Unlocking the mysteries of tickborne illness

Maryland team explores the tick's complex immunology

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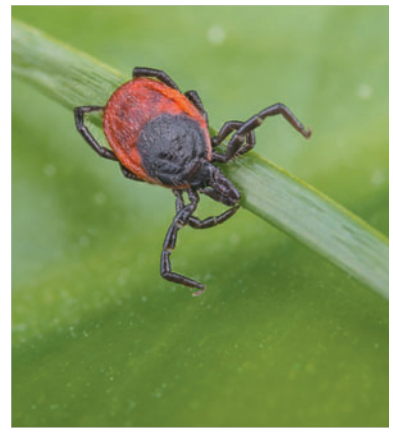

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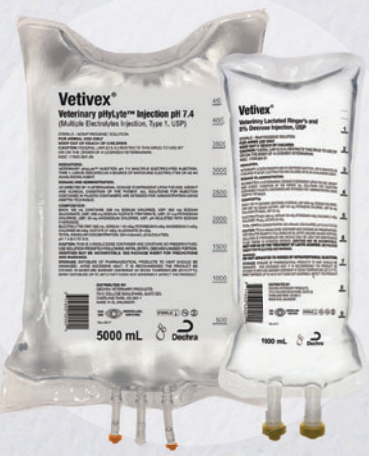

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Unlocking the mysteries of tickborne illness

Maryland team explores the tick's complex immunology

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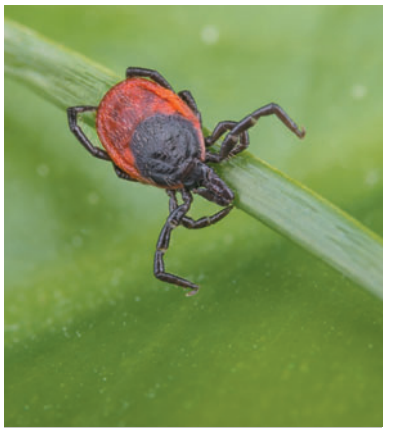

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Opioids and the vet team

Do veterinary practices have a role in alleviating the national crisis? The feds say yes. *By Rachael Zimlich*

Since 1999, more than 630,000 Americans have died from opioid overdoses, according to the CDC. The problem is widespread and complex, and now regulators are turning to veterinarians to join the fight.

The use of opioids and other controlled substances isn't limited to human medicine, and there is a new push to expand regulations that require usage reporting similar to that used in human medicine to the veterinary community.

FDA Commissioner Scott Gottlieb, MD, released a statement in August urging veterinar-

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2018: A look back

Check out the veterinary news articles dvm360 readers couldn't get enough of. See page 28

Morgan named Practice Manager of the Year

Maryland hospital administrator earns kudos for building trust and morale. *By Brendan Howard*

When Angelina Morgan, CVPM, showed up at her new job as hospital administrator at Maryland's two-location Pet+ER veterinary practice in Towson and Columbia, a "solid core team of tenured employees" was in place, but morale was a problem. Her description of how she managed that problem impressed expert judges enough to make Morgan the 2018 dvm360/VHMA Practice Manager of the Year.

But before she could be considered, Morgan had to enter. And like many practice managers before her, Morgan says it was knowledge of her nomination that propelled her.

"The emails that I'd been nominated caught me off guard, but I filed them away to investigate a little bit later," Morgan says. "When I happened to mention the nomination to one of my technician managers in our biweekly

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Susan Cain addresses audience of introverts at Fetch dvm360

How does a profession like veterinary medicine take charge? Quietly and intelligently, says bestselling author. *By Brendan Howard*

Susan Cain, the author of the bestselling book *Quiet*—about the differences and aptitudes of introverts versus extroverts in the workplace, especially—emphasized the power of solitude-seeking thinkers in her keynote at the Fetch dvm360 Conference in San Diego Dec. 14, 2018. To an audience of veterinary professionals, most of whom are introverts, Cain shared that extroverts and introverts bring unique abilities to the table in veterinary practices (and the world) and need to meet each other halfway.

Susan Cain, author of *Quiet: The Power of Introverts in a World that Can't Stop Talking*, addresses attendees during a keynote session at the Fetch dvm360 conference in San Diego.

Who are you?

Cain asked the audience, "How do you feel after two hours at a fun party?" The extroverts, she says, are energized, but introverts often are drained at the end—even if they had a good time.

"Introverts have nervous systems that react to all sorts of stimulation," Cain said, which makes loud, noisy parties tiring. "Extroverts respond to less stimulation, so you're more comfortable when more is happening."

