hearts are in the right place (i.e. saving animals), so props to the old-school doctors too.

—A practice manager in California



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Brace for change! In this dvm360 Leadership Challenge, supported by an educational grant from Banfield, we look at veterinary life transitions, both personal and professional.



Raise your arachnid radar

The tick invasion is already in your area.
Help your clients batten down the hatches
and protect their pets.

p2



TICK CONTROL

February 2018
dvm360.com/toolkit

Audio tip

Talking to pet owners
about the 'blue dot'7

Tick myths

to bust for clients 8

Lyme disease

An update on
human cases 10

What do lizards have to do
with Lyme?12

Tick talks in practice

Data to consider13

4 common ticks

up close and personal
..... 14

Warning clients

about Powassan disease
.....17

Practical ideas

4 tips to manage parasiticide
inventory 18

Handout

Give clients the
deets on ticks 22

Quick tip

on doxycycline treatment
..... 23



Raise your arachnid radar

Much less of an occasional blip and more of a perpetual ping, the tick invasion is already in your area. Help your clients batten down the hatches and protect their pets. *By Sarah Wooten, DVM*

Ticks! These obligate blood-sucking arthropods and the diseases they carry are on the rise, and if you aren't already hitting tick prevention hard with your clients, there's no time like, well, right now! Fetch dvm360 conference speaker Richard Gerhold, DVM, MS, PhD, is on deck with what's new in tick-borne disease, full of advice to assist you in your battle with these super stealthy arachnid vampires.

Recommend year-round tick prevention.

In much of the United States, there isn't a "break" from tick season. *Ixodes* species ticks are out in the fall and winter, says Dr. Gerhold. To protect your clients, strongly recommend year-round tick prevention.

Ticks live indoors. (Ewww. Really?)

Rhipicephalus sanguineus, the brown dog tick, is a tropical tick that doesn't survive the winter outdoors in temperate areas. So Dr. Gerhold warns that these spooky ticks can hide in warm indoor nooks and crannies for up to a year, waiting for the right host to come along. Don't forget though that the brown dog tick can survive outdoors year-round in Arizona and New Mexico and has been infecting dogs and people with Rocky Mountain spotted fever, causing human morbidity and mortality.

Pull, don't twist.

When it comes to tick removal, keep "pull, don't twist" in mind, which is contrary to popular belief. Dr. Gerhold says to tell clients that when they encounter an embedded tick, they should slowly pull the tick straight out to avoid breaking the hypostome. The hypostome (mouth part) may transmit pathogens, and if you twist you risk breaking it. Go to dvm360.com/ticktoolkit for a client handout on tick removal best practices.

Positive in-house test result? Don't treat the result ...

It happens all the time—a clinically normal, happy, wagging dog comes up positive for *Ehrlichia* species. What to do? Treat the animal, not the test, Dr. Gerhold says.

Tell the owner this: "The test indicates your dog has been exposed to ticks. Now we need to run additional

tests to see if your dog actually has the disease, because the result could be from antibodies, or it could be a false positive." Then recommend a complete blood count and serum chemistry profile. If you see a thrombocytopenia or an anemia, then the index of suspicion goes up, especially if the dog has joint pain or neurologic dysfunction.

If you have a positive result for Lyme disease, do all of the above and also add in a urinalysis to look for proteinuria. Serologic tests take a while (especially IgG), so polymerase chain reaction (PCR) testing is best for early infections, Dr. Gerhold says. The gold standard is to run both tests at the same time. Lyme disease moves into tissues very quickly and is difficult to diagnose via serology. With Lyme disease, Dr. Gerhold recommends performing a biopsy of the skin.

Test the tick!

While waiting on serology, if you have an animal with clinical signs and a tick that came off the animal, you can ship the tick off to a laboratory and have it DNA tested. If it is positive, then you have a diagnosis. If the tick comes back negative, however, it doesn't rule out disease because infection may have been transmitted by another tick that has already fallen off, says Dr. Gerhold.

Cats deserve tick protection too.

Cytauxzoon felis is a rapidly fatal tick-borne disease mainly vectored by the lone star tick seen in domestic cats on the eastern side of the United States. The bobcat is the main reservoir host. If a cat recovers, which is uncommon, Dr. Gerhold says it may be an infected carrier for life. Merozoites penetrate macrophages and replicate rapidly, causing the macrophages to swell. This can cause ischemic necrosis that may resemble saddle thrombus. Other signs include anorexia, fever, and pale mucous membranes. The piroplasm stage occurs late, and cats may die even before it occurs, so Dr. Gerhold says a negative blood smear should not be considered diagnostic. Confirmatory testing is through PCR testing. Historically, imidocarb was used for treatment, but the success rate was poor. Dr. Gerhold says the current recommended treatment is atovaquone and azithromycin. In endemic regions, the most effective prevention is to apply products such as fipronil and to keep cats indoors to minimize exposure.

The CAPC website is your friend.

Local disease prevalence should be used as a lens through which to interpret diagnostic test results. The Companion Animal Parasite Council has put together a great website that includes parasite prevalence maps to help you interpret your data (capcvet.org).



Don't be afraid of the great outdoors.

Many times, clients are so spooked by the idea of themselves or their dogs acquiring a tick that they stop enjoying playing outside. Encourage your clients that with a few simple precautions, there is no need

to forgo the health benefits of being in nature. Dr. Gerhold's tips?

Wear light-colored clothing, tuck shirts into pants and pants into socks, apply tick control to the pets, and do a thorough tick check on humans and dogs after enjoying Vitamin D time.

Some tick particulars:

Did you know ... ?

- After a female tick's last blood meal turns into eggs, she falls off the host, uses the blood meal to make eggs, ruptures, and releases anywhere from 3,000 to 8,000 eggs.
- Other than mosquitoes, ticks are the second-most-important disease vector on the planet—80% of the world's cattle are infested with ticks.
- Most ticks that are pertinent in veterinary medicine are three-host ticks.
- Immature *Ixodes scapularis* ticks prefer to feed on lizards, and lizard serum may lyse *Borrelia* species organisms.
- Tick larvae have six legs, and nymphs and adults have eight legs.
- Only nymph and adult ticks can transmit *Borrelia* species that cause Lyme disease.





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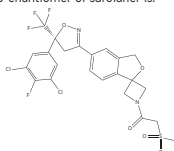
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Description:

SIMPARICA is a flavored, chewable tablet for administration to dogs over 6 months of age according to their weight. Each tablet is formulated to provide a minimum sarolaner dosage of 0.91 mg/lb (2 mg/kg) body weight.

Sarolaner is a member of the isoxazoline class of parasitocides and the chemical name is 1-(5-(5S)-5-(3,5-Dichloro-4-fluorophenyl)-5-(trifluoromethyl)-4,5-dihydroisoxazol-3-yl)-3'-H-spiro[azetidine-3,1'-(2-benzofuran)-1-yl]-2-(methylsulfonyl)ethanone. SIMPARICA contains the S-enantiomer of sarolaner.

The chemical structure of the S-enantiomer of sarolaner is:



Indications:

SIMPARICA kills adult fleas, and is indicated for the treatment and prevention of flea infestations (*Ctenocephalides felis*), and the treatment and control of tick infestations (*Amblyomma americanum* (lone star tick), *Amblyomma maculatum* (Gulf Coast tick), *Dermacentor variabilis* (American dog tick), *Ixodes scapularis* (black-legged tick), and *Rhipicephalus sanguineus* (brown dog tick)) for one month in dogs 6 months of age or older and weighing 2.8 pounds or greater.

Dosage and Administration:

SIMPARICA is given orally once a month at the recommended minimum dosage of 0.91 mg/lb (2 mg/kg).

Dosage Schedule:

Body Weight	SAROLANER per Tablet (mg)	Number of Tablets Administered
2.8 to 5.5 lbs	5	One
5.6 to 11.0 lbs	10	One
11.1 to 22.0 lbs	20	One
22.1 to 44.0 lbs	40	One
44.1 to 88.0 lbs	80	One
88.1 to 132.0 lbs	120	One
>132 lbs	Administer the appropriate combination of tablets	

SIMPARICA can be offered by hand, in the food, or administered like other tablet medications. Care should be taken that the dog consumes the complete dose, and treated animals should be observed for a few minutes to ensure that part of the dose is not lost or refused. If a dose is missed, administer SIMPARICA and resume a monthly dosing schedule.

SIMPARICA should be administered at monthly intervals.

Flea Treatment and Prevention:

Treatment with SIMPARICA may begin at any time of the year. In areas where fleas are common year-round, monthly treatment with SIMPARICA can continue the entire year without interruption.

To minimize the likelihood of flea re-infestation, it is important to treat all dogs and cats within a household with an approved flea control product.

Tick Treatment and Control:

Treatment with SIMPARICA can begin at any time of the year (see **Effectiveness**).

Contraindications:

There are no known contraindications for the use of SIMPARICA.

Warnings:

Not for use in humans. Keep this and all drugs out of reach of children and pets. For use in dogs only. Do not use SIMPARICA in cats.

SIMPARICA should not be used in dogs less than 6 months of age (see **Animal Safety**).

Precautions:

SIMPARICA may cause abnormal neurological signs such as tremors, decreased conscious proprioception, ataxia, decreased or absent menace, and/or seizures (see **Animal Safety**). The safe use of SIMPARICA has not been evaluated in breeding, pregnant, or lactating dogs.

Adverse Reactions:

SIMPARICA was administered in a well-controlled US field study, which included a total of 479 dogs (315 dogs treated with SIMPARICA and 164 dogs treated with active control once monthly for three treatments).

Over the 90-day study period, all observations of potential adverse reactions were recorded.

Table 1. Dogs with adverse reactions

Adverse reaction	sarolaner N	sarolaner (n = 315) %	active control N	active control (n = 164) %
Vomiting	3	0.95%	9	5.50%
Diarrhea	2	0.63%	2	1.20%
Lethargy	1	0.32%	2	1.20%
Inappetence	0	0%	3	1.80%

Additionally, one female dog aged 8.6 years exhibited lethargy, ataxia while posturing to eliminate, elevated third eyelids, and inappetence one day after receiving SIMPARICA concurrently with a heartworm preventative (ivermectin/pyrantel pamoate). The signs resolved one day later. After the day 14 visit, the owner elected to withdraw the dog from the study.

For a copy of the Safety Data Sheet (SDS) or to report adverse reactions call Zoetis Inc. at 1-888-963-8471. Additional information can be found at www.SIMPARICA.com. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or <http://www.fda.gov/AnimalVeterinary/SafetyHealth>.

Clinical Pharmacology:

Sarolaner is rapidly and well absorbed following oral administration of SIMPARICA. In a study of 12 Beagle dogs the mean maximum plasma concentration (C_{max}) was 1100 ng/mL and the mean time to maximum concentration (T_{max}) occurred at 3 hours following a single oral dose of 2 mg/kg to fasted animals. The mean oral bioavailability was 86% and 107% in fasted and fed dogs, respectively. The mean oral $T_{1/2}$ values for fasted and fed animals was 10 and 12 days respectively.

Sarolaner is distributed widely; the mean volume of distribution (V_{dss}) was 2.81 L/kg bodyweight following a 2 mg/kg intravenous dose of sarolaner. Sarolaner is highly bound ($\geq 99.9\%$) to plasma proteins. The metabolism of sarolaner appears to be minimal in the dog. The primary route of sarolaner elimination from dogs is biliary excretion with elimination via the feces.

Following repeat administration of SIMPARICA once every 28 days for 10 doses to Beagle dogs at 1X, 3X, and 5X the maximum intended clinical dose of 4 mg/kg, steady-state plasma concentrations were reached after the 6th dose. Following treatment at 1X, 3X, and 5X the maximum intended clinical dose of 4 mg/kg, sarolaner systemic exposure was dose proportional over the range 1X to 5X.

Mode of Action:

The active substance of SIMPARICA, sarolaner, is an acaricide and insecticide belonging to the isoxazoline group. Sarolaner inhibits the function of the neurotransmitter gamma aminobutyric acid (GABA) receptor and glutamate receptor, and works at the neuromuscular junction in insects. This results in uncontrolled neuromuscular activity leading to death in insects or acarines.

Effectiveness:

In a well-controlled laboratory study, SIMPARICA began to kill fleas 3 hours after initial administration and reduced the number of live fleas by $\geq 96.2\%$ within 8 hours after flea infestation through Day 35.

In a separate well-controlled laboratory study, SIMPARICA demonstrated 100% effectiveness against adult fleas within 24 hours following treatment and maintained 100% effectiveness against weekly re-infestations for 35 days.

In a study to explore flea egg production and viability, SIMPARICA killed fleas before they could lay eggs for 35 days. In a study to simulate a flea-infested home environment, with flea infestations established prior to the start of treatment and re-infestations on Days 7, 37 and 67, SIMPARICA administered monthly for three months demonstrated $>95.6\%$ reduction in adult fleas within 14 days after treatment and reached 100% on Day 60.

In well-controlled laboratory studies, SIMPARICA demonstrated $\geq 99\%$ effectiveness against an initial infestation of *Amblyomma americanum*, *Amblyomma maculatum*, *Dermacentor variabilis*, *Ixodes scapularis*, and *Rhipicephalus sanguineus* 48 hours post-administration and maintained $>96\%$ effectiveness 48 hours post re-infestation for 30 days.

In a well-controlled 90-day US field study conducted in households with existing flea infestations of varying severity, the effectiveness of SIMPARICA against fleas on Day 30, 60 and 90 visits compared to baseline was 99.4%, 99.8%, and 100%, respectively. Dogs with signs of flea allergy dermatitis showed improvement in erythema, papules, scaling, alopecia, dermatitis/pyodermitis and pruritus as a direct result of eliminating fleas.

Animal Safety:

In a margin of safety study, SIMPARICA was administered orally to 8-week-old Beagle puppies at doses of 0, 1X, 3X, and 5X the maximum recommended dose (4 mg/kg) at 28-day intervals for 10 doses (8 dogs per group). The control group received placebo tablets. No neurological signs were observed in the 1X group. In the 3X group, one male dog exhibited tremors and ataxia post-dose on Day 0; one female dog exhibited tremors on Days 1, 2, 3, and 5; and one female dog exhibited tremors on Day 1. In the 5X group, one female dog had a seizure on Day 61 (5 days after third dose); one female dog had tremors post-dose on Day 0 and abnormal head coordination after dosing on Day 140; and one female dog exhibited seizures associated with the second and fourth doses and tremors associated with the second and third doses. All dogs recovered without treatment. Except for the observation of abnormal head coordination in one dog in the 5X group two hours after dosing on Day 140 (dose 6). There were no treatment-related neurological signs observed once the dogs reached the age of 6 months.

In a separate exploratory pharmacokinetic study, one female dog dosed at 12 mg/kg (3X the maximum recommended dose) exhibited lethargy, anorexia, and multiple neurological signs including ataxia, tremors, disorientation, hypersalivation, diminished proprioception, and absent menace, approximately 2 days after a third monthly dose. The dog was not treated, and was ultimately euthanized. The first two doses resulted in plasma concentrations that were consistent with those of the other dogs in the treatment group. Starting at 7 hours after the third dose, there was a rapid 2.5-fold increase in plasma concentrations within 41 hours, resulting in a C_{max} more than 7-fold higher than the mean C_{max} at the maximum recommended use dose. No cause for the sudden increase in sarolaner plasma concentrations was identified.

Storage Information:

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

How Supplied:

SIMPARICA (sarolaner) Chewables are available in six flavored tablet sizes: 5, 10, 20, 40, 80, and 120 mg. Each tablet size is available in color-coded packages of one, three, or six tablets. NADA #141-452, Approved by FDA

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Talking to pet owners about the "blue dot"

We can do better than, "Look, it doesn't mean your dog has a tick-borne disease, but it doesn't not mean that."

Is a dog adequately covered by the tick preventive?

You don't know. So your veterinary practice runs a test, and you get back the "blue dot."

"What does that mean?" asks the pet owner.

In the audio clip below, Fetch dvm360 educator Richard Gerhold, DVM, MS,

PhD, shares his advice on the matter:

"If you're seeing blue dots on your test, the current language we're encouraging general practitioners to use [with pet owners] is, 'The blue dot indicates tick exposure in the animal.' It's a way of showing your clients they're not doing a good

enough job as they should be in their tick control efforts.

"And then you'll say, 'I need now to go do further testing to determine if there are any current pathogens in your dog causing disease.' That may be done through CBC, chemistry, UA, a really good physical exam, a neurological exam and potentially a PCR."



Scan the code to listen to Dr. Gerhold explain why to get 'em on that tick preventive! And get to testing!



TICK MYTHS

You talk with your clients all day long about the risks of vector-borne disease and why parasite preventives should be used year-round, so you're pretty well-versed when it comes to parasitology—right? Maybe it'd surprise you to know there are some facts that trip up even the most experienced veterinarians.

Think ticks are active and questing for hosts only during spring and summer?

False. Although ticks may appear to be most abundant in specific geographical areas during the warmer parts of the year, certain species are active during fall and winter. One example is the black-legged tick (*Ixodes scapularis*), which is a known vector for pathogens including *Borrelia burgdorferi* (the causative agent of Lyme borreliosis), *Anaplasma phagocytophilum* and *Babesia microti*.

In most temperate climates where *I. scapularis* exists, the adult stage emerges in autumn and can be found questing or attached to hosts throughout winter. Adult *I. scapularis* may parasitize domestic and wild animals as well as people. It's important for veterinarians to educate their clients about the need for year-round tick prevention for their pets as well as routine examination of pets for ticks to minimize pathogen transmission.

—Richard Gerhold,
DVM, MS, PhD





DOWNLOADABLE TOOLS

Myths vs. facts: The truth about ticks

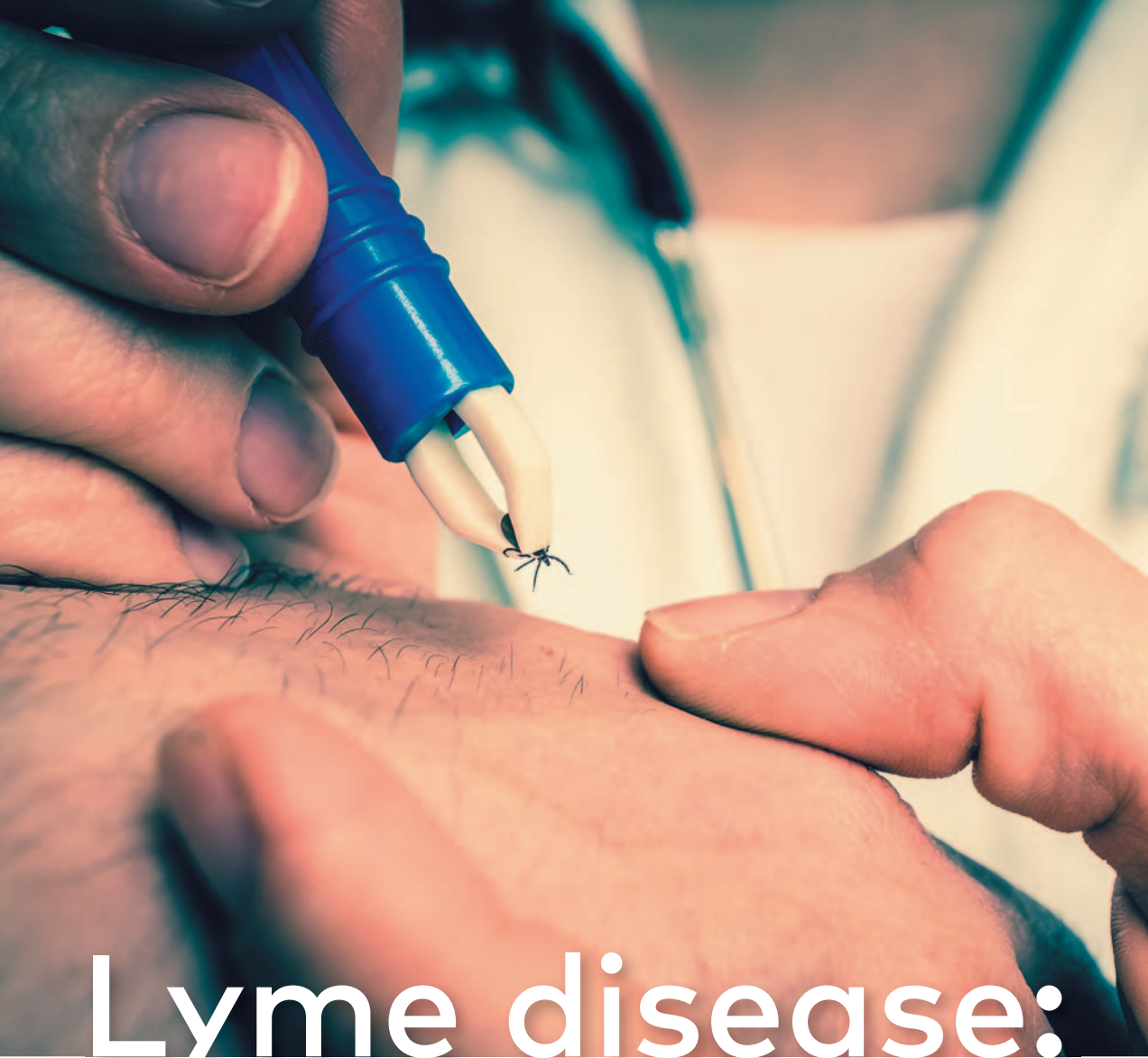
As a veterinary professional, you want to make sure ticks have no place on pets. But often you're confronted with a lot of misinformation and confusion from clients. Use this client handout to set the record straight. Scan to download now.



"Ticks fall from trees!"

Ummm...no. Have you heard people say the ticks were falling from the trees? Scan the code to watch as Dr. Susan Little discusses where to expect questing ticks.





Lyme disease: Human cases

When discussing the dangers of tick-borne diseases like Lyme with your clients, it may be helpful to include human incidence rates too.

Every year, state and local health departments collect Lyme disease reports and submit them to the Centers for Disease Control

(CDC). The total number of cases tends to be around 30,000. The graph at right shows the 15 states that qualify as “high incidence states,” meaning they

have an average incidence of at least 10 confirmed cases per 100,000 people for the previous three reporting years (2014-2016).