Cain said that this stimulation reaction is "one of the most heritable traits." She then shared a study where babies who salivated at sugar water (a blast of stimulation) were more tentative in play groups. To show why both tendencies can be important, for her veterinary audience, she also brought up a study by biologist and distinguished professor David Sloan Wilson with a pond of fish. In the study, Sloan Wilson dropped a trap in a pond, agitating the fish. Some swam right into the trap and were caught (perhaps like extroverts fascinated by novelty and stimulation?), while others swam away (the introverts). Introverts rule, right? Sloan Wilson then took the extrovert fish, as well as the introverts, back to the lab. In their new surroundings the extroverts were happily eating, mating and being fish, while the introverts were less likely to be at ease and living happily. The tendencies served the animals better in different moments.

Survival depends on both ways of being, Cain said. "And when you look at humans, you start to see the exact same thing."

But now what?

Cain's advice for veterinarians and veterinary team members focused on meetings, a place where introverts can struggle to shine and where sometimes the best ideas are squashed by the loudest ideas.

She had two suggestions for introverts. First, speak up early.

"Ideas that get advanced early carry disproportionate weight," Cain said. In her own experience, in law school, Cain said she forced herself to answer professors' questions on the very first day of class. She hoped the professor would be "less likely to call on me in the next few months," but she noticed a strange side effect: The law school professor seemed to remember her and her ideas more readily during the school year.

Second, Cain urged introverts not to curb their enthusiasm. Married to an extrovert, Cain has seen firsthand the power of vocal enthusiasm for things, and she pushes herself to express more enthusiasm openly for the things she cares about.

And what about those extroverts? She had two pieces of advice for them too. First, extroverts could stand to curb their enthusiasm a little to make room for introverts. "Both temperaments have work to do," she said.

Second, she encouraged extroverts planning meetings to engage with introverts one-on-one and give them advance notice if the meeting leader would like their participation.

Most of all, Cain encouraged introverts and extroverts not to discount the power of introvert leaders in practice and the world.

"There is a whole host of studies of introverted leaders with as-good or better performance than extroverted leaders," Cain said, with successful CEOs described as "quiet, low-key, soft-spoken, shy."

There is an "alpha, gregarious" path to leadership, she said. But also a path in service of the passions introverts have that lead them to build expertise, create networks and ascend to leadership positions in building organizations of people just as powerfully committed to these drives as they are.

Introverts, it's time to go forth and conquer … quietly.

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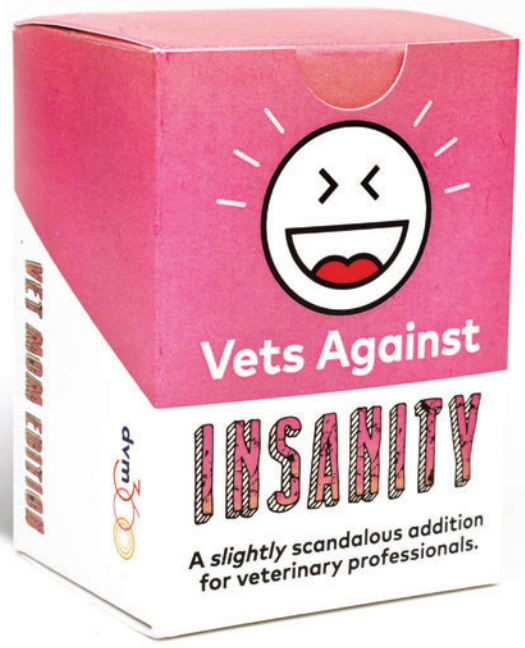

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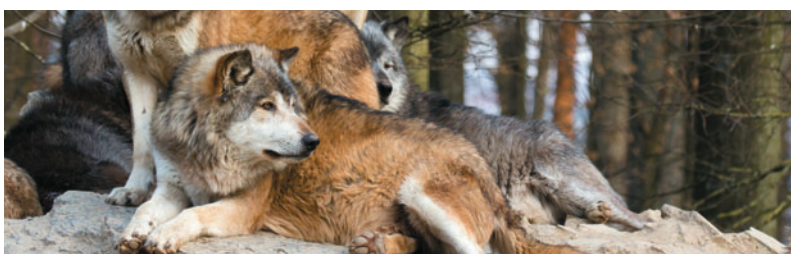

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State of the (vet tech) union

A movement to unionize veterinary technicians is gaining steam, but will they have enough leverage for real changes? *By Rachael Zimlich, BSN, RN*

While most veterinary technicians enter their field for the love of the job, both the long hours and workplace hazards—all for an average of $16 an hour in pay—can make it a difficult career to maintain.