Using the three-year average is preferred, as according to the CDC’s website, the reported data is “subject to each state’s abilities to capture and classify cases, which are dependent upon budget and personnel and varies not only between states, but also from year to year within a given state.” In other words, a sudden or significant change in the data may be more related to human

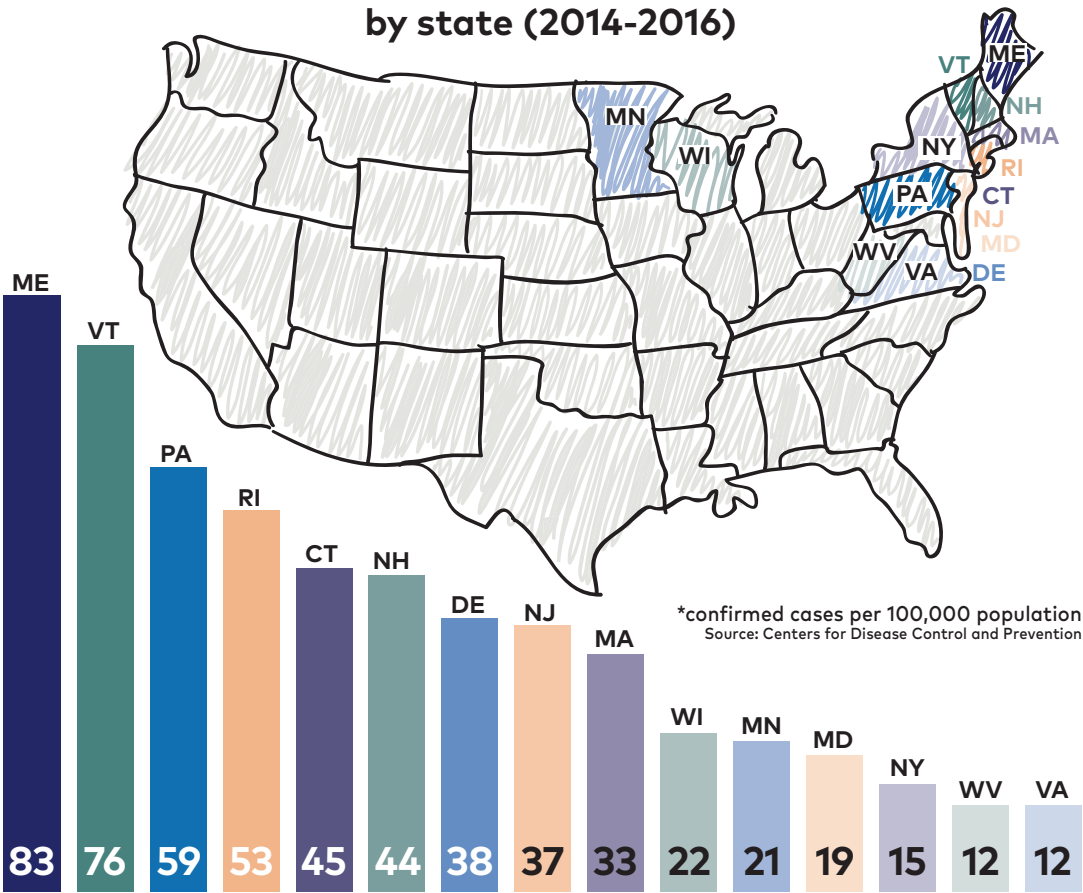
and financial resources than to the true disease incidence.

A few other points worth putting in the *lymelight*

- > Ninety-five percent of confirmed Lyme disease cases in 2015 were reported from 14 of the states on the graph below (excluding West Virginia).
- > The national three-year average incidence rate for Lyme

disease in 2014-2016 is 8.
> High-incidence states for people match high-risk Companion Animal Parasite Council (CAPC) states—except the latter also includes Alaska and Wyoming in 2016.
> According to the CDC’s website, “Lyme disease is the most commonly reported vectorborne illness in the United States.”

3-year average Lyme disease incidence* rates in people by state (2014-2016)



Find more tips, tools, techniques
and clinical updates at
dvm360.com/ticktoolkit.

Why isn't there more Lyme in the southeastern and western United States?


Lyme disease is highly regional, with the areas where it's endemic (Northeast, Great Lakes region) glowing red-hot on prevalence maps. It's spreading, yes, but the rest of the country seems relatively unaffected. What gives?

Richard Gerhold, DVM, MS, PhD, has a possible answer: lizards.

Ixodes-species ticks, the ones that transmit the *Borrelia burgdorferi* bacteria, prefer to feed on lizards, he says. So if faced with a choice between a dog (or a person) and a lizard, the tick is

going to hop on to that lizard in a flash. What do the western and southeastern states have plenty of crawling around on patios and fences? That's right—lizards.

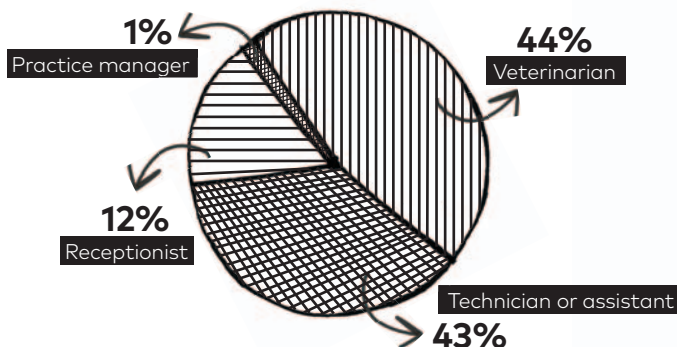
What's more, it's been hypothesized that the lizard and tick biological systems work together in such a way that the bacteria is cleansed from both hosts after a period of attachment, Dr. Gerhold says. Hooray for our scaly friends! "It makes you wonder why they're not air-dropping lizards into Rhode Island," Dr. Gerhold jokes.



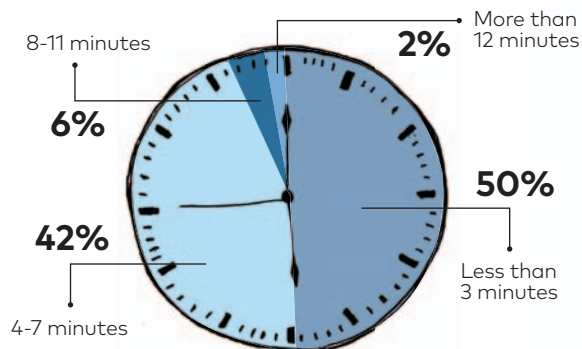
The western fence lizard is one known to host *Ixodes* ticks.

Tick talks in practice

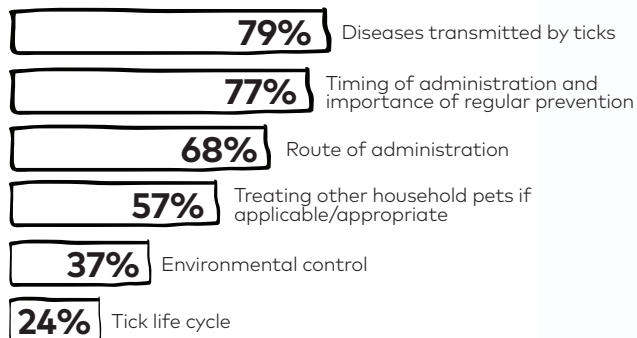
Who on your team spends the most time educating clients about tick control?



How much time do you think your team spends in total, per client, discussing tick control?



Which tick control topics does your team typically cover with a client in that time? (Check all that apply)



What's your angle?

We asked a couple favorite DVMs about their approach when it comes to talking to clients about ticks. We specifically wanted to know if any of them get a little ... you know, gross (easy to do when your subject is a bloodsucking parasite).

"I have some large ticks preserved in formalin, but I typically only pull those out when talking with young kids. For clients, it's more of a discussion about potential exposure. Our technicians always ask where pets have been traveling to in our standard history (such as areas with high tick exposure like northern Michigan or the Carolinas). We have maps that show owners where there are higher incidences of tick-borne disease."

—Andy Rollo, DVM

"While I do share extreme examples at times, a fair percentage of my clients are more holistic and appreciate a less-is-more approach. I present myself as an educated guide, sharing all the facts, statistics, and pros and cons to help owners understand the importance of tick prevention and the many types (including natural options) that work. I then let clients decide what's best for their pet considering their environment and lifestyle."

—Lisa Aumiller, DVM

Find more tips, tools, techniques
and clinical updates at
dvm360.com/ticktoolkit.

Up close and personal with **4** common ticks

A pictorial guide to these sickening suckers to help advise your veterinary clients.

Forget arachnophobia. Think entonophobia, the fear of ticks. A phobia that might be good to instill in pet owners because of all the diseases ticks can transmit to their pets—as well as to owners themselves. But there are so many different species of these small arachnids to be familiar with. Here is an overview of four common ticks to help scare your clients into realizing the importance of monthly preventives in their pets.



1 *Amblyomma americanum* a.k.a. The lone star tick



A female lone star tick.
(Image: Michael L. Levin, PhD; CD/ Public Health Image Library)

These assertive ticks actually hunt down their hosts. Most lone star ticks quest, or wait on low shrubs, bushes and blades of grass—some run toward their host instead of passively waiting for an opportunity to hop on.

Seasonality: Start to come out as early as February

Geographic distribution: Historically southern U.S. but now considered present in most of the eastern two-thirds of the U.S.

Diseases they transmit: Ehrlichiosis, Rocky Mountain spotted fever, cytauxzoonosis, rickettsiosis, tularemia, coxiellosis (Q fever), heartland virus, bourbon virus, southern tick-associated rash illness (STARI)

2 *Amblyomma maculatum* a.k.a. The Gulf Coast tick



Dorsal view of a female Gulf Coast tick.
(Image: Dr. Christopher Paddock; CDC/Public Health Image Library)

These large, aggressive ticks like to hang out at the top of grass blades and other vegetation, catch hold of whatever walks by and start feeding as quickly as possible.

Seasonality: Start to come out as early as February

Geographic distribution: The south, by the Gulf Coast, of course, but moving north to include the central East Coast and states such as Kansas, Missouri and Ohio

Diseases they transmit: American canine hepatozoonosis, most prominently (transmitted by ingestion)

3 *Dermacentor variabilis* a.k.a. The American dog tick



A female American dog tick.
(Image: Gary O. Maupin; CDC/Public Health Image Library)

This tick may have “dog” in its name, but that doesn’t matter much when it’s looking for a blood meal. The American dog tick also infests cats and urban wildlife, such as opossums, raccoons, rabbits and squirrels—which means these ticks are probably in your backyard.

Seasonality: Start seeking hosts in early February

Geographic distribution: Most of North America except higher elevation areas (Rocky Mountains and extreme Southwest)

Diseases they transmit: Rocky Mountain spotted fever (primary vector), tularemia, tick paralysis, cytauxzoonosis

4 *Rhipicephalus sanguineus* a.k.a. The brown dog tick



A male brown dog tick.
(Image: James Gathany; William Nicholson; CDC/Public Health Image Library)

This species of tick is the only one that prefers to feed off of dogs through all of its life stages. It can also survive at a much lower humidity than other ticks and is the only tick species in North America that can infest buildings, including our homes.

Seasonality: Year-round since they live inside in homes and kennels—they love carpet and upholstery

Geographic distribution: Anywhere dogs are, thus, everywhere—even Canada and Alaska!

Diseases they transmit: Ehrlichiosis, Rocky Mountain spotted fever, anaplasmosis (in Hawaii and the Caribbean), hepatzoonosis, babesiosis



Tick-borne Powassan virus on the rise in humans

There's no evidence that Powassan virus, a tick-borne disease transmitted by the *Ixodes* species, poses a threat to your veterinary patients—yet. You and your clients are another story, says Richard Gerhold, DVM, MS, PhD. (Did you know the virus is named for the Canadian town in which it was identified after a human fatality?)



What can you tell us about the tick-borne Powassan

virus that's making headlines in mainstream news?



Powassan virus is a disease transmitted by two *Ixodes* species—

the black-legged tick and another *Ixodes* species that we see mainly on wild mammals like raccoons, woodchucks, skunks, possums. It's been around for a while, but we have seen an increased number of cases in humans. It causes encephalitis, so people can have headaches, altered consciousness or flu-like symptoms.

The virus is transmitted anywhere between spring and late fall, even potentially winter. That's the season when these ticks at some life stage are out

and about. It's important for people having these symptoms to seek medical help.

There is no evidence of Powassan virus causing disease in pets. However, there are a lot of tickborne diseases that we do see in pets—whether it be Lyme disease, anaplasmosis or *Ehrlichia*—that are significant health concerns for domestic and livestock animals. So it's important for pets to have good veterinary services and also year-long tick prevention.

I don't want talking about tick diseases to make people not want to go outside, because being outside is really important for mental health and connecting with nature. Just do simple things to minimize tick disease like a good tick check in the evening, tuck your pants in your socks and use repellents.

Powassan doesn't affect pets (at least that we know of yet), but the rest of us need to remain vigilant about ticks for our own sake, says Fetch dvm360 conference educator Dr. Richard Gerhold.

Watch the video by scanning the code or go to dvm360.com/ticktoolkit.





4 tips to manage parasiticide inventory

Don't get ticked off during slow months. Use your downtime as a practice manager or practice owner for something not so fun but super-useful: improving your drug inventory processes. *By Sarah Wooten, DVM*

When it comes to buying parasiticides, your customers have a plethora of choices, including 900-plus Petco stores, PetSmart, Walmart, Target, Ace Hardware, Cabela's (of all places), Costco, feed stores and online auctions, which last time I checked had more than 2,000 listings for parasiticides. The struggle is real, and veterinary practices are feeling the pain.

So, practice management superhero, how can you maintain appropriate inventory without breaking the bank or incurring losses due to expiration while at the same time staunching the profit hemorrhage to other retailers?

You've got time. It's winter, things are probably slower around the hospital, and it's a perfect time to evaluate your parasiticide inventory and inventory management practices.

Here are four of my best tips on how to make it happen.



1 Delegate this stuff!

You're a practice manager (or practice owner), you're not an inventory manager. You need help, so look to your staff. Do you have someone who could identify specific steps of improvement, stay on task with minimal supervision, and help make it happen with a supportive and encouraging attitude toward staff? That's your pony!

If that person doesn't quite exist in your veterinary practice, could you develop someone on staff to become that person—or hire that person?

If your practice is like the ones I've worked in, parasiticides wind up stuffed wherever they fit—or hidden away in unmarked cabinets. If you store

parasiticides in too many places in your practice or in too many open bottles, then it gets hard to visualize volume when there are so many places to count stuff. It also eats up your support staff's time and leads to incorrect inventory problems.

Keep internal and external parasiticides centrally located and on open display so you know exactly what you're dealing with. Are you having a problem with loss due to expiration? Designate a central, visible location as the “drug morgue,” and put expired drugs there. Seeing the loss in your face ups the squirm factor and helps everybody be more mindful of the importance of accurate inventory.

What an 'inventory strategist' could do for you

- > Manage and order retail and OTC products
- > Manage and order cleaning supplies and customer care hospitality products
- > Develop and maintain good relationships with vendors and meet with them on a regular basis
- > Stock all workstations twice a day
- > Stock the hospital pharmacy once a day
- > Stock food displays once a day
- > Stock retail displays once a day.



2 Do the audit!

Why not use downtime early on in the year for a parasiticide inventory audit?

Boy, THAT sounds fun! Maybe you'd rather stick a needle in your eye, but that inventory strategist you promoted is probably chomping at the bit to make the system her own, so ask her to do it.

Before you do anything, you need to know how much you have. It can be daunting, so empower your inventory strategist to break up the counting with color stickers or permanent

marker marks or whatever. Ask your strategist to find out how much you're carrying versus what you need to keep parasiticides available, convenient and affordable for your customers.

Instruct your inventory strategist to review the top 20 percent of parasiticide inventory and what's sold to the top 20 percent of your clientele. Both of these likely generate 80 percent of your practice's revenue. Keep those big products available, affordable and convenient.

3 Use your software!

Learning how to really use the inventory part of your practice management software requires effort, and there's always that fear that it'll wind up being inaccurate and require a physical count anyway. But used properly, inventory software generates reorder lists, easily manages pricing and markups, and can't get lost like that clipboard that has a hard copy version of the parasiticide

inventory from the 1980s.

For real: It's time to get modern. No, software still can't automatically increase staff accountability, efficiency and practice profitability, but inventory software remains the single-most underused software module in private practice. If you're not using inventory management software, there's no time like the present to start.



4 Get online already!

I feel like I'm about to tell you something you already know, but humor me. When Nielsen Online surveyed 1,000 shoppers, the research firm found that the No. 1 reason consumers shop online is convenience—81 percent versus 46 percent who shop online for low prices. More than anything, your clients want convenience, and if they don't find it from you, they'll go elsewhere.

The same goes for parasiticides. According to a recent Vetstreet survey of 1,000 pet owners, 63 percent said an

online pharmacy would mean they'd be more compliant with heartworm and flea product repurchasing. There are several online pharmacies that work with veterinary hospitals—Vets First Choice, Vetstreet, Vetsource, ProxyRX and others—that profit-share on products sold online. Some of the platforms have the added benefit of alerting the practice when clients fail to refill their prescriptions, which gives your front-desk team the chance to follow up with clients.

No internet for me!

So, if your veterinary practice still lives in the technological dark ages, there are still things you can do to remedy your winter parasiticide doldrums:

- > Give your clients the ability to buy products from you before and after work
- > Provide a quick and easy sales process (I was in the Apple store the other day, and my entire transaction took less than a minute)
- > Offer competitive prices. Or go online and make money even when you're sleeping. Your choice.

The parasite picture

Ticks are a high-profile parasite, and rightfully so, according to Fetch dvm360 conference speaker Richard Gerhold, DVM, MS, PhD.

Though they get a lot of press for their connection to Lyme disease, the pathogens ticks transmit affect humans and wildlife in many different ways.

And the pests are dynamic, heading this way and that: *Amblyomma americanum* is moving north into Canada; *Ixodes scapularis* is moving south, he points out.

Since ticks are a hot topic, Dr. Gerhold has some advice when discussing them with clients:

"The biggest thing to hit on when it comes to ticks is the importance for year-round tick prevention. People sometimes think if it's not spring or summer, ticks aren't out and that's not true," he says.



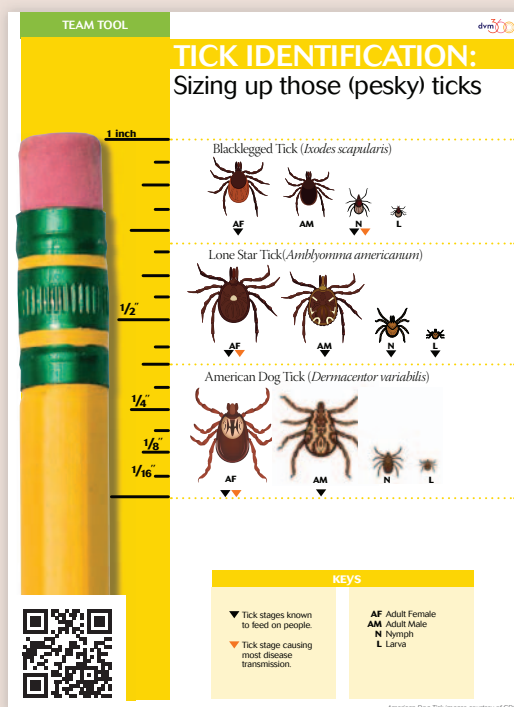
Watch the video to learn how to get this message out.

Give clients the deets on ticks

Ticks are second only to mosquitoes in the number of diseases they transmit, which is why it's so critical to prevent ticks from attaching to—and feeding on—pets and people in the first place. Size up pesky ticks with this tool.

Understanding the tick life cycle and the behavior of these parasites can help keep them in check, so we developed this handy tick identification chart for you, your team and your clients. This chart, inspired by a similar

chart from the Centers of Disease Control and Prevention shows what three common ticks—the blacklegged tick, the lone star tick and the American dog tick—look like at different phases in their life cycle. It's all drawn to scale to help your clients see how tiny these little bloodsuckers can be.



Scan this code to download the free client handout or find more information at dvm360.com/ticktoolkit.

More tips, tools, techniques
and clinical updates at
dvm360.com/ticktoolkit.

Heads up!

Doxycycline treatment tip

Have a patient with Lyme or another tick-borne disease that needs treatment with doxycycline? Here's some advice from Garret Pachtinger, VMD, DACVECC, to attendees at a recent Fetch dvm360 conference. One of doxycycline's known adverse effects is irritation and esophagitis with the potential for esophageal stricture if it sits in the esophagus too long. This is much more likely to happen if the drug is given before bedtime, when the dog is about to lie still for hours. Instead, have clients give the drug in the morning with breakfast. The act of eating, plus a day's worth of running around, will help move the medication through the esophagus, lowering the risk of esophagitis and stricture in that patient.

Don't miss tick talks at
Fetch dvm360 conference!
Visit fetchdvm360.com
to learn more about our
parasitology program and



to register
for the next
conference
near you.



NOT ALL FLEA AND TICK CHEWS ARE CREATED EQUAL

Flea and tick protection that goes
on and on and on...all month long



 **Simparica**
(sarolaner) Chewables
Dogged Protection

Recommend Simparica to your clients

Simparica acts fast—it starts killing fleas within 3 hours and ticks within 8 hours*—and keeps going strong for 35 days* **without losing effectiveness at the end of the month.**

Premium protection without the premium price—with our rebate offers and affordable price, you can compete against OTC brands and bring flea and tick protection back into your practice.

IMPORTANT SAFETY INFORMATION: Simparica is for use only in dogs, 6 months of age and older. Simparica may cause abnormal neurologic signs such as tremors, decreased conscious proprioception, ataxia, decreased or absent menace, and/or seizures. Simparica has not been evaluated in dogs that are pregnant, breeding or lactating. Simparica has been safely used in dogs treated with commonly prescribed vaccines, parasiticides and other medications. The most frequently reported adverse reactions were vomiting and diarrhea. See full Prescribing Information on page 06 and at www.zoetisUS.com/SimparicaPI.