According to the Bureau of Labor Statistics, the 102,000 veterinary technicians in the United States make an average of around $33,000 per year—just above the $25,000 federal poverty limit if that technician were supporting a family of four. For technicians working for small, single-owner practices in particular, compensation may be further strained by higher benefits costs.

One solution being explored is unionization. Labor unions formed in the late 1800s as a way to secure safe working conditions with fair compensation, mainly for workers in industrial settings. Many industries have seen workers unionize since, but today about 10 percent of workers in the U.S. belong to a union, and most of them work in public-sector or government jobs. The Bureau of Labor Statistics estimates that these union workers are paid about 20 percent more than non-union workers.

Unionization has begun

The National Veterinary Professionals Union (NVPU) has been quietly working throughout the summer to garner support for organizing veterinary technicians, with the goals of improving working conditions, wages, negotiating power and advocacy efforts. Liz Hughston, MEd, RVT, CVT, LVT, VTS (SAIM, ECC), president of the National Veterinary Professionals Union, past president of the Academy of Internal Medicine Veterinary Technicians, at VetTechXpert, says the movement to unionize veterinary technicians began about a year ago with Morgan VanFleet, a technician in a BluePearl practice in Seattle who has since moved on to a career in nursing.

The Seattle BluePearl workers voted in June to unionize, making the practice NVPU's first contract, and more have followed. VanFleet's own career change highlights some of the motives behind unionization—to retain technicians who might otherwise leave the profession in search of better careers. Hughston says technicians looking to unionize are seeing it as a way to deal with long-standing issues in the veterinary profession.

"We started with a group of veterinary technicians, assistants and veterinarians to discuss how organizing into a union might help us deal with the issues we face in our profession—high turnover, toxic workplaces, lack of training, missing/broken [personal protective equipment], no or meager benefits, and very low pay," Hughston says.

Another recent addition to the NVPU's roster is a VCA hospital in San Francisco, which unionized through the International Longshore and Warehouse Union in April and later partnered with NVPU. When asked about the unusual partnership, Hughston says that practice reached out to the ILWU through a family

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Techs turning away ...

Explore why veterinary technicians leave a field they love in the article "Where have all the technicians gone?" at dvm360.com/wheretheygo.

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1. Royal Canin internal study, 2013, France/UK/US, 370 vets. Data on file.

connection, and the practice and the ILWU later partnered with NVPU. ILWU was able to help move the unionization process in San Francisco along because of its infrastructure, Hughston adds, especially on the organization and legal front.

Aside from these two hospitals, Hughston says there's one more in Washington and another in Oregon

"Unionization is not an easy thing to do, and it's expensive."
— Christopher Allen, DVM, JD

that have voted to unionize. One of the hospitals in Washington and the San Francisco hospital have now each started the bargaining process and are on their way to securing the first union contracts in the profession, Hughston says.

None of the recently unionized hospitals or their parent companies returned phone calls seeking comment. Hughston declined to discuss any plans to organize at other hospitals for strategic reasons but says there are more in the works.

Where will it go from here?

Hughston says she's contacted almost every day by a veterinary staff member who wants to know now to unionize his or her own practice, but her group's efforts right now are focused on large, corporate-owned practices.

"The majority of private practice owners … are highly unlikely to face an organizing effort," Hughston says. Instead, she hopes the effort encourages all practice owners and managers to engage with their teams and collaborate on ways to recognize their staff, make them more engaged and happy in the workplace and find ways to increase pay and benefits.

Hughston says she's not sure what unionization will look like for practice owners yet, beyond changes in training, recognition, pay or benefits.

Christopher Allen, DVM, JD, a regular *dvm360* magazine contributor and president of Associates in Veterinary Law, says there are no legal barriers to unionization of veterinary technicians, but that doesn't mean unionization is simple.

"Unionization is not an easy thing to do, and it's expensive," Dr. Allen says. "Initially, the large corporations will find their labor costs increasing, and it will be more expensive for them to offer their services. If they can get enough members involved to strike or slow down business, profitability of hospitals with unions will drop."

Dr. Allen adds that while Hughston may be right that small practices won't be among the first to unionize, he says those types of practices are disappearing, and those that are left will face a ripple effect if unionization spreads through the profession.

"Corporate practices are proliferating, and larger practices are being bought up. In the world of private practices, we're still talking about people's livelihoods," Dr. Allen says. "There is going to be pressure in the upward direction on practices that are not unionized because they will have to compete for staff."

Even the greatest workplace and culture, in the end, may not compensate for low salaries, Allen says: "There comes a point where it's not rational for someone who's trying to be a breadwinner to give in to the fact that they enjoy their workplace."