*Studies show Simparica starts killing ticks in 8 hours and is ≥96.9% effective for 35 days against weekly reinfestations of *Ixodes scapularis*, *Amblyomma americanum*, *Amblyomma maculatum*, *Dermacentor variabilis*, and *Rhipicephalus sanguineus*.^{1,2}

Learn more about Simparica.
Contact Zoetis Customer Service at
1-888-ZOETIS-1 or 1-888-963-8471.

References: 1. Six RH, Geurden T, Carter L, et al. Evaluation of the speed of kill of sarolaner (Simparica™) against induced infestations of three species of ticks (*Amblyomma maculatum*, *Ixodes scapularis*, *Ixodes ricinus*) on dogs. *Vet Parasitol.* 2016;222:37-42. 2. Six RH, Everett WR, Young DR, et al. Efficacy of a novel oral formulation of sarolaner (Simparica™) against five common tick species infesting dogs in the United States. *Vet Parasitol.* 2016;222:28-32.

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Standing up to a storm

Four veterinarians share stories of facing big change in their lives: divorce, death, illness, work stress. Find out how they braced themselves against harsh conditions in their personal lives. *By Sarah A. Moser*

Life sometimes gets the best of us. No matter how smoothly the veterinary clinic is running, personal issues can stop you in your tracks. Whether it's something as exciting as getting married and having children, or as devastating as a serious illness or a death in the family, stress has a way of creeping in when you least expect it. Unfortunately, you can't push the pause button on your career while you sort out life.

We talked to four veterinarians who faced major life events about how they kept business going in the face of trials. Here's a peek into their lives before and after.

Having children

Andy Rollo, DVM

Fresh out of veterinary school, Dr. Andy Rollo's schedule was wide open. The practice needed him to work a weekend? No problem! Someone needed an evening shift covered? Count him in! As the newbie, he was all in. Then, as young men often do, he got married. Shortly after, Dr. Rollo and his wife welcomed a baby into their family. That's when the balancing act began.

"When I found out we were expecting a baby the first time, I changed jobs to be closer to home," says Dr. Rollo, an

associate at Madison Veterinary Hospital in Madison Heights, Michigan. "A set work schedule became much more appealing to me."

His children are now 9, 7 and 4, and Dr. Rollo says he's learned to be more efficient with his time. "Some of that comes with the territory of being out of school for 14 years now. Naturally, I'm more efficient," he says. "But I've also better learned to budget my time. My family is a factor in how I schedule my days and communicate with clients."

Where once Dr. Rollo would have given out his cell phone number freely, he now guards clients' access to him a bit tighter. "When my 2-year-old needs a diaper change, another kid is crying, and the third is pulling on my leg, I can't have a quality conversation with a client whose pet is doing poorly," he says. "It's not fair to the client, nor can my kids understand that daddy needs to take an important phone call. So I tell my clients that when I'm in the office, I'll give them my all. But when I'm off work, that time is for my family."

Dr. Rollo's wife is a part-time teacher. For a while he helped at home two mornings a week when he was off work or went in late to pitch in with getting the kids off to school. His shift has now changed, and he isn't as available in the

mornings, making those days harder on his wife. He also works one late shift per week, meaning he misses out on time with his kids at home on those evenings. However, other days he's free to coach his kids' baseball teams after school and attend most of their games.

"It's all a balancing act," he says. "I know I can't be there for all of it but I do what I can."

His biggest piece of advice? "Communication is key—communication with my spouse, my kids and the people at my job," Dr. Rollo says. "You don't have to be just a parent or just a veterinarian. With communication and advance planning, you can make it to most events. You'll have to make sacrifices at some point on both sides, but if you just talk, you can work most things out. Our profession has a lot of workable hours, and you can usually find something that fits your schedule."

That goes for his technicians as well. As a doctor, he has more control of his schedule, but he says he talks with his technicians about their lives too.

"I tell them, 'If you have something going on that you need time off for, just tell me,'" he says. "One time a surgery went long, and my technician didn't tell me she had play tickets—she missed the event, and I didn't know about it until afterward. Had she told me ahead of time, we could have called someone in or made other arrangements. If it's important to you, we will do what we can to make it happen."

Divorce

Dani McVety, DVM

As if starting veterinary school (and continuing it, and finishing it) weren't stressful enough, Dr. Dani McVety got married just before school started. At 22, she and her husband, a law school student, started their life together.

They had a child during this time and moved back to their hometown



Dr. Andy Rollo and family.

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Dr. Dani McVety with her children after moving into their own home. "The kids were incredible," Dr. McVety says. "They really are resilient, and they remind me daily what a pure life this really is."

after graduation. She started a business—Lap of Love Veterinary Hospice—that flourished at a surprising rate, with no signs of stopping. They added another child to their family.

"Life was wonderful all through school and up to that point," says Dr. McVety. "It was interesting, though, to watch the dynamics shift and change as my then-husband started his job as an attorney and my business grew. That's when we found our dreams were growing apart."

They weren't happy, and something needed to change: "I had a passion for my children and for my work, and that's what kept me going."

Eventually she knew she had to move on in order to thrive professionally and personally—no matter how much pain that path would produce. She wanted to show her children to dream big and not let anyone keep you from your passions.

"My kids' preschool teacher at the time told me that when parents divorce, they often continue to be miserable," Dr. McVety says. "She said, 'If you're going to divorce, be happy, for heaven's sake. Don't continue to be miserable.' That spoke to me—I was going through the pain of divorce because I really did believe there was something good on the other side."

Three and a half years later, Dr. McVety wouldn't change her decision for the world. Her business is still booming, with more than 116 doctors on staff around the country, and she maintains a fiery passion for what she does. She's now married to a man whose dreams align with hers. But that doesn't mean this journey has been easy. There were times she found herself in the fetal position in the corner of her office crying.

"I had to allow those moments for myself," she says. "But then I would walk into a home for end-

of-life care for a pet, and it would always center me. I left feeling on purpose for my life, and it reminded me of what I'm here on earth to do."

Through it all, Dr. McVety says the experience of divorce has taught her more about having difficult conversations with dignity and strength. She has learned to disagree with people while still showing love.

"I chose this path," she says. "I know a lot of life stressors people have no control over, but I chose to divorce. I experienced a lot of guilt and shame, but I made the choice to be happy and to be kind, no matter what."

She also emphasizes that taking steps to change your situation applies not only to a marriage but to a job as well: "If you don't like your clinic, then do something about it! Make suggestions for improvement, make changes, and move on if all else fails. You are responsible for choosing to be happy."

Serious illness Karen Bradley, DVM

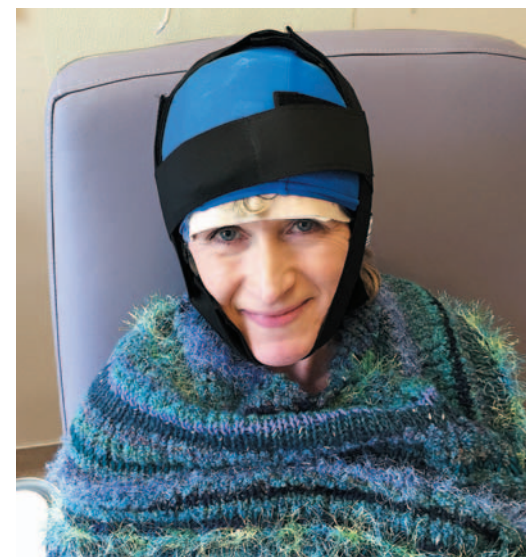
One month late for her annual mammogram in June 2016, Dr. Karen Bradley found a lump in her breast.

"It wasn't the best time, but when will you get a cancer diagnosis at the right time?" she asks. As one of three owners in the middle of moving their veterinary practice into a newer, bigger facility and buying out one of the partners, she found herself dealing with stage 3A breast cancer that had spread to her lymph nodes.

Dr. Bradley underwent chemotherapy, surgery and radiation and is now feeling well most of the time. She took time off for her surgeries and a couple of days to recover after each treatment.

"Thank goodness for supportive business partners, my manager and staff members, who all pitched in," says Dr. Bradley. "My team never made me feel like I couldn't do it."

As a practice owner, Dr. Bradley helped craft



Dr. Karen Bradley had her first chemo treatment in June 2016, trying a "cooling cap" to minimize hair loss. "It didn't work that well," she says—she later rocked a wig, super-short hair and "chemo curl."

a culture that allows people to take the time they need for serious issues without fear of losing income. Several years before Dr. Bradley's cancer, her co-owner's son endured treatments for leukemia; during that year the rest of the staff took over much of her work.

"We didn't touch her salary," says Dr. Bradley. "She did what she needed for her son during an intense year. What goes around comes around, because while I was sick they did the same for me. No one cut my salary or said I wasn't pulling my weight. They just took care of me."

Dr. Bradley lived out her cancer journey the way she lives her life: transparently. She told her clients what was happening. It was clear something was up when she wasn't in the office as often, and when she was, she was bald. She says being up front about her illness made her a better doctor.

"Now when I treat a sick pet, I can assure the pet owner that the pet won't feel like chasing a tennis ball five days after chemotherapy, that it's OK for the dog to lay there like a log," she says. "I know from personal experience."

Talking about her illness also led to some clients sharing their own personal woes. Dr. Bradley says her experience has helped her know how hard it is for others.

"I can assure my clients that the best thing I can do for them is to work to make their pets healthy and strong to support them," she says.

Astonishingly, just after Dr. Bradley's diagnosis, one of her technicians received her own breast cancer diagnosis. Thankfully, she caught it early and it hadn't spread to her lymph nodes, as Dr. Bradley's had.

"Being open and transparent about an illness helps me to encourage others to get themselves checked," she says.

"My technician is doing very well now, and she was so much bolder than me about going bald. She looks gorgeous!"

Death of a spouse Jed Rogers, DVM

Dr. Jed Rogers' world was rocked in 2002 when his wife, Maia, was diagnosed with breast cancer. She underwent a series of treatments, but the cancer returned in 2007. During this time, Dr. Rogers stopped practicing medicine and focused instead on helping run a group of hospitals he co-owned in Colorado. The couple's

children were 5 and 3 years old at the time Maia was diagnosed. His priority was balancing the needs of his kids, his wife, his business and his own health.

"It was overwhelming to me, quite a juggling act," Dr. Rogers says.

In 2010 Dr. Rogers sold that group of hospitals, in big part because of his wife's illness and his desire to be

available for her and their children. In 2013, Maia succumbed to the illness, leaving Dr. Rogers behind with 16- and 14-year-old children. He stayed in Denver until the kids graduated from high school to keep them in their environment and as stable as possible.

During Maia's long illness, the Rogerses put plans in place for when she

had to be admitted to the hospital or was home sick to minimize the disruptions that come with the unpredictability of a chronic illness. Having this plan in place, along with significant support from friends and family, eased some of the logistical difficulties.

"When she passed away it was definitely more challenging," says Dr.



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Maia Rogers, who was the wife of Dr. Jed Rogers, passed away in 2013.

Rogers. “I realized a lot of stuff that she was doing, and with her not there it was quite an adjustment.”

Dr. Rogers had to become more adaptable in terms of when he worked. He says their kids were forced to assume more responsibility at an earlier age than many of their friends.

“I tried to organize my work and travel schedule so I could prioritize them, and sometimes I did well at that and sometimes I didn’t,” he says. “I think I missed some things during that time

because I failed to plan well or communicate. That was frustrating, but I’ve slowly learned to do better.”

He has also learned that there is no such thing as work time and home time. Before, he was able to compartmentalize his work and family time, but now he says it’s all one big chunk of time. He plugs meetings in between kids’ events, often jumping from role to role at a moment’s notice.

“There are no work hours and family hours and personal hours now,” he says. “I just parcel out chunks of time here and there.”

Dr. Rogers says, as far as work is concerned, his wife’s illness and death forced him to be more flexible and more efficient. He says that’s something all doctors evolve in over the years, but his changes became absolutely essential to his survival.

“My biggest piece of advice, no matter what life stress you’re facing: Don’t get hung up on timelines,” he says. “I think we all put artificial pressure on ourselves to do a thing by a certain time. When you go through a major transition like this, those rules don’t apply. You’ll just get overwhelmed if you try. Avoid the pressure of timelines, and just continue your process.”

Dr. Rogers is now remarried, and his children are 18 and 20 years old. He co-owns Firehouse Animal Health Centers in Austin, Texas.

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

4 tips for life storms

Change is coming—or it’s here. Here’s how to weatherproof your thinking.

No. 1: Accept help ... really

Veterinarians are caregivers by nature, but asking for and accepting help from others rarely comes naturally. Dr. Karen Bradley, a breast cancer survivor, says letting others shoulder the load is vital to surviving a difficult time.

“Veterinarians, especially practice owners, often don’t ask for help, and even turn it down when offered,” says Dr. Bradley. “But when you go through something life-changing, it’s time to turn that off and accept the meals people offer, to take a task off your shoulders—if they offer, let them. People want to help.”

Dr. Bradley made a list of things she needed help with and kept it with her at all times. Then, when people said, “Let me know how I can help,” she was ready with a concrete suggestion, from driving her daughter to dance or mowing the lawn.

Elizabeth Strand, LCSW, a therapist and social worker who works with veterinarians and students at the University of Tennessee at Knoxville, says this skill is absolutely crucial.

“Being able to prioritize your strongest need and asking for and allowing others to help you is an extremely important skill,” says Strand. “I’ve never met a profession that is more willing to help others. But veterinarians often think they need to have it all together, with an unreasonable perfectionist side. If you won’t ask for and accept help from others, you’re preventing [others you work with] from doing what’s in their nature.”

No. 2: Allow yourself to feel

All life events, from serious illness to a child getting married, are forms of stress. And when a body goes through stress, the emotional brain is involved.

“The biggest thing that causes people to get stuck or not be able to move through these life stressors well is neglecting the natural normal feelings that arise,” says Strand. “When I’m counseling someone, I’ll ask how they feel about something. They start giving me thoughts on what they could have done better, whose fault it was, what they need to do next. But that isn’t a feeling. Everyone needs to slow down and allow themselves to feel an emotion. Put it into words.”

Strand says the act of identifying a feeling is freeing: “When you stop allowing yourself to feel, the stress can control your life.”

No. 3: Practice self-care

Taking care of yourself involves something called the “healthy mind platter,” an idea established by David Rock, MD, and Daniel Siegel, MD. The idea is that you serve up a healthy dose of self-care regularly, including seven key elements:

- > Focused time for tasks
- > Playtime
- > Time to connect with others
- > Physical activity
- > Time for meditation and thought
- > Sleep
- > Unstructured downtime.

When counseling clients, Strand asks them what self-care they were doing before a crisis hit and helps guide them back to it.

“Ask yourself, did I already do these things before? If so, choose some to keep doing,” she says. “If a person wasn’t doing these things before, I help them get started, usually with physical activity. Taking care of yourself will help your brain handle the stress.”

No. 4: Have compassion for yourself

If you wouldn’t say it to a friend, don’t say it to yourself, admonishes Strand. That means don’t be too hard on yourself, and remember that your situation isn’t just happening to you.

“Every human around you is going to have similar times of difficulty in life,” she says. “Realize that you’re not an isolated event and that you will get through this. It’s your turn for a challenge, and you’re not a failure for experiencing it. Take care of yourself, ask for help and be kind to yourself.”

Hear from your peers

A panel discussion on May 20 during the Fetch dvm360 conference in Virginia Beach will focus on transitions in veterinary life.

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The next step in a veterinary career

Three veterinary professionals share their stories of what it was like to progress from one stage of a career to the next: the fears, the joys—and the complete surprises.

What happens when a vet student becomes an associate, an associate becomes a practice owner, or a technician becomes a practice manager? The stories are as varied as the individuals who have gone through these common transitions in veterinary life, but here we present three shining examples of career change and transformation—along with some tips for others who are in the same shoes.

The next step From associate to practice owner

By Jerilynn Weisshaar, DVM

I always knew I wanted to own a veterinary practice. As soon as I realized general practice was the route I wanted to take, I never considered not owning. I grew up in the Midwest, where small- or two-doctor practices are common, so that was my model and ultimately it became my target.

I spent most of my high school and undergrad years in and out of several different practices, and I got a glimpse of what good owners and bad owners looked like, eventually starting to form my own view of ownership. Knowing I wanted to own a practice, I took a few business classes during my undergrad years and even married a business ma-

jor! Vet school didn't really add to my preparation—we got minimal exposure to the business side of veterinary medicine. So I read every article I could find in magazines and on VIN about ownership to help in my preparation.

I joined the team at West Ridge Animal Health Center in Topeka, Kansas, in 2009, and a year later I let the owner know I was interested in buying in. My goal coming out of school was to buy in three to five years after graduation, so after five years at the practice I started working with the owner on a plan.

However, about that time the owner hit some big life changes himself, and it became a possibility that he would sell the entire practice. So we put the brakes on our talks until he determined a year and half later that yes, he was definitely moving. At that time the buy-in process became a practice-acquisition process!

Here's something I wasn't prepared for: the scope of what's involved to get to practice ownership. You simply cannot fathom the amount of time you will spend on paperwork for the bank, for closing, for the government. At the same time you're securing your loan and working toward closing, you also have to get things ready to start as a "new business," including any immediate changes you want to make.

I found the banks to be an invaluable resource in my practice purchase. I talked to seven lenders before I decided which I wanted to use and found them all to be a wealth of knowledge and helpful in making sure I was making the best decisions for me and my family. My bank provides contin-

ued support, which I think is awesome!

I would advise other prospective owners to keep their eye on the end result—practice ownership. Some days during the process you're sure it's not going to work out—negotiations aren't going well, the bank didn't give you the answer you hoped for, it just doesn't all go perfectly. And some days you're sure you can't be an owner—the loan is too big, the paperwork is overwhelming, it's a lot of pressure. But remember that if it's your dream, you have to work hard. In the end ownership may not look quite like you originally thought, but it's your dream and it's worth doing!

The next step From technician to practice manager

By Marshall Liger, LVT, CVPM

I began my veterinary career at age 17, working part time in a clinic performing basic duties. As time progressed, I gained more knowledge and responsibility until I was eventually a licensed veterinary technician and the assistant office manager.

It's my nature to be involved and to strive for excellence. My mom always said, "That boy could work an army." These natural tendencies ultimately made me more attracted to the operations of the clinic, and I found myself increasingly interested in matters such as revenue and spending, inventory, client relations and so on. I found team relationships to be the most challenging area. Even with all my growth through the years I would say that is often still the biggest hurdle.

After 13 years, I took a position as practice manager at a new clinic. The position found me, as they say, through some mutual friends. I'm not sure I knew what I was doing when I accepted the role, but I learned quickly and much of the work came naturally. I soon set a goal to complete my bachelor's degree in business



Marshall Liger, LVT, CVPM

and to earn my certified veterinary practice manager designation through the Veterinary Hospital Managers Association (VHMA).

I also built a network of resources, including participating in the VHMA member forum, attending meetings of the local practice managers group and learning from industry representatives. I've been engaging all of these resources for years and they are just as valuable today as the day I discovered them.

I love this profession and am always seeking growth. I am now hospital administrator for a six-doctor practice with more than two dozen team members. I also freelance as a veterinary practice management consultant, and I love the opportunities this role provides me. Helping other managers and practice owners grow their hospitals is something I am grateful for each day.

In an industry so burdened by burnout and compassion fatigue, I encourage veterinary technicians and practice managers to remember the passion that drove them when they first discovered veterinary medicine. We are servants, and that is a gift. We must take time to care for ourselves so we can honor our passion and keep ourselves healthy. When we learn to honor ourselves, our patients, our clients and our profession, the op-



Dr. Jerilynn Weisshaar with her husband, Jeron, daughters Kennedy and Rowan, and sons Maddux and Landry.

opportunities for growth and success are endless and joyful.

The next step From vet student to associate

By Emily Tincher, DVM

In February of my senior year of veterinary school, I remember feeling desperate to graduate and get started as a doctor. Along with nearly 3,500 other seniors in AVMA-accredited schools, I'd passed the national licensing exam and there was nothing but two months and a diploma between me and my first patient as Dr. Emily Tincher—no training wheels attached. I knew veterinary school and working at four different veterinary hospitals had provided me with the medical knowledge to get started.

Plus, a variety of leadership positions had helped prepare me for the transition from student to leader of staff and clients. I'd received a business certificate with honors as a graduate of the Veterinary Business Management Association, which had heightened my skills in communication, professionalism and financial literacy.

After graduation, I decided an internship would be the fastest way



Dr. Emily Tincher

to reach my next goal of becoming a small animal emergency doctor at a private specialty hospital. Before that started, I earned a little experience as a relief doctor at a general practice working for an established mentor.

During my month in general practice, I was conscious of the other doctors' time and tried to limit questions to those I couldn't answer through VIN, *Clinician's Brief*, dvm360.com or the *Merck Veterinary Manual*. I quickly realized a lack of comfort with anesthesia protocols and various medications. I would have required heavy

mentorship for any surgery beyond routine procedures like spays, neuters or mass removals. The learning curve was steep in many ways, but I loved the freedom to work independently to my ability level and to collaborate when I needed the advice of more experienced doctors—a trait I love about my job to this day.

I would urge practice owners who are hiring to consider a new graduate if they're willing to spend a little extra time on mentoring. Throughout my first year in practice, I was pleased to contribute to the conversation on the latest in diagnostics, therapeutics and technology. No one can remain completely updated on every aspect of veterinary medicine through CE, and a new graduate fresh out of veterinary school can help fill the gaps!

Perhaps the hardest part of transitioning out of school was no longer being surrounded by peers and friends. Whether a new grad is going to an internship or directly into practice, this change in environment can feel isolating. Amid the other stresses of transition, actively maintaining and building my support system was crucial for success in and out of the office.

There is one thing no amount of

time in academia or extracurricular activities can provide for students, and that's experience—experience making the right decision when emotions run high, when funding is short, or when a mistake has been made. I would pass this advice to other new graduates just out of school: When choosing your first job, don't focus only on the medicine. Look for a team with exemplary patient care, open communication and people you can talk to comfortably.

Help! My practice is going corporate!

In this conversation adapted from Facebook, colleagues try to allay the fears of a veterinarian whose hospital was recently acquired by a corporate group.