Freelance writer Rachael Zimlich worked as a reporter for dvm360 *magazine before returning to school to become a registered nurse. She now works at The Cleveland Clinic.*

VIN Foundation offers vet student scholarships in exchange for solutions

Third annual essay competition asks veterinary students to shed light on the impact of practice consolidation within the profession.

The VIN Foundation has announced its third annual Solutions for the Profession Competition. The essay competition this year asks veterinary students to share their views on the impact of practice consolidation, both positive and negative, on the profession, according to a release from the foundation.

The first competition contest challenged students to provide innovative solutions to problems they see facing the veterinary profession. The majority of submissions addressed student debt, gender inequality and mental health, the release states. Last year's competition asked students to share what they wish they had known before they applied to attend veterinary school.

This year, students who enter the contest are being asked to describe:

- The current state of practice consolidation (mergers and acquisitions) in the veterinary profession.
- The positive and negative aspects of this consolidation
- How this affects them and the profession, now and in the future.

Three entrants will win cash scholarships to help support tuition and education-related expenses:

- First place: $3,000
- Second place: $1,500
- Third place: $1,000

Judging will be based on how well the essay describes the problem, along with the originality and practicality of the solutions offered, according to the VIN Foundation website. The judging will take place in three rounds. Each essay will be read by at least three evaluators in each round. The panel for round one is composed of the VIN Foundation Solutions for the Profession Committee made up of both veterinarians and related professional readers. The second round will be judged by veterinarians with insight into the relevant issues. The third round will be judged by leaders in the veterinary profession.

Deadline for the competition is Jan. 27, 2019. Winners will be announced April 30. To learn more, visit vinfoundation.org/resources.

Proposed FDA study will allow **adoption, not euthanasia, of dogs used in research**

Heartworm, tapeworm parasiticide research aims to validate alternatives to use of animal subjects in bioequivalence trials.

The U.S. Food and Drug Administration (FDA) recently released proposed research aiming to validate an alternative approach to bioequivalence studies for certain animal drugs. This would eliminate the need to use and later euthanize dogs in specific types of clinical research, according to a release from the FDA.

The proposed study will collect blood samples from dogs that have been given two common antiparasitic drugs—ivermectin and praziquantel—to compare their bioequivalence. Ivermectin, which is used to treat heartworm, and praziquantel, a treatment for tapeworms, act both locally and systemically. According to the release, bioequivalence studies of antiparasitic drugs that act locally within the gastrointestinal tract have historically ended in euthanasia.

In this study, however, the bioequivalence of ivermectin and praziquantel will be measured by "in vitro dissolution compared to blood levels that indicate how the drug is dissolving in the body (also known as blood-level pharmacokinetics), with the goal of validating these laboratory-based alternative (i.e. surrogate) endpoints," the release states.

None of the dogs in the study will be artificially infected, and they will receive regular preventive veterinary care until they are retired for adoption once the research concludes. The dogs will also undergo two months of socialization with FDA animal care staff before the study begins to get them used to being handled.

If the findings support the researchers' current hypothesis, the data will be made public so animal drug sponsors can apply it in designing in vitro studies, thus eliminating the need for animal subjects in some research.

The white paper is available to read on the FDA's website, and the agency is accepting public comments on the proposed study. To submit comments, visit regulations.gov and type "FDA-2018-N-3345" in the search box.

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Ticks may hold the key to treating tick-borne disease

Research led by University of Maryland veterinary professor examines this parasite's remarkable immune system. *By Sarah Dowdy*

You may have more in common with ticks than you think—at least when it comes to immunobiology.

According to Utpal Pal, PhD, a professor of veterinary medicine at the University of Maryland, ticks don't want to be infected with pathogens any more than you or I do. In fact, their immune systems have developed sophisticated ways of both sensing and suppressing pathogens that may hold the key to developing vaccinations and treatments for tick-borne illnesses one day.

It's these aspects of tick-borne illness that Dr. Pal will be researching for the next five years, leading a multi-institutional team from the University of Maryland School of Medicine, Yale University and the University of Minnesota, and funded by a $7.7 million grant from the National Institute of Allergy and Infectious Diseases.

I recently got the opportunity to talk to Dr. Pal and Samantha Watters, assistant director of communication at the College of Agriculture and Natural Resources at the University of Maryland, about this first-of-its-kind research.

dvm360: What does studying the indirect immune response entail?

Dr. Pal: When a pathogen infects a host, the host recognizes it by the microbial signature molecules present on that pathogen—sort of a direct recognition: "You're here. I can see you." Now, for the first time, we've discovered that ticks, in addition to having direct detection capability, can also understand that something is coming along with the pathogen.

When a tick takes a bloodmeal from the host, that may be the first time it acquires the infection. Tick-borne diseases aren't transmitted tick to tick. The tick has to get the infection from the infected host and transmit it to another host. So the disease-causing pathogen is always cycling from a mammalian host (typically a white rodent) to ticks.

When taking the bloodmeal, the tick can sense the immune molecule produced by the infected host. It's like they're testing the quality of the blood-

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Please see Brief Summary on page 12.

meal—whether it's coming from an uninfected host or an infected host.

We discovered that when a mammal is infected with *Borrelia burgdorferi*, the pathogen that causes Lyme disease, it produces many immune molecules to fight off the bacteria. One of those immune molecules is a cytokine, and that cytokine is present in the blood when a mammal is infected with *Borrelia*. Now, if a tick feeds off an infected host, it will ingest blood as well as the cytokines in the blood, and it's developed a sensor to recognize that cytokine molecule—a more indirect way of recognizing the infection. This is the first time we've discovered this.

dvm360: What ticks are being studied and why?

Dr. Pal: There are many, many species of ticks. In Maryland, we have five different ticks that transmit zoological diseases. The black-legged tick, or deer tick (*Ixodes scapularis*), transmits the most prevalent and serious infections—bacterial diseases such as Lyme disease and anaplasmosis, viral diseases such as the Powassan virus, and protozoan diseases like babesiosis. This is the most widely distributed tick geographically, and it transmits more disease than any other tick.

Watters: The tick carries the infection, but it doesn't want to be infected any more than you do. So Dr. Pal and his team are looking at the ways the tick is trying to sense and kill that bacteria—it tells you how incredibly persistent these *Borrelia* bacteria are for this whole process to occur wherein, at the end of the day, a mammal becomes infected by a tick.

The tick can use either direct sensing to tell that the bloodmeal contains *Borrelia* (usually based on a protein it recognizes that's related to this specific pathogen), or it can indirectly sense it, which is the phenomenon that Dr. Pal's lab discovered—"This bloodmeal I just took; something's not quite right with it. This is not a healthy bloodmeal because I'm seeing signs of infection (cytokines) that I've picked up in the blood itself." Based on this sensing, the tick is able to send out a less specific but immediate immune response to try to combat whatever is in the blood before it directly figures out exactly what it is and sends a direct response.

The tick has multiple pathways to control invading pathogens like *Borrelia*, and Dr. Pal's lab will be studying this indirect pathway and its interaction with other pathways and the microbiome in more detail over the coming five years.

dvm360: How will this information contribute to the larger picture—i.e., prevention and treatment of tick-borne illness?

Watters: Dr. Pal's work tells us things about ticks but also about bacteria—how pathogens combat these different waves of immune response and sensing—and these findings are very important in figuring out how to fight bacteria through either vaccinations or treatments.

Dr. Pal: The depth of the damage, the seriousness of what ticks can do, has not been appreciated as it should. Mosquitoes get most of the attention. But the genetic difference between ticks and mosquitoes is like the difference between humans and—not even mice, but fish. They are widely different. So the knowledge we have from studying mosquitoes isn't applicable to ticks. It's important that we focus more on using ticks and tick-borne diseases in experimental research. And I think this will help us understand how the infection functions and is transmitted by ticks. Our research will look at how ticks kill the pathogens, because if you disable a tick's immune system, *Borrelia* skyrockets. So ticks actually suppress infection. If we know how they do this, we can turn the tables and use that information to develop vaccines.

dvm360: Why hasn't this been studied before? Why is there interest now?

Watters: It's similar to the trajectory taken with the rabies virus. If you think about how rabies has been curtailed, it's remarkable. Knowledge around tick-borne disease just hasn't been gathered yet on a large scale of any kind, really.

Dr. Pal: Tick-borne diseases have been underreported for a lot of reasons. First of all, a lot of these illnesses, such as Lyme disease, carry symptoms that are common in many bacterial and viral infections. So the disease is often misdiagnosed. Only 60 to 70 percent of people who get bitten and infected by a tick with Lyme disease get the characteristic rash—a big red circle like a target that goes around the bite center. In many cases the exact appearance of the rash varies. So most people have a hard time connecting their symptoms to a tick bite. And it's not top-of-mind for human medical professionals.

There's also a weakness with the current diagnostic tests that are being used to find early infection or presence of *Borrelia* in the bloodstream. There's a window of time when the bacteria is more detectable, and if you miss that window, you will end up with a negative blood test even if the subject is infected.

Tick-borne diseases cause low quality of life and a substantial burden on the human healthcare system overall because these conditions often become chronic. But because they're not killing people at the same rate as malaria, they don't get the same level of attention. It's morbidity vs. mortality.