Original poster: The clinic I've worked for since I moved to my current home was just sold to a corporation. I'm nervous. I've never worked for a corporate animal clinic. I'm trying to be positive and embrace change, but still—it's scary. Any advice for a newly transitioning corporate employee would be great.

Respondent 1: I'm independent so I'm not sure I can help, but I know corporations know how important the team is and strive to make a smooth transition.

R2: We were recently bought by a small corporation, and it's been OK. There's been no interference in how we practice medicine, what drugs we have, protocols, etc. I won't lie that there has been no change, since I'm in management at the clinic as well—there's more paperwork, for example. Overall, though, the staff have no complaints and clients have no idea of the change.

R3: Are you *sure* the staff have no complaints? Have you given them the opportunity to voice their concerns or issues, perhaps in an anonymous forum?

R2: Haha, I didn't word that well. There *are* complaints, but no more than when we had the original ownership. They're getting better insurance and 401(k), so overall they've been happy. I would say the biggest perceived change by me and by the staff is

that we're not working for a person now—someone we see every day—we're working for this invisible group. I'm fairly certain some doctors will leave eventually, since there's no way to buy in now.

R4: I worked for an independent clinic that was bought out by a small corporation. The biggest part of the transition was feeling like there were a lot more "rules and regulations" to follow—which isn't all bad, as rules are there for a reason. But it did make things feel just slightly less ... I'm not sure what the right word is—caring?

R5: I work at Banfield and there are positives and negatives to it. Overall, I think the benefit of not having the same financial concerns as a small practice allows us to offer a higher standard of care at a lower price point. But there are times when that is a downside too. All in all, whether we are happy where we are is up to us. No one can make us feel inferior—only we can do that.

R6: Only independent myself, but be positive, keep an open mind and give them a chance. If it isn't a good fit, try someplace else. No one practice style fits everyone.

OP: We're all trying to remain positive. We are a big family here and I think that's what we are most nervous about losing. Thank you for everyone's advice!

R1: Don't be afraid. Change is always hard, but things work out in the end.



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Give your clients pickles



No, not really. But pickles have helped me understand a facet of customer service that applies perfectly to veterinary clinics.

I love pickles. Dill, sour, my aunt’s open crock or kosher, sweet gherkins or bread-and-butter. Heck, I’ve even been known to relish, well, relish! I’ve canned many a jar of the brine-soaked splendors, and my pantry and refrigerator are always stocked.

Applying pickles to business

The other day, while reading about consumer expectations, satisfaction and loyalty, I came across a story about Bob Ferrell, a motivational speaker with a penchant for pickles. He’s best known for saying, “Give ’em the pickle!” (and authoring a book titled the same). The idea is to go the extra mile to make customers happy, or at the very least put your own personal touch on customer service that sets you apart from your competition. Ferrell says when you’re not sure what to do when something happens with a customer, “give em’ the pickle” and make things right.

The night before, my wife and I had eaten dinner at our favorite beach diner. Tourist season had just ended, hurricane season was building up, and almost every restaurant had temporarily closed while restaurant owners and staff took vacations. When my sandwich was delivered, on the edge of my plate sat something unexpected: a dish of “Bub-bie’s bread-and-butter chips.” The best pickles I’d ever had!

It was a perfect example of the fact that the little surprises you provide—the new pickles on the plate you serve—do matter. I’d been satisfied with coleslaw in the past. I didn’t expect those pickles, although I sure will next season.

To put it in a different perspective, a really good bowl of vanilla ice cream is still a bowl of ice cream. Perhaps tasty, but not very memorable. Imagine what you could add to the bowl to make it better. No, not a pickle, but a home-made cookie, a biscotti, a piece of exotic fruit or a fancy chocolate would make that vanilla ice cream special.

Customer satisfaction is not enough

A satisfied customer is a starting point. Most clients expect pretty much the same things: quality, honesty, fair prices, courtesy and results. In a veterinary clinic they expect good advice, good care, current information and efficiency. Provide all of that and you might get a second opportunity. Fail to meet basic expectations and you definitely won’t. In this day of instant communication and endless choices, falling short reduces you to just another one of the options.

How do you keep the pickles coming? Excel in meeting customer expectations and then go one step beyond—every time. The first sale is the easiest because you’re on top of your game; you and your staff are a new experience for a new customer. In other words, you have pockets full of pickles and they’re all unexpected. But the unexpected can fast become expected, and you must constantly raise the bar.

How can you provide that something extra at your practice? Learn to be a “pickle pusher.” Provide text updates and appointment reminders. Give your clinic space for refreshments. Offer entertainment for non-fur babies. Provide what you promised, but make it the best veterinary experience that client has ever had. Know your pet owners’ expectations and go beyond them. Make doing business with you a pleasant, unexpected experience.

Work hard to make every customer not just satisfied but loyal. Encourage your staff to look for ideas they can use to add value for clients. Constantly ask, “Now that we have provided care and service, what else can we do to make every interaction stand out?”

Most importantly, see to it that every customer gets a pickle.

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

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

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

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

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

Dosing Schedule:

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

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

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

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

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

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

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

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

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

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

	Treatment Group			
	Afoxolaner	Oral active control		
	N ¹	% (n=415)	N ²	% (n=200)
Vomiting (with and without blood)	17	4.1	25	12.5
Dry/Flaky Skin	13	3.1	2	1.0
Diarrhea (with and without blood)	13	3.1	7	3.5
Lethargy	7	1.7	4	2.0
Anorexia	5	1.2	9	4.5

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

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

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

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

Effectiveness: In a well-controlled laboratory study, NexGard began to kill fleas four hours after initial administration and demonstrated >99% effectiveness at eight hours. In a separate well-controlled laboratory study, NexGard demonstrated 100% effectiveness against adult fleas 24 hours post-infestation for 35 days, and was ≥ 93% effective at 12 hours post-infestation through Day 21, and on Day 35. On Day 28, NexGard was 91.1% effective 12 hours post-infestation. Dogs in both the treated and control groups that were infested with fleas on Day -1 generated flea eggs at 12- and 24-hours post-treatment (0-11 eggs and 1-17 eggs in the NexGard treated dogs, and 4-90 eggs and 0-118 eggs in the control dogs, at 12- and 24-hours, respectively). At subsequent evaluations post-infestation, fleas from dogs in the treated group were essentially unable to produce any eggs (0-1 eggs) while fleas from dogs in the control group continued to produce eggs (1-141 eggs).

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

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

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

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

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

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

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

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Please see brief summary on page 26

¹Data on file at Merial.

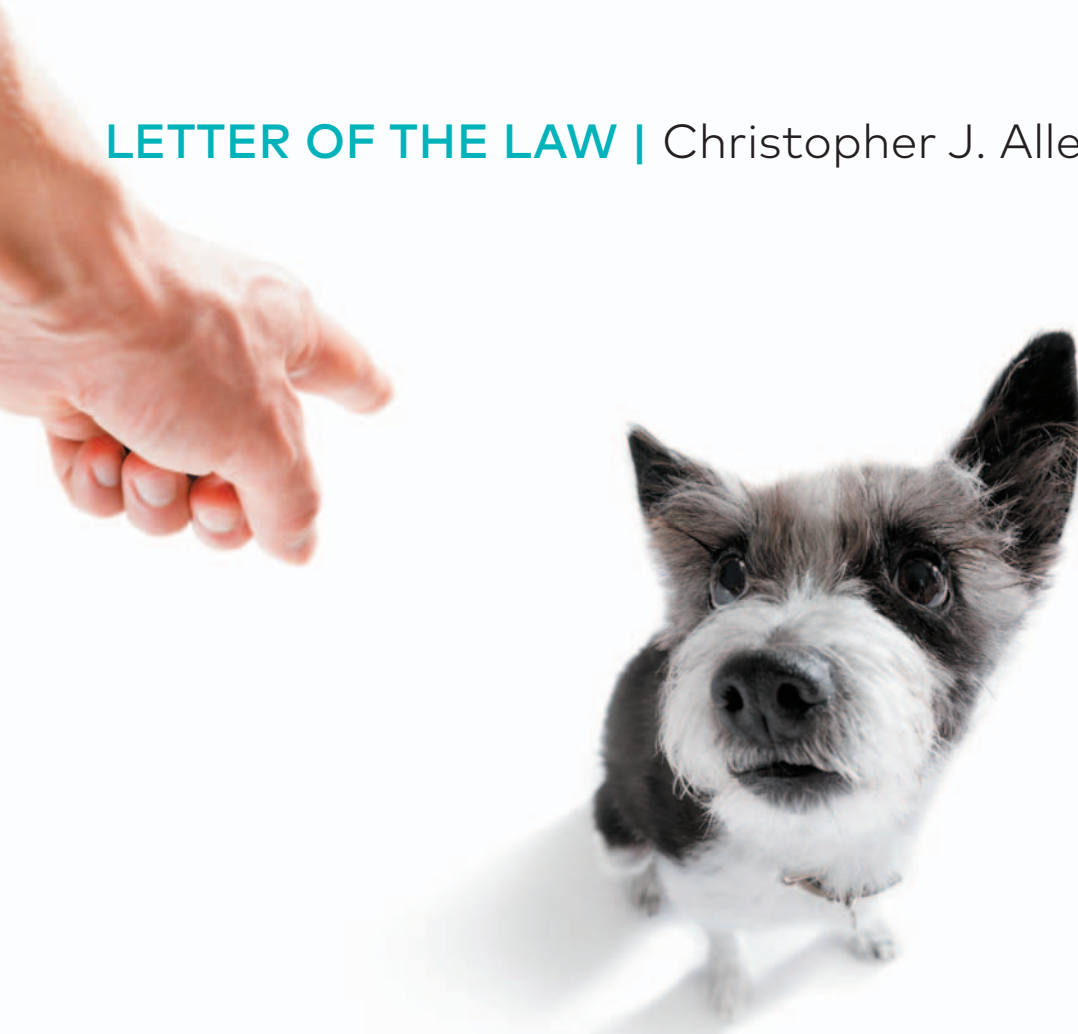
²Data on file at Merial. Based on veterinary dispensed dose data.

**NexGard is a Merial product.
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IMPORTANT SAFETY INFORMATION: NexGard® (afoxolaner) is for use in dogs only. The most frequently reported adverse reactions included pruritus, 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.



License sense:

Steps for handling a state board sanction

If you're ever disciplined by your state veterinary board, don't make your nightmare worse by neglecting your licenses in other states.

It's every veterinarian's nightmare: You don't follow up sufficiently with a patient's progress or you make a mistake that leads to a bad outcome and the owner reports you to your state veterinary board. The board investigates, you retain legal counsel, but the outcome isn't great: You receive a sanction. Maybe you're ordered to undergo a period of supervised practice, or worse—your license is suspended.

Once the legal proceedings are over, you're relieved to have the whole experience behind you. The investigation and the hearing took months, maybe even a year, to conclude. But now the penalty has been determined and you've made arrangements to comply with the board's decision. It's over—or is it?

Don't forget that years ago (perhaps) you took multiple state boards. You have a license in one or more states near where you practice in case you change jobs. Or you also took the boards in Florida (or somewhere warm) so you could work part time in "retirement."

What do you do about those other licenses? Even with a great attorney, it may not occur to them to ask you about licenses in jurisdictions other than the one that found you liable for professional misconduct. It's up to you to take steps to make it right. Here's a guide:

Step 1: Tell your counsel that you hold licenses in other states, territories or countries. Once your attorney is made aware, he or she can research your filing obligations with those jurisdictions. Many states and some foreign countries have statutes requiring veterinarians who've been disciplined elsewhere to notify them. These requirements may have short time limits,

so don't dilly-dally.

Step 2: Contact your other licensing states, either personally or through an attorney, to discover what you need to do next to meet your legal obligations. Many veterinarians either neglect to do this or simply keep their fingers crossed that no other states will discover that they were penalized for professional misconduct elsewhere. This is a big mistake. State veterinary boards frequently notify other jurisdictions that they've taken punitive action against a licensee. If your state board notifies your "retirement state" that you've had, say, a license suspension and you fail to notify them first, that second state may decide you've messed up twice—first for misconduct and second for trying to skirt your duty to notify.

Step 3: Put on your big boy or big girl pants and undertake the satisfaction of your board's decision as soon as possible. Take a cue from Martha Stewart, who elected to go straight to jail and serve her time without any attempts to delay a virtually inevitable trip to the big house. If the board wants you to arrange supervised practice, arrange it ASAP. If they sentence you to a license suspension, accept it and get it started. (Note: This assumes you don't have any clear grounds for an appeal, in which case the appeal should certainly be made.)

Step 4: Find out whether you're able to practice in that state during your home state suspension. You can also ask where a clinical sanction such as "supervised" practice can be carried out to satisfy the sanctioning state board. You might be able to get it done in a venue that's more convenient or where supervised practice is more widely available.

Step 5: Prepare yourself for the unexpected. While it may seem unfair, it wouldn't be uncommon for other states to make their own investigation of the same event of professional impropriety or malpractice. For example, let's say you're found liable for having improperly treated a horse in Kentucky, but by the time that determination is made, you've moved to Florida. Once Florida is notified by you (or by Kentucky's state board) of the malpractice determination, Florida will likely open its own investigation into the event. If Florida determines that the malpractice in Kentucky would also have been malpractice under Florida law, Florida may level additional sanctions against you.

Any veterinarian who becomes the subject of a veterinary board hearing needs to explore the impact of that investigation and its final determination on any licenses held in other states or foreign countries. Each jurisdiction must be satisfied within its own time limitations. Failure to comply with all the rules may result in license revocation, which can make subsequent renewals problematic later on.

Remember to also faithfully renew your license defense insurance policy. One state board license claim can be really expensive to defend. So just imagine the costs if you happen to have two or more licenses and all those states decide they need to call you to answer for some past indiscretion elsewhere.

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

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¹Chu H., Chavez L., et al. (1992). Immunogenicity and efficacy study of a commercial *Borrelia burgdorferi* bacterin. *J Am Vet Med Assoc.* 201(3), 403-411.

²Levy S., Millership J., et al. (2010). 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.* 8(3), 123-128.



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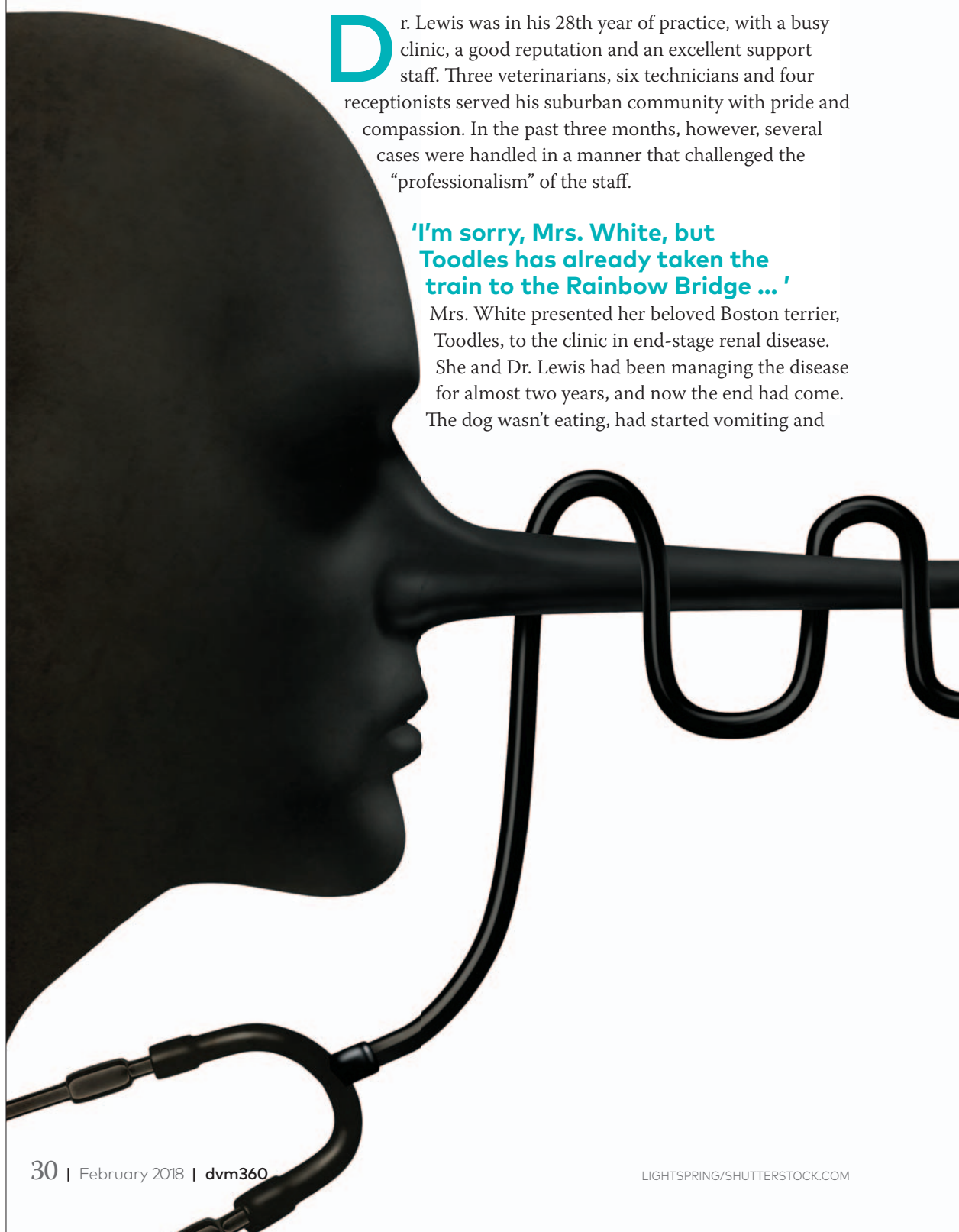
Are doctors allowed little white lies?

To keep peace in a veterinary client's home, can a veterinarian and veterinary team massage the truth about what really happened to a pet?

Dr. Lewis was in his 28th year of practice, with a busy clinic, a good reputation and an excellent support staff. Three veterinarians, six technicians and four receptionists served his suburban community with pride and compassion. In the past three months, however, several cases were handled in a manner that challenged the "professionalism" of the staff.

'I'm sorry, Mrs. White, but Toodles has already taken the train to the Rainbow Bridge ...'

Mrs. White presented her beloved Boston terrier, Toodles, to the clinic in end-stage renal disease. She and Dr. Lewis had been managing the disease for almost two years, and now the end had come. The dog wasn't eating, had started vomiting and



was displaying neurological symptoms. Mrs. White and her family were with the dog when he was euthanized. Even with a wonderful support system around her Mrs. White's grief was still overwhelming.

The pet was wrapped and placed in the clinic freezer while awaiting pickup for private cremation. The morning of the pickup Mrs. White's daughter called and told Dr. Lewis that her mother wanted to see the body. Dr. Lewis explained that she thought this was a bad idea and would further traumatize her elderly mother. In addition, Dr. Lewis was concerned with the look of the now-frozen cadaver. It was agreed that in the interests of the grieving elderly owner, she would be told the body had already been transported and cremated.

'Who can say what happened? But we'll fix her up, Mrs. Hass.'

Jim Hass presented his mother's 3-year-old Yorkie with pain in the left front leg. Jim lived with his mother and her two dogs, and while home, Jim, a big fellow, had sat down, not knowing Pixie was in his chair; he heard her cry out. The result was a hairline, non-displaced fracture of the distal ulna. Pixie would be fine and unfortunately accidents happen. But Mr. Hass had a special request: "Doc, could you tell my mom that Pixie slipped and hurt her leg and that she'll be fine?"

Dr. Lewis reported to the elderly Mrs. Hass that her dog had a small fracture and that a splint and time would fix her up good

as new. When she asked what had happened, Dr. Lewis told her sometimes it's easier to fix things than to figure out what caused them. Mrs. Hass was both grateful and relieved.

'I guess Lucky just got unlucky with something he ate, Mrs. Smith'

Our third and final case under consideration started when the Smith family—husband, wife and 16-year-old daughter—came in with Lucky, their 5-year-old retriev-

er. Lucky had become disoriented and started vomiting the previous evening. He seemed bright and alert during his visit, but his owners were concerned. As Dr. Lewis was examining the dog, his receptionist asked him to step out of the exam room. She informed him that the young girl told her that Lucky had gotten into some of her marijuana stash. The teenager asked that her parents not be told.

Dr. Lewis gave the dog a clean bill of health and recommended a bland diet for three to five days. He did speak to the mother and inquired whether the family could discuss back home among themselves anything unusual that the dog might have eaten that could have led to this upset.

'OK, team, what did we learn?'

These three instances of questionable transparency led to a staff meeting.

Dr. Lewis felt he was obligated to not only assist his pet patients but also to consider the overall family dynamic. He felt that creating needless family strife when pets' medical problems were completely resolved was unnecessary.

Two of his colleagues had a much simpler and direct opinion. They felt a clinician had an ethical responsibility to be honest with the pet owner. The ultimate impact of the truth was not the veterinarian's responsibility. Saving the pet was the veterinarian's responsibility; saving the world was not.

The heated staff meeting resolved very little.

Do you agree with the "honesty is the best policy" doctors, or do you side with Dr. Lewis, who doesn't want to ruffle feathers? Let us know at dvm360@ubm.com.

Rosenberg's response

Part of a veterinary clinician's DNA is empathy. It's clear that Dr. Lewis understood both pets' medical issues and clients' anxiety. He did his best to address both. In the midst of his well-intentioned efforts, however, I believe he lost his way. His ethical obligation is to be honest and transparent with the pet owner. Dr. Lewis should have understood that the final part of assisting his pet patient involves honestly reporting to the pet owner.

Sometimes this information is upsetting. Responsible adults receive upset-

ting information every day and manage to deal with it. Yes, Dr. Lewis' transparency ultimately may have contributed to some unintended family chaos. But this possibility in no way relieves the veterinarian of his or her ethical responsibility. It is true that many cases we deal with are not clear, black-or-white issues. That said, little white lies

are never an acceptable alternative.

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.



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Brief Summary of Prescribing Information

For oral use in dogs only

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

Indications: Control of pruritus associated with allergic dermatitis and control of atopic dermatitis in dogs at least 12 months of age.

Dosage and Administration: The dose of APOQUEL (oclacitinib maleate) tablets is 0.18 to 0.27 mg oclacitinib/lb (0.4 to 0.6 mg oclacitinib/kg) body weight, administered orally, twice daily for up to 14 days, and then administered once daily for maintenance therapy. APOQUEL may be administered with or without food.

Dosing Chart

Weight Range (in lb)		Weight Range (in Kg)		Number of Tablets to be Administered		
Low	High	Low	High	3.6 mg Tablets	5.4 mg Tablets	16 mg Tablets
6.6	9.9	3.0	4.4	0.5	-	-
10.0	14.9	4.5	5.9	-	0.5	-
15.0	19.9	6.0	8.9	1	-	-
20.0	29.9	9.0	13.4	-	1	-
30.0	44.9	13.5	19.9	-	-	0.5
45.0	59.9	20.0	26.9	-	2	-
60.0	89.9	27.0	39.9	-	-	1
90.0	129.9	40.0	54.9	-	-	1.5
130.0	175.9	55.0	80.0	-	-	2

Warnings:

APOQUEL is not for use in dogs less than 12 months of age (see **Animal Safety**). APOQUEL is not for use in dogs with serious infections. APOQUEL may increase susceptibility to infection, including demodicosis, and exacerbate neoplastic conditions (see **Adverse Reactions** and **Animal Safety**).

Human Warnings:

This product is not for human use. Keep this and all drugs out of reach of children. For use in dogs only. Wash hands immediately after handling the tablets. In case of accidental eye contact, flush immediately with water or saline for at least 15 minutes and then seek medical attention. In case of accidental ingestion, seek medical attention immediately.

Precautions:

APOQUEL is not for use in breeding dogs, or pregnant or lactating bitches. The use of APOQUEL has not been evaluated in combination with glucocorticoids, cyclosporine, or other systemic immunosuppressive agents. Dogs receiving APOQUEL should be monitored for the development of infections, including demodicosis, and neoplasia.

Adverse Reactions:

Control of Atopic Dermatitis

In a masked field study to assess the effectiveness and safety of oclacitinib for the control of atopic dermatitis in dogs, 152 dogs treated with APOQUEL and 147 dogs treated with placebo (vehicle control) were evaluated for safety. The majority of dogs in the placebo group withdrew from the 112-day study by Day 16. Adverse reactions reported (and percent of dogs affected) during Days 0-16 included diarrhea (4.6% APOQUEL, 3.4% placebo), vomiting (3.9% APOQUEL, 4.1% placebo), anorexia (2.6% APOQUEL, 0% placebo), new cutaneous or subcutaneous lump (2.6% APOQUEL, 2.7% placebo), and lethargy (2.0% APOQUEL, 1.4% placebo). In most cases, diarrhea, vomiting, anorexia, and lethargy spontaneously resolved with continued dosing. Dogs on APOQUEL had decreased leukocytes (neutrophil, eosinophil, and monocyte counts) and serum globulin, and increased cholesterol and lipase compared to the placebo group but group means remained within the normal range. Mean lymphocyte counts were transiently increased at Day 14 in the APOQUEL group.

Dogs that withdrew from the masked field study could enter an unmasked study where all dogs received APOQUEL. Between the masked and unmasked study, 283 dogs received at least one dose of APOQUEL. Of these 283 dogs, two dogs were withdrawn from study due to suspected treatment-related adverse reactions: one dog that had an intense flare-up of dermatitis and severe secondary pyoderma after 19 days of APOQUEL administration, and one dog that developed generalized demodicosis after 28 days of APOQUEL administration. Two other dogs on APOQUEL were withdrawn from study due to suspected or confirmed malignant neoplasia and subsequently euthanized, including one dog that developed signs associated with a heart base mass after 21 days of APOQUEL administration, and one dog that developed a Grade III mast cell tumor after 60 days of APOQUEL administration. One of the 147 dogs in the placebo group developed a Grade I mast cell tumor and was withdrawn from the masked study. Additional dogs receiving APOQUEL were hospitalized for diagnosis and treatment of pneumonia (one dog), transient bloody vomiting and stool (one dog), and cystitis with urolithiasis (one dog).

In the 283 dogs that received APOQUEL, the following additional clinical signs were reported after beginning APOQUEL (percentage of dogs with at least one report of the clinical sign as a non-pre-existing finding): pyoderma (12.0%), non-specified dermal lumps (12.0%), otitis (9.9%), vomiting (9.2%), diarrhea (6.0%), histiocytoma (3.9%), cystitis (3.5%), anorexia (3.2%), lethargy (2.8%), yeast skin infections (2.5%), pododermatitis (2.5%), lipoma (2.1%), polydipsia (1.4%), lymphadenopathy (1.1%), nausea (1.1%), increased appetite (1.1%), aggression (1.1%), and weight loss (0.7).

Control of Pruritus Associated with Allergic Dermatitis

In a masked field study to assess the effectiveness and safety of oclacitinib for the control of pruritus associated with allergic dermatitis in dogs, 216 dogs treated with APOQUEL and 220 dogs treated with placebo (vehicle control) were evaluated for safety. During the 30-day study, there were no fatalities and no adverse reactions requiring hospital care. Adverse reactions reported (and percent of dogs affected) during Days 0-7 included diarrhea (2.3% APOQUEL, 0.9% placebo), vomiting (2.3% APOQUEL, 1.8% placebo), lethargy (1.8% APOQUEL, 1.4% placebo), anorexia (1.4% APOQUEL, 0% placebo), and polydipsia (1.4% APOQUEL, 0% placebo). In most of these cases, signs spontaneously resolved with continued dosing. Five APOQUEL group dogs were withdrawn from study because of: darkening areas of skin and fur (1 dog); diarrhea (1 dog); fever, lethargy and cystitis (1 dog); an inflamed footpad and vomiting (1 dog); and diarrhea, vomiting, and lethargy (1 dog). Dogs in the APOQUEL group had a slight decrease in mean white blood cell counts (neutrophil, eosinophil, and monocyte counts) that remained within the normal reference range. Mean lymphocyte count for dogs in the APOQUEL group increased at Day 7, but returned to pretreatment levels by study end without a break in APOQUEL administration. Serum cholesterol increased in 25% of APOQUEL group dogs, but mean cholesterol remained within the reference range.

Continuation Field Study

After completing APOQUEL field studies, 239 dogs enrolled in an unmasked (no placebo control), continuation therapy study receiving APOQUEL for an unrestricted period of time. Mean time on this study was 372 days (range 1 to 610 days). Of these 239 dogs, one dog developed demodicosis following 273 days of APOQUEL administration. One dog developed dermal pigmented viral plaques following 266 days of APOQUEL administration. One dog developed a moderately severe bronchopneumonia after 272 days of APOQUEL administration; this infection resolved with antimicrobial treatment and temporary discontinuation of APOQUEL. One dog was euthanized after developing abdominal ascites and pleural effusion of unknown etiology after 450 days of APOQUEL administration. Six dogs were euthanized because of suspected malignant neoplasms: including thoracic metastatic, abdominal metastatic, splenic, frontal sinus, and intracranial neoplasms, and transitional cell carcinoma after 17, 120, 175, 49, 141, and 286 days of APOQUEL administration, respectively. Two dogs each developed a Grade II mast cell tumor after 52 and 91 days of APOQUEL administration, respectively. One dog developed low grade B-cell lymphoma after 392 days of APOQUEL administration. Two dogs each developed an apocrine gland adenocarcinoma (one dermal, one anal sac) after approximately 210 and 320 days of APOQUEL administration, respectively. One dog developed a low grade oral spindle cell sarcoma after 320 days of APOQUEL administration.

To report suspected adverse events, for technical assistance or to obtain a copy of the MSDS, contact Zoetis Inc. at 1-888-963-8471 or www.zoetis.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>.

Storage Conditions:

APOQUEL should be stored at controlled room temperature between 20° to 25°C (68° to 77°F) with excursions between 15° to 40°C (59° to 104°F).

How Supplied:

APOQUEL tablets contain 3.6 mg, 5.4 mg, or 16 mg of oclacitinib as oclacitinib maleate per tablet. Each strength tablets are packaged in 20 and 100 count bottles. Each tablet is scored and marked with AQ and either an S, M, or L that correspond to the different tablet strengths on both sides.

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Yes, this KPI of the profession’s health looks better, but the cost to educate veterinarians is still out of sync with the public’s value of their services.

New veterinarians today are generally being trained the same way veterinarians have been trained for decades. But the public’s views of veterinarians have changed in those same decades—along with its demand for veterinary services. This disconnect can’t go on if veterinary medicine is to survive and thrive into the future. It’s time for the profession to adapt, which means realigning its views of itself with those of the general public.

How do we know the profession needs to change? To answer this, let’s first take a step back and look at the big picture. As we’ve discussed before in this column, there are three markets that make up the veterinary profession:

- > The market for veterinary education—individuals looking to attend vet school (the demand) and the schools’ ability to provide education (the supply)
- > The market for veterinarians—practices’ willingness to hire veterinarians (demand) and veterinarians seeking employment (supply)
- > The market for veterinary services—the public’s willingness to pay for veterinary services (demand) and veterinarians’ ability to provide them (supply).

Of course, these markets are all connected. The market for veterinary education is the source of the supply of new veterinarians into society, who then provide services to the public. In other words, veterinary school applicants look for seats at veterinary

colleges, and attaining those seats lets them complete the requirements to become DVMs and practice veterinary medicine.

The 30 vet schools in the United States and the 19 foreign schools accredited by the U.S. offer a total of 4,450 seats each year to applicants. The four-year cost of each seat (tuition and fees) ranges from less than \$100,000 to more the \$250,000. Are these quantities and costs in line with public demand? Or, to put it another way, are the markets in balance? This is where it gets tricky.

Total graduate debt declines as tuition increases

Eighty-three percent of veterinary school applicants are unable to pay the total cost of the seat they attain. These applicants are forced to rely on loans to cover the gap—and that gap is widening. Between 2015 and 2017, the total tuition and fees charged veterinary students increased by 14.1 percent. You would think graduate debt would also have risen in that period—but you'd be wrong. The total debt of U.S. students graduating from U.S. colleges of veterinary medicine actually declined by 1.5 percent in the same period, even as the total number of students increased by 2 percent (see Table 1, p. 34).

So what's going on? The answer may lie in the debt-to-income ratio (DIR). Let's take a look.

DIR drops in 2017 but trend is still higher

The debt of graduating seniors is the numerator in the debt-to-income ratio (DIR), the key performance indicator for the health and vitality of the veterinary profession. The debt provides an indication of the cost of producing a veterinarian, while starting salary (income) reflects the value society places on the services provided by veterinarians. (A hint to understanding the DIR? The higher the cost compared to the value, the more out-of-whack our three markets are.)

According to the 2001 to 2017 trend, real (corrected-for-inflation) debt is rising at a rate of \$4,648 annually while real starting salaries are rising by \$808 annually. So the long-term trend in real debt is 5.75 times the long-term trend in real starting salaries (see Table 2, p. 34). Simply put, growth in debt is outpac-

ing growth in salaries by miles—not news to anyone familiar with the issues plaguing the profession.

While the long-term trend is for the DIR to rise, it actually declined in 2017, the result in part of that surprising drop in total graduate debt. Between 2015 and 2017, the number of graduates with zero debt—those

who didn't take out a single loan—increased by 56 percent (see Table 3, p. 34). It's possible that increasing awareness of the implications of a high DIR by both students and colleges has led to a reduction in total student debt even as the number of students has increased.

Plus, an improving economy has led



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References: 1. Gadeyne C, Little P, King VL, Edwards N, Davis K, Stegemann MR. Efficacy of oclacitinib (Apoquel®) compared with prednisolone for the control of pruritus and clinical signs associated with allergic dermatitis in client-owned dogs in Australia. *Vet Dermatol.* 2014;25:512-e86. 2. Cosgrove SB, Cleaver DM, King VL, Gilmer AR, Daniels AE, Wren JA, Stegemann MR. Long-term compassionate use of oclacitinib in dogs with atopic and allergic skin disease: safety, efficacy and quality of life. *Vet Dermatol.* 2015;26(3):171-179. 3. Cosgrove SB, Wren JA, Cleaver DM, et al. A blinded, randomized, placebo-controlled trial of the efficacy and safety of the Janus kinase inhibitor oclacitinib (Apoquel®) in client-owned dogs with atopic dermatitis. *Vet Dermatol.* 2013;24:587-597. 4. Marsella R, Sousa CA, Gonzales AJ, Fadok VA. Current understanding of the pathophysiologic mechanisms of canine atopic dermatitis. *JAVMA.* 2012;241(2):194-207. 5. Cosgrove SB, Wren JA, Cleaver M, et al. Efficacy and safety of oclacitinib for the control of pruritus and associated skin lesions in dogs with canine allergic dermatitis. *Vet Dermatol.* 2013;24(5):479-e114. 6. Aleo MM, Galvan EA, Fleck JT, et al. Effects of oclacitinib and prednisolone on skin test sensitivity [abstract]. *Vet Dermatol.* 2013;24(3):297.

For more information, please see Brief Summary of full Prescribing Information on facing page.

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TABLE 1

U.S. vet school students: By the numbers				
	2015	2016	2017	% change
Total debt	\$408 million	\$418 million	\$403 million	(1.5%)
Total costs	\$673 million	\$701 million	\$708 million	5.2%
Tuition and fees	\$365 million	\$403 million	\$418 million	14.5%
Living expenses	\$230 million	\$238 million	\$220 million	(4.3%)
Interest expenses	\$78 million	\$70 million	\$70 million	(10.3%)
Number of students	2,882	2,930	2,942	2.0%

TABLE 2

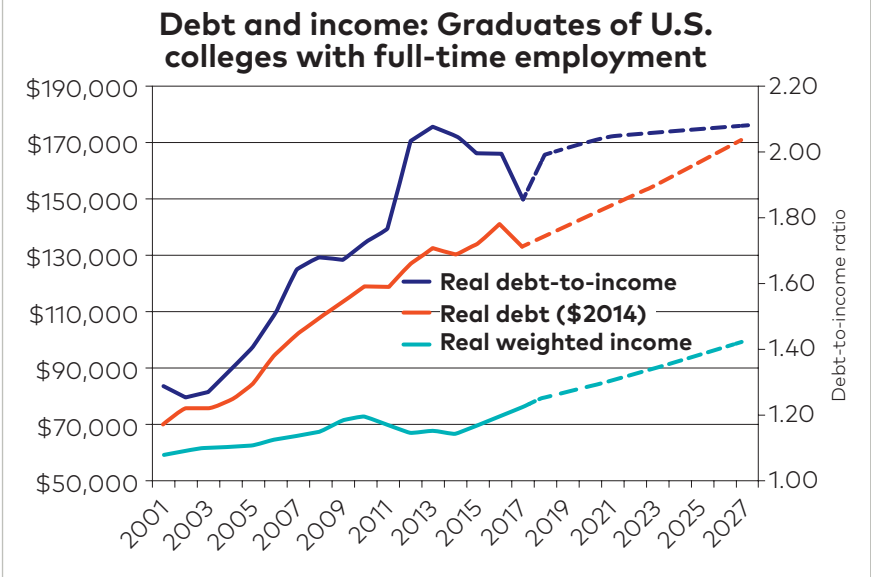
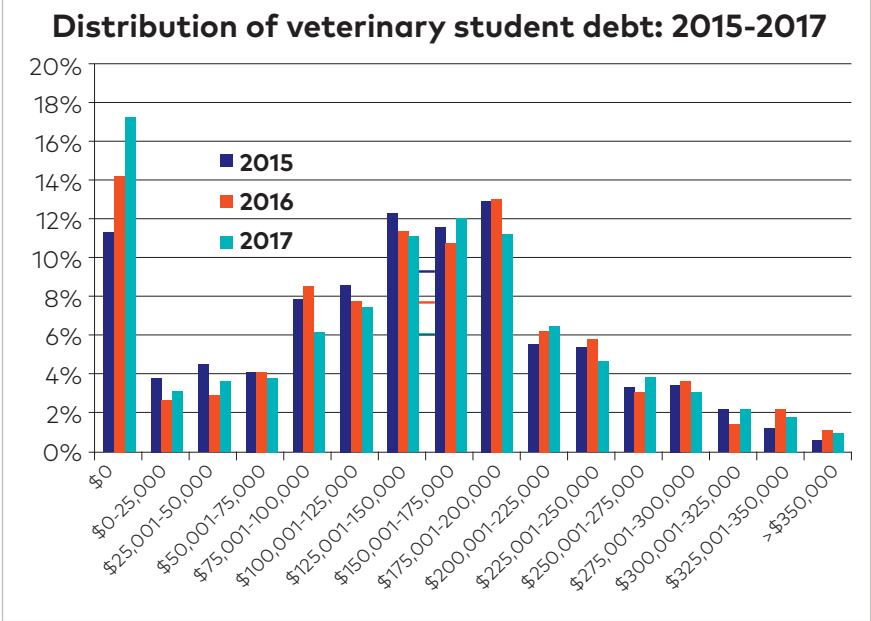


TABLE 3



to a more robust demand for veterinary services and thus for veterinarians. The rising demand for veterinarians has led to a tight veterinary labor market and higher starting salaries, which also contributed to the drop in DIR. All of this is good news—at least for now.

Long-term trouble looms

On a more troubling note, even though the average DIR has declined, the percentage of graduates with a DIR greater than 2:1 has increased, meaning these individuals will likely struggle financially their entire lives. Plus, local

economies don't always improve with the U.S. economy, and as state and local economies falter, so does public funding for education and the demand for veterinary services.

Take the recent case of Oklahoma State University's college of veterinary medicine. Since 2015, as a result of declining state tax rates and oil prices, state appropriations have declined by 26 percent, faculty positions have gone unfilled and the AVMA's Council on Education has placed the college on probation, citing major deficiencies in standards for finances, faculty and students.

To counter declining state appropriations, the college has doubled nondiscounted (out-of-state) seats by roughly 50 percent, increasing total enrollment. While the additional revenue from expanded seats will offset the lost state funds, the decline in state funding will continue, following a trend lasting more than 20 years. Plus, the college is reaching its maximum physical capacity and may not be able to continue to add students to offset losses in state appropriation. The alternative—raising tuition and fees—will produce higher DIR levels and put additional pressure on graduates and employers to raise starting salaries faster.

Conclusions

So where does this all leave us? While opportunities remain to increase the demand for veterinary services and thus veterinary salaries, the long-term trends in declining public support for education will continue to drive the DIR higher, adversely affecting the veterinary profession. The ability of schools to use raise tuition and fees or increase numbers of students to maintain the current educational system may be nearing an end.

Perhaps the time is right for the profession to identify the roles of a veterinarian in the future and determine how to most efficiently produce veterinarians that can serve those roles. Structural changes in education may more efficiently train veterinarians that better meet society's future needs.



Dr. Michael Dicks is director of the AVMA's Veterinary Economics division.

MEDICINE | Cardiology

Cough! Gasp! 'Is it my heart or my lungs, doc?'

When a veterinary patient presents at your hospital with coughing, you know you must distinguish between a cardiac or respiratory cause. Which is it? This veterinary cardiologist helps you sort through your differentials. *By Sarah J. Wooten, DVM*

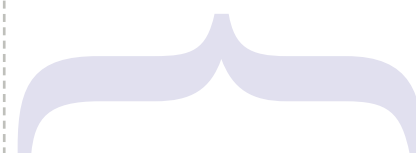
If you've spent any time in small animal private practice, then you've dealt with coughing, geriatric small-breed dogs and understand that these cases can be diagnostic conundrums. There's a murmur. There are crackles, but the dog is also wheezing. Is it cardiac? Is it respiratory? Is it both? If both, which do you treat? Fetch dvm360 speaker Nicole Culwell, DVM, MS, DACVIM, a veterinary cardiologist at MedVet Dallas, is on hand with practical tips to help you sort out heart versus lung problems in both cats and dogs.

Be a breedist and an ageist

Even before you enter the room, the patient's chart will give you clues, Dr. Culwell says. Don't pigeonhole yourself, but know which heart and lung diseases are common in the breed or species you're treating. Age can also give you a hint as to whether the condition is congenital or acquired.

Has history repeated itself?

That all-important patient history. You need to know if the problem is acute or chronic, what therapies have been tried, and the patient's response to that therapy. In dogs, Dr. Culwell says, respiratory disease is usually chronic and episodic, and cardiac disease is usually associated with an acute onset of coughing unless there's chronic compression of the left



INFECTIOUS DISEASE **M3**
Journal Scan: Rabies revelation

DENTISTRY **M4**
dvm360's top dentistry tips from 2017

REHABILITATION **M7**
Veterinary laser skeptics—see the light

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mainstem bronchus. Intermittent and transient cyanosis is associated with respiratory disease, while cyanosis in congestive heart failure is present only with severe pulmonary edema.

In cats, cardiac and respiratory disease are almost always of acute onset because our feline friends don't follow any textbook rules. Cats confound pet owners because they hide disease, and coughing can look like retching or be followed by vomiting. The most common causes of coughing in cats are asthma, bronchitis and parasitic disease, says Dr. Culwell. Cats almost never cough with cardiac disease unless they have a chylous pleural effusion.

Examine all the things

A physical examination will give you clues or it may give you the answer. Even if you can't touch the pet (e.g. the cat that's close to death anytime you take it out of the oxygen cage) and can only get a visual examination, that can still help you. Here's what to look for:

Sort out stertor versus stridor.

Remember, stertor indicates the nasal cavity—anything above the larynx—while stridor indicates a problem in the laryngeal area, neck or cervical trachea. Dr. Culwell says inspiratory issues without stridor are usually due to intrathoracic causes such as pneumonia or congestive heart failure, while an expiratory push means lower airway such as asthma (cats) or collapsing airway disease (dogs).

Weigh in on weight. The body condition score can also help point you in the right direction, says Dr. Culwell. Most normal to obese patients present

with respiratory disease. Thin or emaciated canine patients should cause you to consider late-stage cardiac disease because of cardiac cachexia.

Meditate on the membranes.

With cardiac disease, mucous membranes can be normal or demonstrate prolonged capillary refill time or pallor. With respiratory disease, mucous membranes can be normal or intermittently cyanotic.