Reporting Lyme disease is a long and difficult process that can be confusing and difficult for doctors. And because scientists have discovered five new tick-borne diseases during the past two decades, research into these conditions is even more urgent.

Fortunately, things are happening on a federal level. Legislation has been introduced in Congress emphasizing more research and more investment on tick-borne diseases. In addition to the work we are doing now, we want to encourage next-generation scientists to study this neglected but important field of tick-borne infections.

Where the funds go

As published in the U.S. Department of Health and Human Services Tick-Borne Diseases Working Group report, hepatitis B has generated $107 million in National Institutes of Health (NIH) appropriations and $34 million in Centers for Disease Control (CDC) appropriations for fewer than 3,000 cases reported annually in the U.S.

In contrast, there are over 36,000 cases of Lyme disease reported annually in the U.S. (although the CDC estimates about 300,000 cases per year including unreported cases), but NIH appropriations for research currently total $28 million and CDC appropriations are at $11 million.

dvm360 team wins several Folio Awards

Honorees travel to New York City for magazine industry honors. *By Ericka Cherry*

The dvm360 team was recently honored at *Folio* magazine's Eddie and Ozzie Awards, one of the most prestigious awards programs in the publishing community. The team won the Rising Star distinction for three of its members, a Best Series or Single Article Eddie in the Animals/Pets category, and an honorable mention for Editorial Team of the Year.

The dvm360 team members named Folio Rising Stars—an award distinguishing individuals who are disrupting the status quo in magazine media even in the early stages of their career—are associate content specialists Sarah Dowdy and Katie James and marketing copywriter Gabrielle Roman. Dowdy, James and Roman traveled to New York City to receive their awards in person on October 9.

While the three play integral roles in shaping the success of dvm360 and the Fetch dvm360 conference, for them, it's all in a day's work.

"I was so honored to be named a Rising Star," James says. "I'm incredibly lucky to get to spend every day doing what I love with the creative and passionate team at dvm360."

The award-winning dvm360 Leadership Challenge series, published in August 2017 (see **dvm360.com/petpainanddeath**), examined end-of-life care for veterinary patients, from the most difficult to the most unusual to the most rewarding.

Dani McVety, DVM, co-founder of the Lap of Love veterinary hospice network, wrote several articles in the Pet Pain and Death series. "The dvm360 group is on the cutting edge of information delivery," Dr. McVety says. "They infuse vitality and energy, and it shows."

The dvm360 team was also awarded an honorable mention for Editorial Team of the Year (along with consumer-media heavyweights *AARP: The Magazine* and Meredith's *Midwest Living*)—Pride Media won the top honor.

The Folio Awards honor both consumer and business-to-business media outlets. Every year, more than 2,000 entries compete across 200 categories in editorial and design, so it was an honor for the dvm360 team to be awarded.

As Roman puts it, "There are a lot of benefits to working for dvm360 and Fetch dvm360 conference. The first, of course, is seeing so many pictures of cute puppies and kittens! But, really, what I love is that I know my work is helping people who are saving pets' lives. And when I think about my own dogs and their veterinarian, that means a lot to me."

From left, Folio Rising stars and dvm360 team members Sara Dowdy, Gabrielle Roman and Katie James.

Purchasing power: How pet owners make decisions about diets

Check out the most common nutrition questions pet owners ask at big box retail stores. *By Katie James*

The pet food market is abundant with options—grain-free, raw, those pesky chicken by-products, and nontraditional protein-based diets. How do pet owners know what's best for their pet?

Hopefully they've had a conversation with their veterinarian and can make a beeline directly to the food they need amongst the hundreds of options in the aisles. But if they haven't, or if they don't feel their veterinarian has given them enough answers, they're likely wandering the aisle, asking the pet store employees—or choosing based on which commercial they've seen most recently.

Jesse Dorland, business manager for Bigger Road Veterinary Clinic in Kettering and Springboro, Ohio, has managed the ins and outs of retail in a veterinary clinic and also at a large pet retail store. Recently he shared with *dvm360* the most common questions pet owners ask when shopping retail for pet food.

They're looking for 'natural'

Many pet owners are looking for solutions to inappetence and food sensitivities or allergies, Dorland says. People also seek alternatives to therapeutic diets because of cost or because the ingredients don't jibe with what they think they want in a pet food.

"Often people would ask us questions [at the pet retail store] they really should have been asking their veterinarians. But either their vet wasn't prioritizing those discussions with them, or they didn't like the answers their vet was giving them," Dorland says.

Consumer preferences have changed in the last 10 years as well, Dorland says. The cultural shift toward natural,

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organic and non-GMO human foods has crossed over into pet foods as well.