Catch the patient's breath.

Thoracic auscultation can give you all sorts of clues. Remember that wheezes indicate lower airway disease, while focal crackles can be secondary to pneumonia, pneumonitis from heartworm disease or congestive heart failure. If your patient has a murmur and crackles, don't immediately assume cardiac disease is the culprit. If a small-breed geriatric dog presents with dyspnea and you're going to blame it on cardiac disease, then Dr. Culwell says that dog must have a loud murmur. If it's not loud, look for another cause. She says that if a patient presents with crackles in the lungs and a sinus arrhythmia, then think respiratory disease with high vagal tone.

To make things more difficult, large breeds, such as Dobermans, often don't have crackles despite severe dyspnea secondary to pulmonary edema. And, once again, cats don't follow any rules. A third of cats with hypertrophic cardiomyopathy will not have a murmur, and it's not uncommon for older cats to present with nonpathologic gallop cardiac rhythms, Dr. Culwell says.

Other physical exam hints. Looking for more clues? Dr. Culwell says pulse

derangements, abdominal ascites or jugular distension all point to the heart.

'Your pet needs radiographs'

Thoracic radiographs are essential for the diagnosis or exclusion of congestive heart failure. Left atrial enlargement, pulmonary venous congestion and pulmonary perihilar infiltrates (caudal dorsal in dogs, patchy or ventral in cats) are the hallmark signs of cardiac disease. Here are Dr. Culwell's top tips for obtaining great radiographs:

> You can't call make a diagnosis from a lateral view, so don't even think about saving your client some money by scrimping on radiographs. Two views are the standard of care.

> Be a stickler for inspiratory films, which are necessary for accurate diagnosis. If you have a panting dog that's not dyspneic, try putting a muzzle on it to get it to slow down its breathing so you can take a picture.

> Butorphanol is very helpful in facilitating radiographs in fractious or fearful animals. Alfaxalone is a good choice for fractious cats.

> Are your radiographs inconclusive? Try again after furosemide therapy (see "When to try a therapeutic trial with furosemide," at left).

> Lateral views are not helpful to see left atrial enlargement in cats.

> A valentine-shaped heart is seen with left-side enlargement in cats.

> A ruptured cordae tendinae will fake you out! It presents acutely. On radiographs, the heart size can be normal without left atrial enlargement. These patients may need an echocardiogram for definitive diagnosis.

The ultimate goal—achieving a sigh of relief

Hopefully, these insights into coughing patients from Dr. Culwell will help you face these cases with a little more heartfelt hope while breathing a little easier.

Fetch dvm360 educator Dr. Sarah Wooten graduated from UC Davis School of Veterinary Medicine in 2002. Dr. Wooten divides her professional time between small animal practice in Greeley, Colorado, public speaking on associate issues, leadership and client communication, and writing. She enjoys camping with her family, skiing, scuba and participating in triathlons.

When to try a therapeutic trial with furosemide

Per Dr. Nicole Culwell, a furosemide trial might be just what you, the doctor, ordered in the following cases:

- > Fragile patients—if you suspect cardiac disease but can't get a cat to the radiograph table without it decompensating, then it's time to try furosemide and an oxygen cage.
- > Inconclusive radiographs
- > While waiting on a radiography consultation
- > Client financial constraints—however, if you go this route, your client needs to know that furosemide dries out respiratory secretions, and it may improve a cough that needs different treatment, so they may be back in a couple of days to get radiographs anyway.

Cardiac care

From arrhythmia to mitral valve disease, Fetch dvm360 conference in Virginia Beach, May 17-20, has cardiology covered. Visit fetchdvm360.com/vb to register.



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Journal Scan: Rabies revelation

A recent study proposes the first-ever molecular model for the cause of rabies infection-associated behavior. *By Michael Nappier, DVM, DABVP*

Despite our best control efforts, rabies still kills nearly 50,000 people a year worldwide. With few to no treatment options available, mortality rates for infected people are nearly 100%.

We know that infections are characterized by behavioral and neurologic symptoms, but we don't have a clear model for why these changes occur—though it's been suggested that nicotinic acetylcholine receptors (nAChRs) are implicated in these changes. The authors of a recent study examined the effects of a rabies glycoprotein with affinity to nAChR to see if it produced behavioral symptoms similar to a natural rabies infection.¹

What they did

Because both rabies and snake venom have strong affinities to nAChR, the authors first compared various rabies glycoproteins recovered from animals with confirmed rabies infections to those of a type of snake venom glycoprotein with known affinity to nAChR using a surface plasmon resonance test. Once they identified the rabies glycoprotein most similar to the snake venom glycoprotein, they injected it first into roundworms and then into the cerebrospinal fluid of mice and observed them for behavioral and neurologic signs similar to rabies infection.

What they found

The authors found that normal pharyngeal pumping, an nAChR-controlled response, was significantly decreased

to totally absent in the roundworms injected with the rabies glycoprotein. In mice injected with the rabies glycoprotein, locomotor hyperactivity was noted when compared with control mice. Both reactions are consistent with natural rabies infection.

Take-home points

For the first time, a molecular model for the cause of rabies infection-associated behavior has been proposed. A snake venom-like rabies glycoprotein has a strong affinity for nAChR and can cause experimentally induced rabies-like behavior in roundworms and mice. The study's authors note that these results suggest therapies

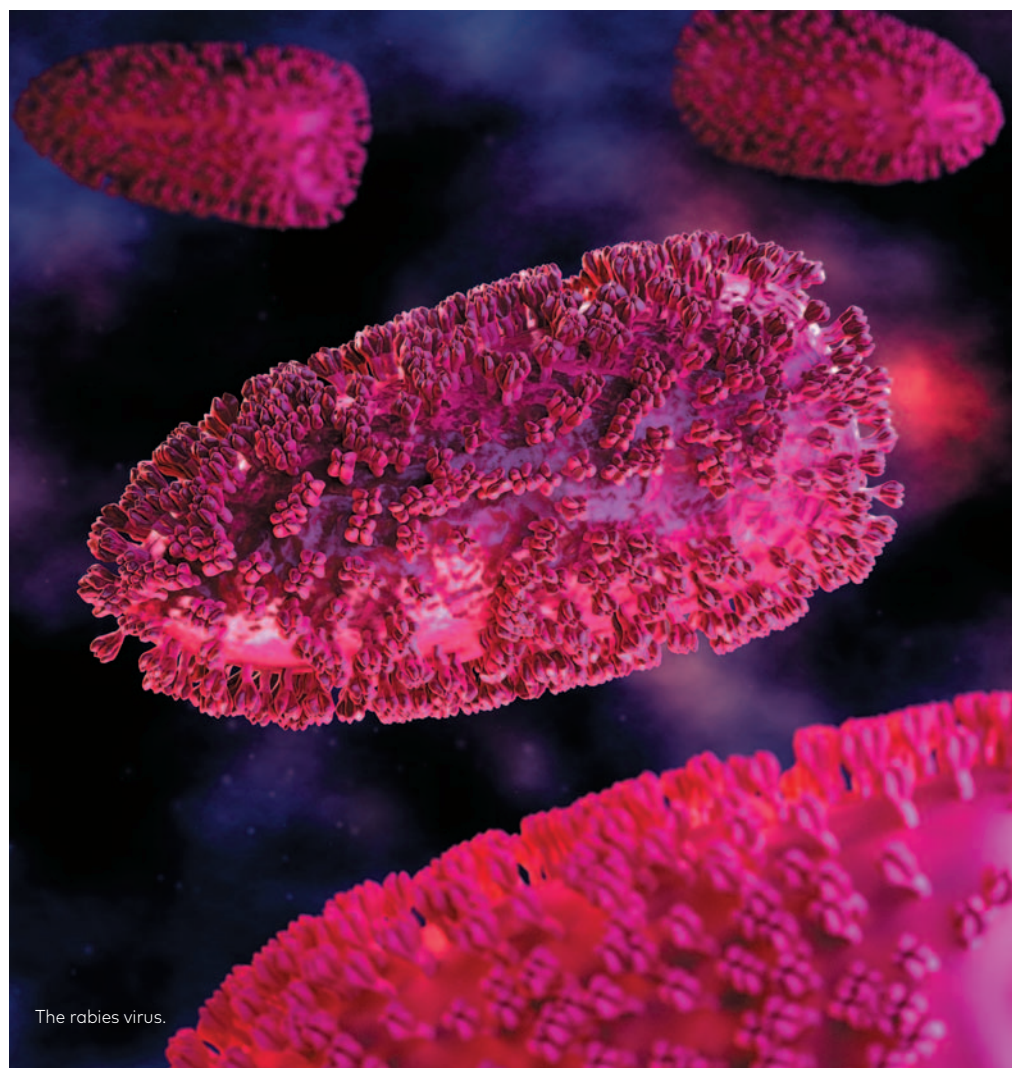
inhibiting the neurologic activity of virus-derived peptides could be beneficial after the onset of signs for diseases like rabies.

Read the full study by visiting [nature.com/articles/s41598-017-12726-4](https://www.nature.com/articles/s41598-017-12726-4).

Reference

1. Hueffer K, Khatri S, Rideout S, et al. Rabies virus modifies host behaviour through a snake-toxin like region of its glycoprotein that inhibits neurotransmitter receptors in the CNS. *Scientific Reports* 2017;7(1).

Michael Nappier is assistant professor of community practice in the Department of Small Animal Clinical Sciences at the Virginia-Maryland College of Veterinary Medicine in Blacksburg, Virginia.



The rabies virus.

dvm360's top dentistry tips from 2017

On a scale from "Just cutting your teeth" to "Long in the tooth," how would you rate your veterinary dentistry skills and expertise? Regardless of where you land, we're willing to bet there's a tip on this list that'll benefit you and your patients.

We've probed dvm360.com's content to find our favorite veterinary dentistry tips from the past year. Brush up on your knowledge on the pages ahead.

Periodontal disease

- > A visual is worth a thousand words in the exam room. Use thiol strips to demonstrate the presence of plaque to clients in a quick, compelling way.
- > To determine the amount of bone

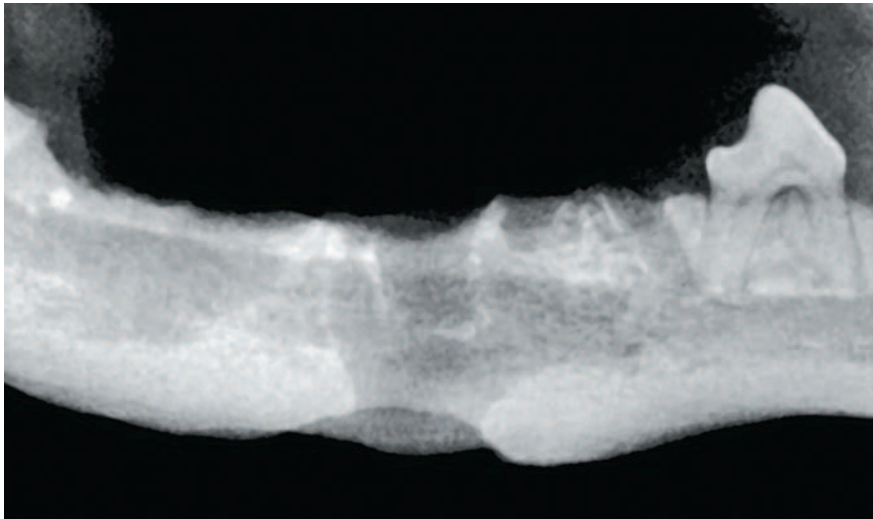
loss, use a probe to measure periodontal pocket depths. Radiographs can't detect cortical bone loss until it reaches 40%, so it's possible to have significant bone loss before it shows up on a radiograph.



A thiol strip being used to demonstrate the presence of plaque. (Courtesy of Dr. Barden Greenfield)



Take these tips further
For even more tips from
dentistry experts, visit
dvm360.com/dentistrytop10.



A postoperative radiograph confirming complete extractions of the affected teeth. The third premolar appears normal. (Courtesy of Dr. Jan Bellows)

Tooth extraction and radiography

> Trying to determine if a tooth has died? Keep in mind that pulp matures as a pet ages, so the narrower the dentin wall and the wider the pulp cavity, the younger the pet. “One way to assess the vitality of a tooth is to radiograph the contralateral tooth to assess pulp cavity width,” says Barden Greenfield, DVM,

DAVDC. “Premature maturation, or tooth death, results in a static pulp canal width.”

- > If you need to extract a tooth, take radiographs before and after. “As a radiograph is a legal document, this is the only confirmation that the procedure you charged for was done to completion,” says Dr. Greenfield. “Tooth root fragments and remnants are commonly left in the mouth with extractions.”
- > Assemble your radiographs in a way that mimics the natural way the teeth fall in the mouth. This helps you localize any problems.

- > Charge more for three-rooted tooth extractions because they’re more work! Also, make sure you section these teeth prior to extraction, giving yourself three one-rooted extractions.
- > Don’t charge per radiograph; charge for a full-mouth set, including all postop images, says Dr. Greenfield. If you line-item each image, you might start thinking, “Gosh, we took 15 images and it’s going to be such-and-such price.” Just make it a full-mouth set. Dog, cat, big, whatever—it all comes out in the laundry.
- > After an extraction, prescribe anti-inflammatory drugs, but there’s no need for antibiotics. “If you ask 100 veterinary dentists, you’ll get 100 people telling you, don’t use them,” says Dr. Greenfield. “There’s no need. If you’ve done a good surgical procedure, flushed the alveolus out with some saline, and provided good tension-free closure, you’re done.”

Oral tumors

- > Since you typically do a thorough dental examination just once a year, enlist your clients in keeping watch for odd growths as well. “The earlier we can catch oral tumors, the better the chance of us having a good result,” says Heidi Lobprise, DVM, DAVDC. “It’s really important to get the owners aware of oral tumors and for us to do a good exam to make sure we can catch them.”





The VOHC seal of acceptance. (Courtesy of Dr. Jan Bellows)



Product recommendations

- > Get familiar with products accepted by the Veterinary Oral Health Council (VOHC) so you can be ready when the client questions come (because they *will* come). Why does the VOHC seal matter? It's given only to products that decrease plaque, calculus accumulation, or both by at least 20%.

Marketing

- > Stop using the word “dental” for your routine oral health procedures (which, as you know, are rarely “routine”). Dr. Greenfield calls it a “complete periodontal exam and therapy.” It's also known in veterinary dental circles as “oral ATP” (assessment, treatment, prevention), “COHAT” (comprehensive oral health assessment and treatment) and, even more recently, “COPAT” (comprehensive oral prevention, assessment and treatment).
- > Before-and-after photos are one of the most powerful compliance tools you possess, so if a patient has had a measurable improvement in its quality of life after an oral health procedure, ask the owners if you can share the pet's story—with images—to help other animals.
- > Instead of playing smooth, sleepy jazz for pet owners while they're on hold, record a message that opens the door to a dental care conversa-

Brush up on your skills

Dr. Barden Greenfield will cover extractions, discolored teeth, difficult cases and more at Fetch dvm360 conference in Virginia Beach. To learn more, visit fetchdvm360.com/vb.



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Formulated by **ROBERT J. SILVER DVM, MS, CVA**



While 91% of older dog owners list veterinary professionals as sources of information about their dog's dental needs, only 63% of millennials say the same. Instead of throwing your hands up, throw yourself into finding ways to meet millennials where they are—whether that means posting informational videos to Instagram or taking advantage of the time you have with them within your clinic's walls.

Source: Pet Owner Paths, sponsored by Merck, Unfenced and Kynetec

tion in the future. Here's an idea from Dr. Greenfield: "Did you know that the majority of dogs and cats over the age of 3 have periodontal disease? Please talk to one of our trained technicians about your pet's oral care."

Continuing education

- > Become friendly with your local veterinary dentist. It's a great way to learn by observing, especially when you accompany the patients you refer. Search avdc.org to find a veterinary dentist in your area.
- > Get in-person training from a veterinary dentistry expert at a Fetch dvm360 conference this year. Visit fetchdvm360.com to learn more and to register.



Veterinary laser therapy skeptics—see the light

Find out why veterinary sports medicine and rehab specialist Dr. Matthew Brunke became a believer in this modality.

Looking for a new rehab tool? Feast your eyes on laser light! Actually, no, don't look directly into the beam. That's a bad idea. Sorry.



Dr. Matthew Brunke

This fact, combined with the wide range of variables (e.g. wavelength, energy density, number of treatments) as well as product op-

tions on the market left Fetch dvm360 conference speaker Matthew Brunke, DVM, CCRP, CVPP, CVA, among the many skeptics of this treatment.

As with all new modalities in clinical practice, whether human or animal, it comes down to trial and error—and time and patience, says Dr. Brunke. Well, the trial period is over, and the results are in. Dr. Brunke says many, many cases showing the benefit of therapeutic lasers in both human and veterinary patients have been docu-

mented. But it was laser's effect on wounds that got his attention big-time.

"What really got me from being a skeptic to a believer on lasers was actually wound management, which is such a practical application for all veterinarians," says Dr. Brunke. "We all deal with wounds." The change of heart for Dr. Brunke was seeing how quickly skin and wounds healed superficially with laser therapy as opposed to without it.

Hear more from Dr. Brunke at dvm360.com/brunkelaser.

EQUINE | News

Fire at San Luis Rey Training Center: A day of tragedy and of heroism

Nearly 500 horses were on site when a California wildfire hit the property. Equine veterinarian Chuck Jenkins saw the disaster firsthand—and helped save as many lives as possible. *By Ed Kane, PhD*

The San Luis Rey Training Center is situated in a bucolic setting in Bonsall, California, in northern San Diego County. About 45 miles from Del Mar Thoroughbred Club, 95 miles from Santa Anita Park, and 75 miles from Los Alamitos Race Course, horses may ship from the training facility to those tracks the very same day.

Some magnificent racehorses, including Azeri and Cigar, have left their hoofprints on the San Luis Rey surface. Four Kentucky Derby winners began their early training there: Fusaichi Pegasus, Sunday Silence, Gato Del Sol and Ferdinand.

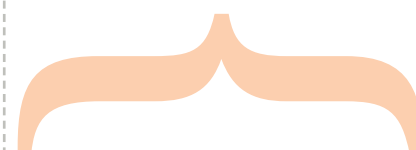
With stalls for 500 horses, mostly thoroughbred racehorses and their stable ponies, San Luis Rey features

a one-mile training track, a smaller training surface and a few square miles of all-weather trails among rolling hills. The facility also includes automated mechanical walkers and a large equine exercise pool.

The San Luis Rey Training Center is open 365 days a year, enabling trainers to develop a permanent home or stable some horses when



A horseman leads a horse to safety at San Luis Rey Training Center in Bonsall, California, on Dec. 7, 2017.



BUSINESS **E5**
Should you give up solo equine practice? A look at pros and cons

ASSOCIATIONS **E8**
AAEP happenings: A passing of the baton and the bestowing of awards

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Do not use in horses intended for human consumption. NSAIDs should not be used concurrently with Tildren®. Concurrent use of NSAIDs with Tildren® may increase the risk of renal toxicity and acute renal failure.

HUMAN WARNINGS

Not for use in humans. Keep this and all drugs out of the reach of children. Consult a physician in case of accidental human exposure.

CAUTION

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

INDICATION

Tildren® is indicated for the control of clinical signs associated with navicular syndrome in horses. Navicular syndrome is the most common cause of chronic forelimb lameness in performance horses. It is a degenerative process instigated by mechanical forces.

CONTRAINDICATIONS

Do not use in horses with known hypersensitivity to tiludronate disodium or to mannitol. Do not use in horses with impaired renal function or with a history of renal disease. Bisphosphonates are excreted by the kidney; therefore, conditions causing renal impairment may increase plasma bisphosphonate concentrations resulting in an increased risk for adverse reactions.

PRECAUTIONS

Approximately 30-45% of horses administered Tildren® will demonstrate transient signs consistent with abdominal pain (colic). Horses should be observed closely for 4 hours post-infusion for the development of clinical signs consistent with colic or other adverse reactions. Colic signs can last approximately 90 minutes and may be intermittent in nature. Hand walking the horse may improve or resolve the colic signs in many cases. If a horse requires medical therapy, non-NSAID treatment should be administered due to the risk for renal toxicity. Avoid NSAID use.

Horses should be well hydrated prior to administration of Tildren® due to the potential nephrotoxic effects of Tildren®.

Tildren® should be used with caution in horses receiving concurrent administration of other drugs that may reduce serum calcium (such as tetracyclines) or whose toxicity may exacerbate a reduction in serum calcium (such as aminoglycosides).

Horses with HYPP (heterozygous or homozygous) may be at an increased risk for adverse reactions, including colic signs, hyperkalemic episodes, and death. The safe use of Tildren® has not been evaluated in horses less than 4 years of age.

Bisphosphonates should not be used in pregnant or lactating mares, or mares intended for breeding. Bisphosphonates have been shown to cause fetal developmental abnormalities in laboratory animals.

DOSAGE AND ADMINISTRATION

A single dose of Tildren® should be administered as an intravenous infusion at a dose of 1 mg/kg (0.45 mg/lb). The infusion should be administered slowly and evenly over 90 minutes to minimize the risk of adverse reactions. Maximum effect may not occur until 2 months post-treatment.

For **ADMINISTRATION INSTRUCTIONS** (preparation of the reconstituted solution (20mg/mL) and preparation of the solution for infusion) and for complete product information, please read the insert contained within the product packaging.

STORAGE

Sterile powder (not reconstituted): Store at controlled room temperature 68°F-77°F (20°C-25°C). After preparation, the infusion should be administered either within 2 hours of preparation, or it can be stored for up to 24 hours under refrigeration at 36°F-46° F (2°C-8°C) and protected from light.

HOW SUPPLIED

Tildren® is supplied in a 30mL glass vial as a white, sterile lyophilized powder containing 500 mg tiludronic acid (as tiludronate disodium) packaged in a folding carton. For technical assistance or to report suspected adverse reactions, call 1-888-524-6332.