"There's room for veterinarians to acknowledge and work within clients' preferences for pet food—even in cases where we don't believe there is a medical basis for them—and still be involved in the conversation to positively influence the health of the pet," he says.

"When a client has a preconceived idea about what they want to see in a pet food and they feel dismissed or invalidated by their veterinarian, that's when we entirely lose the pet food conversation to the pet store, which isn't good for anyone," Dorland says. "Veterinarians should be involved in that conversation. Clients with a strongly held opinion that 'natural is better' in pet food usually apply that to all facets of their life, and a veterinarian is not likely to change a client's basic worldview. But we can lose the client's trust by seeming inflexible or dismissive in the conversation about pet food."

They're looking for 'better'

Another important category of pet owner? Those who come to the pet store looking for new food. Dorland says in many cases these pet owners don't know what they want. He says they often use the word "better"—as in, "I want a better food." Many also want to solve a specific problem, like diarrhea or itching, but they aren't exactly sure what they're looking for.

"This is a big problem because it puts them at the mercy of pet store employees whose training about the hundreds of different foods is, statistically, pretty inadequate," he says.

For about two years, Bigger Road Veterinary Clinic carried a small selection of over-the-counter diets, mainly for food sensitivity and allergy issues. Their goal? To offer a specific diet for clients who resisted therapeutic diets because of cost or because they objected to the ingredients used. Then, if the over-the-counter diet worked for the pet, the client could continue purchasing the food at the pet store.

"Because of the way over-the-counter diets are marketed, and the lack of training for pet store employees, sending a veterinary client to the pet store to get a salmon diet for a food trial is likely to result in the client bringing home something full of chicken," Dorland says.

In the end, the economics of that strategy didn't work for Bigger Road. "We were dealing with expired product and also high cost of goods because of the low volume we were purchasing. During this time, natural veterinary diets became widely available. And for in-clinic dispenses they are actually more cost-effective for both us and the clients, which is great," Dorland says.

A new opportunity?

"We do think there is a huge opportunity for online pharmacies to expand their over-the-counter diet offerings to include more natural and cost-effective options. Online over-the-counter diet sales would be a new revenue stream for vet clinics and a great opportunity to increase client compliance and also improve staff education about what clients are seeing at the pet store," he says. "Many of our clients are very comfortable with our online pharmacy platform and would jump at the chance to have their pet's nontherapeutic diets delivered to their door at a competitive price."

Dog foods recalled for excess vitamin D

Two companies have voluntarily recalled certain lots of dry dog food after reports of pets becoming ill because of an excess of the vitamin.

Following a voluntary recall of two dry dog food brands due to excess levels of vitamin D last month, the FDA has expanded this recall to include foods sold by six more companies: Sunshine Mills, ANF, Lidl (Orlando brand), Kroger, ELM and Ahold Delhaize, according to an alert from the agency. The recalled products were sold nationwide.

After receiving reports from pet owners that their dogs had suffered vitamin D toxicosis, one company told the FDA that it was voluntarily recalling its dry pet food because of potentially toxic levels of the nutrient. Other brands made by the same contract manufacturer have also been recalled, the agency says. It is working with the manufacturer to provide a list of affected products, and FDA scientists are investigating reports and evaluating samples of some of the products to determine if the reported illnesses are definitively connected to the diets.

So far, the agency as well as state and private lab testing have found that the food contained about 70 times the intended amount of vitamin D. This amount is potentially toxic to dogs, and in severe cases could lead to kidney failure or death, the release says.

Pet owners and veterinary professionals should stop feeding the affected brands immediately. Pets exhibiting signs of toxicosis—vomiting, loss of appetite, increased thirst, increased urination, excessive drooling and weight loss—should be taken to the veterinarian immediately, the release says.

Veterinarians and pet owners can report suspected illness to the FDA through its safety reporting portal or by calling their state's FDA consumer complaint coordinators.

Veterinarians treating vitamin D toxicosis cases should ask for the pet's diet history. The FDA is also interested in reading case reports, particularly those confirmed with diagnostics. The agency notes that vitamin D toxicosis could also present as hypercalcemia, similar to dogs that have consumed rodenticide. In these cases, it suggests confirmation through diet history to verify whether the dog has been eating any of the recalled products.

The list of brands affected by the recall is at left. This list is current as of Dec. 4, but it could include additional products as the FDA monitors the situation, the release notes.

The first voluntary recall in this current situation involved two St. Louis-based dog food companies. Natural Life Pet Products recalled the 17.5-lb bags of its Chicken & Potato dry dog food, while Nutrisca recalled 4-, 15- and 28-lb bags of its Chicken and Chickpea Dry Dog Food, according to releases at the time.