INFORMATION FOR OWNERS

Prior to Tildren® administration, owners should be advised of the potential for adverse reactions in the hours or days following treatment. Adverse reactions within 4 hours post dosing may include signs of colic (manifested as pawing, stretching, getting up and down, sweating, rolling, looking at flanks, kicking at belly, frequent gas, and pacing). Owners should be instructed to contact their veterinarian immediately if any adverse reactions are observed. Owners should be advised to consult with their veterinarian prior to the administration of an NSAID following Tildren® administration.

Made in Canada

Patent information: U.S. patent 6,057,306

Santa Anita and Del Mar are full. During training hours, there are outriders, official clockers and an official gate crew on hand. It’s the only auxiliary training track continuously approved by the California Horse Racing Board (CHRB) since its inception in 1984. All works are timed and published in the *Daily Racing Form*.

December 7, 2017: 'I smell smoke!'

The calm setting of the training center changed dramatically the morning of December 7, 2017.

Chuck Jenkins, DVM, who worked previously in private practice at Del Mar, Santa Anita and Los Alamitos, was filling in as a relief veterinarian at San Luis Rey that day for equine practitioner Ron Magrini, VMD. In the course of less than an hour, Dr. Jenkins’ day quickly transformed from normal to tragic.

At about 11 a.m., the barn foreman came to Dr. Jenkins’ veterinary truck with a list of horses needing attention. Dr. Jenkins mentioned to the foreman, “I smell smoke—do you?” As Dr. Jenkins proceeded to draw up medications, check on horses and do lameness exams, “sure enough we saw a large plume of smoke to the east of the training center,” he says.

The fire was located at the intersection of Interstate 15 and Highway 76, several miles from the training center—and it was moving directly toward them. Dr. Jenkins and the barn foreman decided it was time to evacuate the horses, and they began calling in emergency transport crews.

Unfortunately, with several wildfires in the vicinity, the highway patrol had closed the roads, allowing access only to first responders working to save homes and evacuate the Bonsall community. Even though several horse vans and trailers were close by, they were unable to get to the training center. And there were nearly 500 horses horses to evacuate.

The San Diego Sheriff’s Department and facility security personnel began to order human evacuation of the training center. At that point some people left, but many stayed, committed to the care and safety of their horses—grooms, hotwalkers, exercise riders, assistant trainers, gallop girls,

outriders, farriers and racetrack maintenance workers. “For those who hung tough at the training center assisting to save horses, it was a really heroic effort,” Dr. Jenkins says.

As the fires grew closer, Jehobany Catalan, an assistant to trainer Peter Miller, yelled over to Dr. Jenkins, “What do we do with the horses if the fire gets to the training center?”

“Just let them go—get them out of the stalls!” Dr. Jenkins yelled back.

“Do what?” Catalan countered.

“You just need to let them go!” Dr. Jenkins repeated.

“We’ve got millions of dollars’ worth of horses here—some Breeders’ Cup horses—how can we just let them go?” Catalan asked, incredulous.

“If you don’t, we’re going to have millions of dollars of dead horses here,” Dr. Jenkins responded. “We can’t leave them in the barns!”

The fire originated from embers blown into a little canyon 200 to 300 yards from the training center property. “That’s when we knew we were in trouble,” Dr. Jenkins says. “Once the fire started in the canyon, you could see the flames and black smoke raging throughout the area.” And when the Santa Ana winds accelerated from 20 mph to 50 to 60 mph, things quickly got worse.

The fire hits

When the wildfire reached the property, it immediately ignited sev-

eral of the Mexican fan palm trees spread throughout the grounds.

“The trees acted like tiki torches, the flames moving from tree to tree,” says Dr. Jenkins, who was working near a row of these trees. “As this happened, the large burning fronds fell onto the shedrows, igniting the dry hay and straw bedding, which exacerbated the spread of the fire from barn to barn.”

The blaze moved quickly through the training center, aided by the strong winds, and fire and smoke billowed everywhere. Though the horse stalls were metal-roofed and -sided, the barns were filled with combustible materials—dry hay, straw bedding and wood siding—and dry brush and grass surrounded the facility. The corrugated metal roofs became so hot that they in turn helped ignite the dry stall materials, eventually becoming twisted and tangled piles of wreckage.

At least a dozen fire trucks had arrived in the area, and two large helicopters were dropping water on houses in Bonsall. The choppers went back and forth to a large lake in the area, picking up water and then depositing it on the roaring fire. But since the priority was human safety and housing, the helicopters and fire trucks—with the exception of two trucks that arrived once the barns were already ablaze—did not assist the training facility.



With the majority of emergency fire crews assisting human safety efforts, just two fire trucks were available to battle the fire at San Luis Rey, which claimed the lives of 46 horses and destroyed nine barns.

There were approximately 475 horses on site at San Luis Rey Downs when the fire broke out, and personnel did their best to get them all out of their stalls in time. The pandemonium of hundreds of panicked horses running in all different directions added to the chaos. And tragedy struck quickly.

"When the fire got on the grounds, it moved so fast that in one barn, 15 of the 40 horses didn't make it out of their stalls," Dr. Jenkins says. "Sadly, they were totally charred in a matter of minutes."

Another barn had just received a delivery of 200 bales of dry grass a day or two earlier. "Once that caught on fire, it was basically like a flame thrower," Dr. Jenkins notes. "The flames and burning hay blew down the shed-row of that barn and within a few minutes engulfed it completely."

Dr. Jenkins was working near a building that contained 80 horses, and with the crew of grooms, hot walkers, exercise riders, barn staff and other able-bodied hands, they were able to lead all the horses out to safety. It took just 10 minutes for the fire to reach Dr. Jenkins' truck once it hit the grounds. Fortunately he was able to move it to a safe area before it ignited.

Hugo Lara, head of security for the San Luis Rey Training Center, says the center's maintenance department fought the fire the best they could. As soon as possible they had their water trucks spraying water, but the fire spread too fast, the effort hampered by the excessive winds, the volume of dry combustible material and the need to rescue the horses. Lara guesses that it took just a few minutes from the time the palm fronds ignited the barns until the entire facility was a devastating inferno.

In total, nine barns were destroyed by the fire. Some barns waited too late to take action, and while staff tried their best, fighting the fire with garden hoses, many of those horses succumbed to the fire. Others had to be euthanized later because of their injuries. Two horses that had been seen running continuously around the one-mile track were found dead, having apparently run themselves to death.

The CHRB has reported that 46 horses died as a result of the fire.

Triage, suturing, treating burns

While there are two veterinary practices that operate full time at San Luis Rey Training Center, Dr. Jenkins was the only practitioner on site when the fire hit.

"When the flame and smoke were at their most intense, there wasn't much I could do," he says. "I moved my truck over to an area where tractors and other heavy equipment were stored, out of the way of the burning barns. I had to just basically sit there. I tried to get out of my truck a few times, but then 40 to 50 horses would go running by in a herd. So if I got out of my truck I was going to die of smoke inhalation, burn by fire, or get trampled by horses. I just had to wait until things calmed down a bit so we could start actually gathering the horses up and getting them to a safe place."

Michael Manno, DVM, of San Dieguito Equine Group based at San Luis Rey, had gone home that day because his house was in the direction of the fire and he needed to evacuate his horses. When he called at 11:30 and asked if he needed to get back to the training center, Dr. Jenkins said yes—he desperately needed help. Luckily Dr. Manno knew all the back roads and was able to get there quickly with his associate Brett Robinson, DVM. Korin Potenza, DVM, CVA, and her husband, Nick Huggons, DVM, DACVS, of the Trifecta Equine Athletic Center and San Luis Rey Equine Hospital, soon arrived to join the efforts.

Once the fire was under control, the triage could begin. Drs. Potenza and Huggons evacuated about 100 horses to their veterinary facilities to treat the most critical injuries and to get uninjured animals into safe housing. About 20 of those horses needed care for burns, wounds or other injuries. Treatments included fluids, suturing and time in the hyperbaric chamber.

Meanwhile, at San Luis Rey, Dr. Jenkins and colleagues treated injuries on site. The first step was to corral the horses, then identify which ones needed immediate at-



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Please see brief summary on page E2



Dr. Chuck Jenkins was able to move his veterinary truck to relative safety before it was engulfed by flames.

tention and treat them one by one. A few horses needed to be euthanized. One had a broken leg, many had been burned, and others had lacerations and scratches. Doctors provided suturing, bandaging, intravenous fluids, tranquilizers and other care depending on the injury. “There were no veterinary technicians on the grounds,” Dr. Jenkins notes. “Whoever happened to be holding a horse would assist the veterinarian.”

One tragic image haunts Dr. Jenkins. “A horse ran right by me fully engulfed in fire,” he says. “In retrospect, I realize it came from that barn where the horses died before they could be evacuated from their stalls. What apparently happened was this horse’s stall bedding caught on fire, which he became engulfed in. Though he was running wild, his burns were too severe to save him, and I had to euthanize him.”

The majority of the injuries were lacerations and scrapes resulting from the horses running free at full speed through shedrows and equipment, Dr. Jenkins says. “Some horses we immediately triaged, but the

main effort was to get the horses on trailers and vans and get them out to Del Mar and other smaller facilities,” he says.

Most of the trailers did not arrive till about 5 p.m., as the highway patrol continued to prevent them from getting through. So the practitioners who made it to San Luis Rey were “a godsend,” Dr. Jenkins says. Even the veterinarian Dr. Jenkins was filling in for, Dr. Magrini, left his meeting to assist at the training center by early afternoon.

When Dr. Jenkins left the facility at 11 p.m., the last few horses were being loaded onto vans and trailers to be hauled away. Most were taken to Del Mar, some went to smaller facilities and some even went to private backyards. That night there were no live horses left on the grounds. When Dr. Jenkins left San Luis Rey, all that needed to be done was completed, though the largest bedding pile outside one of the barns was still smoldering almost 12 hours later.

Aftermath

As of December 13, 2017, the total

count was 46 dead horses and one or two horses unaccounted for of the approximately 475 total horses at the facility, according to the CHRB. Those individuals who stayed to save the lives of more than 400 horses were not unscathed either—some were injured, some experienced smoke inhalation and some were hospitalized for other injuries.

The facility is considering putting up temporary barns, then eventually rebuilding all of the training facility that was lost, including about 200 stalls.

Treatment continues at area equine facilities to heal horses injured as a result of the fire. The people who assisted with the rescue, evacuation and treatment efforts—including the veterinarians who worked themselves to exhaustion and beyond—are the true heroes of the day.

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.

Should you give up solo equine practice?

That's a personal question: Can you make a plan and manage the headaches that come with more veterinary personnel and higher operational costs? And do you want to? *By Kyle Palmer, CVT*

For many in veterinary practice—and maybe in any business—there can be an instinctive urge to get bigger. We're taught that size is a measurement of success, and society often frowns on anyone

who's simply content to make a comfortable living doing what they love.

In veterinary medicine broadly, there are good reasons to want growth. Here are some reasons bigger is better in equine practice ...

More staff. More team members means more opportunity to care for more patients and more efficiency in doing so. Period.

More services. The larger a general practice gets, the more opportunity



Do you want to roam the practice plains on your own, or hire your own herd of associates to manage your veterinary client ranch?

there is for the veterinarians to get experience in providing specific types of care. Within equine practice, that might include a doctor focused on dentistry, another focused on reproduction and a third focused on imaging. The list goes on, but there's no denying that growth can mean sustainable focus areas that enable specialization.

Better hours. Most equine practitioners don't have an emergency-only practice for after-hours referrals, so most equine practitioners (solo or not) end up providing 24-hour care to the best of their ability. That's mentally and physically draining and can damage the home life of a practitioner who's constantly working. The typical answer? Grow the practice to spread those duties among a larger pool of veterinarians and team members.

An exit plan. A larger practice may all but ensure that one or more associates will show an interest in taking over the business someday. While I can't speak for the entire country, the area of Oregon in which I work is heavily populated with amazing veterinarians who have given their heart and soul to the practice but have yet to find a candidate to keep their hospitals alive when they retire.

In my experience, projected growth tends to come in 0.5-full-time-equivalent doctor needs, but potential associates usually come whole.

So, what's the problem with growing into a larger practice?

Doctors come in halves

In my experience, projected growth tends to come in 0.5-full-time-equivalent doctor needs, but potential associates usually come whole. There's no secret as to how or why this happens—a single practitioner allows growth to “pile on” until he or she is doing roughly 50 percent more work than a normal schedule would accommodate, which seems to be the point when most will finally throw in the towel and put out an ad for help.

When the brand new shiny associate arrives, he or she finds a practice that can only keep them busy about

half the time, at least at first. The period of time that has to elapse before the practice can sustain two full-time-equivalent practitioners is often the time it takes for the new associate to get frustrated with boredom and low production.

Another strange rule of growth? It took the solo practitioner a lot less time to develop the first 50 percent of business above and beyond a single doctor schedule than it will take the new associate to develop the next 50 percent needed to reach a sustainable two-doctor schedule. Why is that? One need look no further than the familiarity and trust the original practitioner built with clients—that takes years for a new doctor to develop.

This 50 percent doctor problem is a recurring problem for many practices—from two doctors to three, from three doctors to four, and so on and so on. For many practitioners, growth is still the right decision, but it rarely comes without a cost. So, should you do it?

Why you should go solo

While there are a number of good reasons to grow, there are also countless reasons not to. Most of them aren't clearly evident until it's too late ...

Employees are hard to manage.

Contracts need to be negotiated and renegotiated, on-call schedules need to be debated, practice culture needs to be taught ... and on and on. Solo equine practitioners are often their own practice managers and their own human resource managers, but tend to be experts at neither, and why should they be? On top of all of the personnel management challenges that come with new employees, if the new addition is a recent graduate DVM, you can slap the label of mentor/trainer on yourself as well. It's all a big commitment.

Your costs go up—immediately.

Unlike growing a brick-and-mortar small animal practice, adding equine practitioners to a mobile practice

usually means immediately replicating day-to-day equipment, inventory supplies and support staff. So you've decided you can afford to add \$65,000 to your practice ledger and pay another doctor? Not so fast. That number needs to include a vehicle, a vet box, another digital radiography machine, another ultrasound, another set of dental tools, another set of hoof tools and a whole lot of consumable supplies. Unless they're working alone, add on the cost of another technician. Once again, for the equine-only practice, this isn't a one-time addition of expenses—this will be repeated each time you expand and add another doctor.

You need to find associates ... and then keep finding associates.

Oh, you hired an equine associate? Fantastic. Here's the problem: Only a fraction of new veterinarians stick with equine practice once they tire of the long hours and impact on their home life. With a challenging pool of candidates, it's tempting to just avoid that process altogether and work solo. Perhaps one of the most difficult realities is what to do once you've grown the practice to include associates and one or more of them leave. Unless you plan to leave clients hanging, you'll be working longer and longer hours.

As a solo practitioner, you might not even have to do all your emergencies. While the lack of associates to share after-hours duties with is a downside, regional call groups can alleviate this problem. (Read my take on it at dvm360.com/equinecallgroup.) You'll never be on the receiving end of a call from Mrs. Smith complaining that your new doctor doesn't palpate the way you do, and you'll never have to make excuses to your support staff during the “get familiar with the practice” stage that seems to come with every new doctor.

Failing to grow can hurt your business, but don't walk blindly into a larger equine practice without knowing the drawbacks and planning for them. Whether you grow or not, make sure you're ready for the growing pains.

Kyle Palmer, CVT, is a Firstline Editorial Advisory Board member and a practice manager at Silver Creek Animal Clinic in Silverton, Oregon.



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American Association of Equine Practitioners news: A passing of the baton and the bestowing of awards

Equine veterinary association sees transition in leadership, recognizes those who have contributed to the profession.

During the past month, the American Association of Equine Practitioners (AAEP) has named a new president and bestowed awards on two leaders in the equine veterinary profession. Here are the highlights, according to recent communications from the organization.



Dr. Macpherson

2018 president

Margo Macpherson, DVM, MS, DACT, was installed as the 2018 president during the AAEP's 63rd Annual Convention in San Antonio. Dr. Macpherson is a tenured professor of reproduction and former chief of reproduction services at the University of Florida College of Veterinary Medicine. In her professional career, she has combined veterinary medicine and research, with primary interests in conditions that affect pregnancy, including twin pregnancy and placentitis. Work from her laboratory has yielded information about the efficacy of common antimicrobial and anti-inflammatory treatments when treating mares with placentitis.

Dr. Macpherson served on the AAEP's board of directors from 2011 to 2014. She was a longstanding member of the Educational Programs Committee and made significant contributions to student programming.

AAEP Distinguished Life Member award



Dr. Werner

Also during the convention, AAEP presented the 2017 Distinguished Life Member award to Harry Werner, VMD. Dr. Werner is found-

ing owner of Werner Equine in North Granby, Connecticut. He was awarded for his acclaimed leadership and exemplary service to the association during his 37 years of membership.

Dr. Werner's nearly four decades of membership and service to the AAEP include a term as association president in 2009. He's served as chair of the Convention Planning, Equine Welfare, Finance, Nominating and Purchase Exam committees and as a member of other committees and councils, includ-



Dr. Timoney

FRCVS. Dr. Timoney is the professor and the Frederick Van Lennep Chair in Equine Veterinary Science at the University of Kentucky. He

was given the AAEP award for "his influential contributions to the body of knowledge on equine infectious diseases," the association states. This award honors an individual whose actions and commitment have had a

Newly installed AAEP president Dr. Margo Macpherson is a tenured professor of reproduction and former chief of reproduction services at the University of Florida College of Veterinary Medicine—her primary professional interests being in conditions that affect pregnancy, including twin pregnancy and placentitis.

ing current service on the Welfare and Public Policy Advisory Council.

Dr. Werner has served as AAEP's representative to the AVMA Animal Welfare Committee since 2012 and is also AVMA's liaison to the Unwanted Horse Coalition. He worked to help initiate the International Forum for Working Equids. In 2016, a \$5 million gift to Penn Vet established an endowed chair in his name at the New Bolton Center, honoring his dedication to equine veterinary medicine and advocacy for equine welfare.

AAEP Distinguished Educator award

Also during the convention, the AAEP awarded the 2017 Distinguished Educator—Academic Award to Peter Timoney, MVB, MS, PhD,

significant impact on the development and training of equine practitioners.

Dr. Timoney has served on the faculty of the University of Kentucky's Department of Veterinary Science for 34 years. He also served as department chair from 1990 to 1999 and in 2002; he was director of the Maxwell H. Gluck Equine Research Center from 1990 to 2008.

Throughout his five-decade career, Dr. Timoney has written numerous documents and guidelines on equine infectious disease control, which have benefited both veterinarians and horse owners. He also has advised and shared his technical expertise with thousands of equine practitioners through personal communication and his presentations at international veterinary conferences.

Update on CT and liposarcomas in dogs

Do not rule out this fatty form of cancer due to absence of fat on a computed tomography scan, says Dr. Eli Cohen.

Recent computed tomography (CT) research into liposarcomas¹ has revealed a surprising update, according to Fetch dvm360 conference speaker Eli Cohen, DVM, DACVR (who is also one of the study's authors).



Dr. Eli Cohen

While CT is commonly used to evaluate liposarcomas in people, and multiple studies have described liposarcoma characteristics on CT that help differentiate between cancerous and noncancerous tumors and between his-

tologic subtypes, this is the first study to describe the CT appearance of canine liposarcomas. According to the study's authors, "With the increasing widespread availability of CT, identification of imaging findings typical of liposarcoma in dogs could increase clinical suspicion and potentially spare more invasive techniques for diagnosis."

The retrospective study examined CT images of 24 dogs with 26 histologically confirmed liposarcomas, noting size, location, attenuation, contrast enhancement, border definition, internal homogeneity, local infiltration and mineralization.

While the study found several CT features associated with canine

liposarcomas (such as heterogeneous internal attenuation and focal areas of fat attenuation), what Dr. Cohen considers most interesting is what canine liposarcomas don't need to have.

"Not all liposarcomas actually have fat attenuation inside of them. So that means that really any tumor that you might consider for a sarcoma could be a liposarcoma. There doesn't have to be a presence of fat for us to consider that," he says.

To hear more from Dr. Cohen visit dvm360.com/liposarcomaupdate.

Reference

1. Fuerst JA, Reichle JK, Szabo D, et al. Computed tomographic findings in 24 dogs with liposarcoma. *Vet Radiol Ultrasound* 2017;58(1):23-28.

Client handout: When Coco gets into the cocoa

Chocolate pairs well with wine. Your veterinary client's dog pairs well with neither. Make sure pet owners know the risks, the signs and the treatment methods of chocolate poisoning just in case.

February is the season for chocolate. It's also the season for emergency calls because your client's chocolate lab got into that heart-shaped box left out on the table. You know what's fine and what's worrisome, but pet owners only know the simple equation: Chocolate + Dog = Big trouble. Ease their minds and make sure they know how to react when their dog ingests chocolate before it happens with this information from Pet Poison Helpline. Download the handout at dvm360.com/chochandout.

FROM YOUR VETERINARIAN

When Coco gets into the cocoa

Chocolate makes the heart grow fonder ... and your dog grow sicker. Here are some semi-sweet facts on chocolate poisoning.

While the occasional chocolate chip within one cookie may not be an issue, veterinarians worry about certain types of chocolate that your dog might ingest—the less sweet and darker the chocolate, the more toxic it is to your pet. Dogs make up 95 percent of chocolate emergency calls (cats are usually too discriminating to eat chocolate) and in smaller dogs, even the wrappers from candy can result in secondary obstruction in the stomach or intestines.

What's in it?
When it comes to chocolate, remember: dark = dangerous. The darker the chocolate, the larger the amount of theobromine, a chemical cousin to caffeine. Thus, baker's chocolate, semisweet chocolate, cocoa powder and gourmet dark chocolates are more dangerous than milk chocolate. White chocolate has very little theobromine and will not cause chocolate poisoning in pets.

The threat to pets
It's the dose that makes the poison. Pets that ingest a few M&Ms or a couple bites of a chocolate chip cookie are unlikely to develop chocolate poisoning. Here's the rundown:

- > For milk chocolate, any ingestion of more than 0.5 ounces per pound of body weight may put dogs at risk for chocolate poisoning.
- > Ingestion of more than 0.13 ounces per pound of dark or semisweet chocolate may cause poisoning.
- > Almost all ingestions of baker's chocolate can result in poisoning and are considered emergencies.
- > Young animals, geriatric animals and animals with underlying disease must be treated more conservatively as they're more at risk for poisoning than healthy adult animals.
- > Due to the large amount of fat in chocolate, some pets may develop pancreatitis

(inflammation of the pancreas) after eating chocolate or baked goods containing chocolate.

Signs of chocolate poisoning
Ingestions of small amounts of chocolate may cause mild vomiting and diarrhea. Larger ingestions can cause severe agitation, elevated heart rate (tachycardia), abnormal heart rhythms, tremors, seizures and collapse.

Treatment
Your veterinarian or emergency care professional may need to induce vomiting and give multiple doses of activated charcoal to decontaminate your pet. Aggressive IV fluids are used to help with excretion, sedatives help calm the pet, heart medications reduce the heart rate and blood pressure, anticonvulsants help control seizures, and antacids (such as Pepcid) can relieve stomach discomfort and diarrhea. Theobromine may be reabsorbed across the bladder wall, so a urinary catheter or frequent walks are needed to keep the bladder empty.

Chocolate poisoning can be hard to decipher. If your dog has nibbled and you're at all concerned, call your veterinarian or the Pet Poison Helpline if you think it might be an emergency.

PET POISON HELPLINE
800 213 6680
www.petpoisonhelpline.com

ARMADILLO STOCK/SHUTTERSTOCK.COM

Source: Pet Poison Helpline

IDEXX rolls out new in-clinic SDMA test

Kidney disease biomarker result now available to veterinarians at point of care.

IDEXX Laboratories has announced that it rolled out the IDEXX Catalyst SDMA Test to all North American customers on January 16, enabling veterinarians who offer IDEXX point-of-care diagnostic services to add SDMA—a biomarker for renal disease—as an element of the routine chemistry profile.

The Catalyst SDMA Test can be added to any chemistry panel on IDEXX's Catalyst One and Catalyst Dx chemistry analyzers as part of the patient sample run, according to an IDEXX release. The full chemistry

than creatinine, enabling veterinarians to intervene earlier to impact a patient's health outcomes and quality of life. SDMA has been incorporated into the veterinary profession's International Renal Interest Society (IRIS) kidney disease staging guidelines.

“We’ve seen great enthusiasm for the ability to run SDMA as part of the routine chemistry panel at the point of care, and preorders have exceeded our expectations,” says Jonathan Ayers, chairman and CEO of IDEXX Laboratories, in the company release. “The IDEXX SDMA Test represents one of

“We’ve seen great enthusiasm for the ability to run SDMA as part of the routine chemistry panel at the point of care.”

—Jonathan Ayers, IDEXX CEO

profile results, including SDMA, are available within minutes.

Additionally, IDEXX has signed a collaboration agreement with Yale University to explore SDMA's potential applications to human health, the company reports. As part of this partnership, the IDEXX SDMA Test was validated for accuracy in measuring SDMA in human blood samples, and the results were presented at the 2017 meeting of the American Society of Nephrology last November by Yale and IDEXX researchers. Future research with Yale will focus on the clinical utility of SDMA in human patients using the validated IDEXX SDMA Test.

IDEXX first launched the IDEXX SDMA Test at its reference laboratories in 2015. Since then it has run more than 12 million SDMA patient tests, creating the world's largest database on kidney disease in dogs and cats, the company states. The IDEXX SDMA Test can identify kidney disease earlier

the most significant diagnostic innovations in veterinary medicine in the last 30 years. ... And with the IDEXX test technology now validated to be able to run on commercial chemistry systems that routinely produce chemistry results in human reference laboratories, we have greater reason to explore the clinical value of this incredible biomarker in human applications.”

For more information about the IDEXX Catalyst SDMA Test, visit idexx.com/catalystsdma.

Check out the revised staging guidelines

To see the IRIS updated guidelines, which include SDMA values visit dvm360.com/IRISupdate.



CHEWABLES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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TRUST.

¹ Data on file at Merial.

² Freedom of Information: NADA140-971 (January 15, 1993).

HEARTGARD Plus is a Merial product. Merial is now part of Boehringer Ingelheim.



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IMPORTANT SAFETY 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® 
(ivermectin/pyrantel) **Plus**

Please see brief summary on page 36



Natural Paws Water-free dog cleaning option

Dry Clean Dog can be used for times when a bath is needed but not convenient or an option, such as after a surgical procedure, for a dog's extremely sensitive skin in the cold winter weather, or when dealing with ongoing challenges such as incontinence in senior dogs. Dry Clean Dog clings to dirt and oils when sprayed directly onto a dog's fur. After applying, simply rub with a hand towel and it leaves dogs clean and refreshed. It is also a great product for pet parents with allergies, giving them the option to clean the allergens from their dogs' coats more frequently than a bath would be practical. It's also ideal for those who may not have the physical ability to give regular baths. Available in 4- or 8-ounce sizes in sweet lavender mint scent.

For fastest response visit naturalpaws.net



Hill's Pet Nutrition New nutrient profile branding

Hill's S+OXSHIELD is a seal indicating which Hill's foods meet a specific nutrient profile formulated to promote a urinary environment that reduces the risk of developing struvite and calcium oxalate crystals. Hill's Prescription Diet offers the broadest range of therapeutic conditions covered that meet its new S+OXSHIELD standards. The S+OXSHIELD seal will help veterinarians quickly identify these foods and make it easy to communicate this benefit to clients.

For fastest response visit hillspet.com



CPAC Environmental Solutions Tabletop steam sterilizer

Advanced engineering enables the Pro11 to compete with the industry's popular table-top steam sterilizers with 50% more capacity. The Pro11 uses the company's FDA-cleared "high-velocity hot air" RapidHeat technology to perform a complete cycle in as little as six minutes. And since no water or steam is used, the Pro11 has no drying cycle, requires very little maintenance, and comes with a standard three-year parts and labor warranty. The Pro11 RapidHeat Technology has been designed for long-term service and environmental sustainability—with independent laboratory testing confirming 85% less energy used per sterilization cycle than comparable steam sterilizers. In addition, the same tests concluded that the RapidHeat Technology's waterless sterilization environment does not contribute to instrument corrosion that has been proven to be common with steam sterilization.

For fastest response visit cpac.com



Brakke Consulting Parasiticide market study

A new study from Brakke Consulting takes an in-depth look at flea, tick and heartworm products. The US Flea Control and Heartworm Markets study profiles the veterinary and over-the-counter markets for flea and tick products and heartworm preventives, including veterinary product sales and pricing, advertising expenditures, and new and developing products. The report, which has been published annually by Brakke for two decades, gathered information from a variety of sources, including published information, industry interviews and a survey of 300 small animal veterinarians and 500 pet owners.

For fastest response contact lfondon@brakkeconsulting.com



Medi-Dose/EPS Syringe tape

The Tamper-Clear Syringe Seal provides a tamper-evident seal with clear visibility of syringe graduations. It's easily applied over the syringe cap and maintains the integrity of the medication and packaging, even when refrigerated. Once removed, the seal can't be reapplied. Removing the syringe cap destroys the seal. Designed to withstand freezing temperatures down to -20 degrees Centigrade, Steri-Tamp's powerful adhesive seal has been shown to be over three times stronger than others on the market and it provides a 100% sterile barrier.

For fastest response visit medidose.com



E.I. Medical Imaging (EIMI) Video headset

For use in conjunction with portable ultrasound, the i3 headset is the latest generation of video headsets from EIMI and the first to incorporate the patent-pending custom prismic optic developed by EIMI. This custom-designed optic coupled with OLED displays provides the highest resolution headset ever produced by EIMI. In addition to the optical and resolution features of the i3 headset, numerous mounting options are available to provide flexibility to the user for multiple mounting scenarios. The i3 headset is available in both a binocular and monocular configuration.

For fastest response visit eimimedical.com

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Vetstream
Ferret resources

Ferrets are the latest species to be added to “Exotis,” the exotic section of Vetstream’s digital clinical reference service Vetlexicon. Exotis was launched in 2017 with guinea pigs the first species to be included. In adding resources on ferrets, Vetstream aims to address a shortage of up-to-date clinical information on this species, a popular pet in countries including the USA. The information is presented in 24 categories, including dentistry, internal medicine and reproduction, and includes peer-reviewed detail on more than 106 diseases, together with a wide range of images and radiographs from world-class, highly respected contributors led by Cathy Johnson-Delaney, DVM, and nine other leading exotics specialists. The compliance and education of owners is supported through the provision of 60 owner fact sheets covering the health and welfare aspects of ferrets.

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OR Technology
Radiography system

The Amadeo V-DR mini is a complete 32kW high-frequency digital radiography system featuring an integrated PC and a swiveling 23-inch touch monitor mounted directly on the X-ray stand. The unit can be operated via a foot pedal in the front area. User-friendly OR acquisition software is included. The console controls all functions for operating the radiography system. All the necessary settings are made on a single monitor. The unit can connect to an existing practice management system. The integrated multimedia assistant offers additional information to help achieve optimal image quality. The optional PACS can also be used for other imaging modalities such as computed tomography or sonography. Comes with a 230-V power supply; a 110-V version is available on request

For fastest response visit or-technology.com/en/



Zoetis
Extended immunity claim

Vanguard Rapid Resp intranasal vaccine line provides dogs a one-year duration of immunity (DOI) claim for the *Bordetella bronchiseptica* (Bb), canine adenovirus type 2 (CAV-2) and canine parainfluenza virus (CPiV) fractions. Vanguard Rapid Resp is the first and only intranasal vaccine line in the United States that has been demonstrated to provide one year of protection against three important canine infectious respiratory diseases. Additionally, the line is the broadest among 0.5 ml-intranasal vaccines used in dogs in the United States, according to Zoetis. Vanguard Rapid Resp is available in three antigenic combinations (Bb + CPiV + CAV-2; Bb + CPiV; Bb only), and all of these choices can be administered with a syringe or a syringe-free applicator.

For fastest response visit zoetisus.com



Shor-Line
Surgery table extension

Shor-Line introduces its new Wet/Dry Table Extension to join the Shor-Line family of high-quality surgery tables and accessories. The product acts like a mini wet table extension to the end of a Classic or Continuum Shor-Line Surgery Table. It can provide extra space to a short surgery table or extra versatility to a V-Top or Flat-Top. The table slides onto the tie-down rail, locking down snugly against the surgery table. Its wavy slots provide good drainage to a tray below so the fluids of wet procedures are contained. The stainless-steel tray easily slides out for cleaning. Durability is built into the extension. It remains stable during procedures and will support even the heaviest dog heads. This product retrofits most Shor-Line V-Top and Flat-Top surgery tables manufactured in the last 20 years.

For fastest response visit shor-line.com



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For fastest response visit standardprocess.com/Veterinary-Formulas



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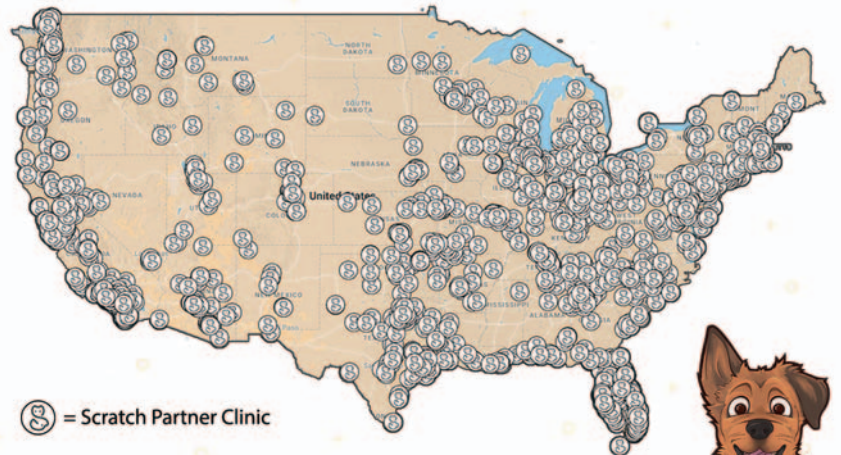
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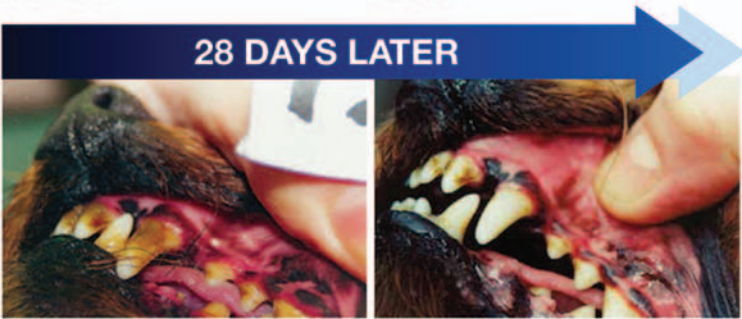
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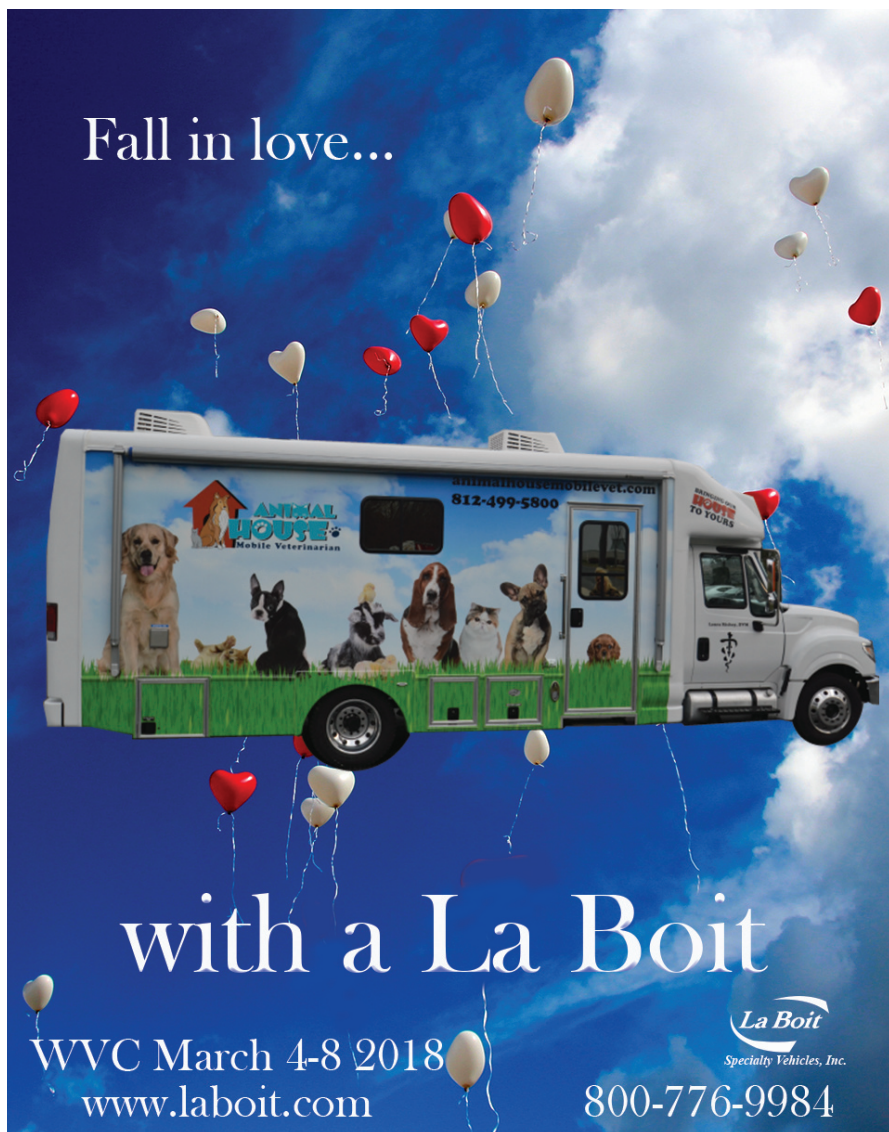
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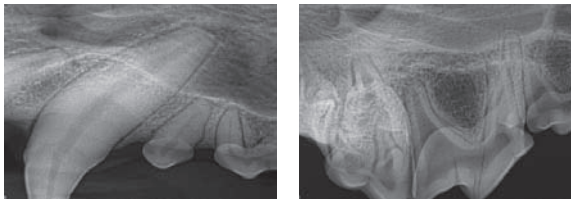
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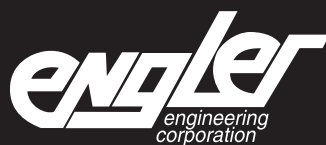
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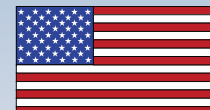


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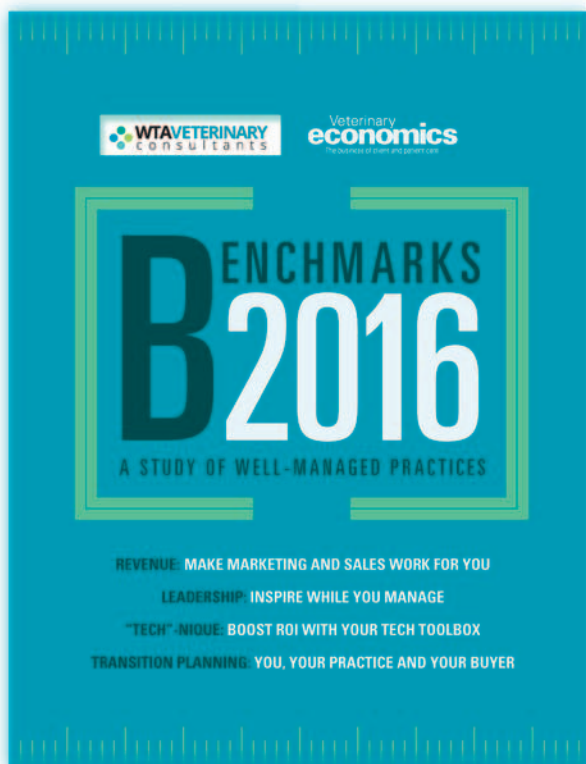
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December 13-16, 2018

Fetch dvm360 in
San Diego
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Here are the CE opportunities coming in the next few months

February 13

Clinical Communication
Skills Continuing
Education Conference
Madison, WI
(608) 265-5206
apps.vetmed.wisc.edu/cereg

February 15- November 17

Veterinary Management
Institute (VMI)
Fort Collins, CO
(800) 252-2242
aaha.org

February 16-17

New Developments in
Diagnostic & Therapeu-
tic Techniques of Neck
Conditions
Lake Mary, FL
(844) 870-6097
vetpd.com

February 18

It's What's Up
Front That Counts!
Houston, TX
(303) 674-8169
vmc-inc.com

February 23-25

2018 Music City
Veterinary Conference
Murfreesboro, TN
(931) 438-0070
tvmanet.org

February 23-25

27th Annual Food
Animal Conference
Columbiana, AL
(334) 603-6227
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February 23-25

Vet Vacation CE
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February 25

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March 17-18

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March 23-24

Ultrasound-Guided
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Techniques & Therapies

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Veterinary Dentistry
AVDC Mock Examina-
tion 2018
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March 26-28

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April 6-7

Evidence-Based
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April 6-7

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April 8

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April 13-15

American Academy
of Veterinary
Acupuncture
Annual Meeting
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aava.org

April 14-15

Feline Dentistry CE
Course and Dental
Extraction Wet Lab
Orlando, FL
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April 21-22

Canine Dentistry CE
Course and Dental
Extraction Wet Lab
Orlando, FL
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April 28-29

Oncology for the
General Practitioner
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sdcvma.org

April 28-29

San Diego County
Veterinary Medical
Association (VMA)
Conference
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sdcvma.org

April 29

It's What's Up
Front That Counts!
Hartford, CT
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May 5-6

Veterinary Dental
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The shoulders we all stand on

Dr. Robert Miller thinks Tom Brokaw was a generation off.

Tom Brokaw's best-selling book *The Greatest Generation* is worth reading. As a member of that generation, which is rapidly dying off, I am flattered by his assumption, but I don't agree with it.

Yes, my generation, the one born between the world wars, did some remarkable things. We survived growing up during a crushing, decade-long economic depression, which was made even more difficult by environmental disasters (the Dust Bowl) and epidemics of now-controlled diseases such as poliomyelitis. Sure, we took on two powerful, effective and aggressive military states—Nazi Germany and Imperial Japan—and whipped them with nonprofessional military forces. Then, educated via the GI Bill, we boldly entered the postwar era, launching our country to its present eminence.

But there was a reason we could do all that effectively. We were brought up by an even greater generation—the generation of our parents and grandparents.

It was those generations, unprotected by any guarantees or by the promises of a welfare state, who pioneered the plains while living in sod homes, who tamed America's wilderness to make a living, and who flocked here in steerage to survive in dismal city slums and slave in sweatshops, mines and factories. They were the greatest generation.

My generation was able to survive



The success of the "greatest generation" was preordained by the courageous, self-sufficient and very hard-working generations that preceded it, says Dr. Robert Miller.

the Great Depression without causing a civic revolt or a crime wave because of the values instilled in us by our parents and our grandparents—mostly poor and uneducated people. These were the values of respect, hard work, civility and a willingness to live by society's rules. Those of us fortunate enough to survive World War II unharmed did so for the same reasons, and we have everlasting respect and compassion for those who did not.

So, superficially, it may appear that

Brokaw's flattering contention is correct, but if we are completely honest, we must confess that our success was preordained by the courageous, self-sufficient and very hard-working generations that preceded and nurtured us.

Robert M. Miller, DVM, is an author, cartoonist and speaker from Thousand Oaks, Calif. His thoughts in "Mind Over Miller" are drawn from 32 years as a mixed-animal practitioner. Visit his website at www.robertmmiller.com.



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1. Toresson L, Steiner JM, Suchodolski JS, Spillman T. Oral cobalamin supplementation in dogs with chronic enteropathies and hypcobalaminemia. *J Vet Intern Med* 2016;30(1):101-107. doi: 10.1111/jvim.13797.

2. Toresson L, Steiner JM, Suchodolski JS, et al. Oral cobalamin supplementation in cats with hypcobalaminemia. *J Vet Intern Med* 2016;30(1):417-418;abstract ESCG-P-10.



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