The Natural Life Pet Products food was distributed to retail stores in Georgia, Florida, Alabama, North Carolina, South Carolina, Tennessee, Virginia and California. The company discovered a formulation error after researching complaints of vitamin D toxicity from three pet owners, the release says.

The Nutrisca food was distributed to retail stores nationwide. A formulation error was discovered after investigation into reports of vitamin D toxicity from three pet owners, the release states.

The dog diets discussed

Nutrisca
> Chicken and Chickpea Dry Dog Food

Natural Life Pet Products
> Chicken & Potato Dry Dog Food

Sunshine Mills
> Evolve Chicken & Rice Puppy Dry Dog Food
> Sportsman's Pride Large Breed Puppy Dry Dog Food
> Triumph Chicken & Rice Recipe Dry Dog Food

ANF, Inc.
> ANF Lamb and Rice Dry Dog Food

Lidl (Orlando brand)
> Orlando Grain-Free Chicken & Chickpea Superfood Recipe Dog Food

King Soopers
> Abound Chicken and Brown Rice Recipe Dog Food

Kroger
> Abound Chicken and Brown Rice Recipe Dog Food

ELM Pet Foods
> ELM Chicken and Chickpea Recipe
> ELM K9 Naturals Chicken Recipe

Ahold Delhaize
> Nature's Promise Chicken & Brown Rice Dog Food
> Nature's Place Real Country Chicken and Brown Rice Dog Food

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The Present and Future of Probiotic Use in Pets

The potential for probiotics to provide health benefits to both humans and animals is of considerable interest to the scientific community. However, with innumerable products on the market—many with unfounded claims—it can be difficult to discern which probiotic claims are credible—and which are not.

In this roundtable, experts in gastroenterology, nutrition, infectious disease and behavior discuss the connection between the microbiome and health, as well as how probiotics may benefit patients both today and in the future.

THE MICROBIOTA AND PET HEALTH

Dr. Laflamme: We are continually learning more about the role of the gut microbiota in the health of both humans and animals. What constitutes a "healthy" microbiota?

Dr. Suchodolski: We can clearly see differences between the microbiome present in a healthy animal versus that of a diseased animal. Over time, we see patterns of microbiome shifts in certain disease phenotypes. In the future, research will be focusing on the total composition of the microbiota at a taxonomic level and working to understand the contributions of each taxon to disease. That will further add to the definition of what is healthy versus unhealthy.

Dr. Bercik: In addition to the microbiome profile, we should also be looking at the function and the metabolic activity of the microbiota. In humans, we usually study fecal microbiota composition. However, this composition may not actually reflect its function in the more metabolically active parts of the gastrointestinal tract. For example, we know the immune system is in highest concentration in the terminal ileum, but we do not have much information about microbiota at that site. I think we need to gather additional data on microbial composition, metabolic activity and immune interactions to define what is healthy and unhealthy.

"We know that lifestyle or environmental triggers like medication use, especially antibiotic use, as well as diet can influence the microbiota, but we don't yet understand how we can positively affect the composition of the microbiota long-term."
Dr. Jan Suchodolski

Dr. Laflamme: What factors affect the composition of the microbiota, both positively and negatively?

Dr. Suchodolski: There are strong individual differences. Even neonatal animals in the same litter are unique in terms of their microbiota. There is some evidence that genetics play a role, but environment seems to be the major factor. We know that lifestyle and environmental triggers like medication use, especially antibiotic use, as

GLOSSARY OF TERMS:

Microbiota: The microorganisms that typically inhabit a particular environment, including a site in or on an organism.

Microbiome: The genetic make-up of the whole of the microbiota, i.e., the genes from all of the bacteria, fungi and viruses that inhabit a particular environment.

Dysbiosis: An imbalance between the types of organisms present in an organism's natural microflora, especially that of the gut.

Metabolomics: The large-scale study of small molecules, commonly known as metabolites, within cells, biofluids, tissues or organisms. Collectively, these small molecules and their interactions within a biological system are known as the metabolome.

Probiotic: A product or preparation containing microorganisms such as *lactobacillus* or *bifidobacterium* that maintains or restores beneficial bacterial to the digestive tract when consumed in a food or supplement.

well as diet can influence the microbiota, but we don't yet understand how we can positively affect the composition of the microbiota long-term.

Dr. McGowan: We see differences in the microbiota within litters of puppies and kittens as well as between human siblings, including twins. Although we can recognize these differences, we don't yet fully understand what causes them. What we do know is that with some changes in the microbiome, we see corresponding differences in temperament. There's a relationship between the microbiota and conditions such as anxiety that likely start very early in development.

Dr. Allenspach: Diet has a big influence on the microbiota. Numerous metabolomic studies have demonstrated a link between obesity and diabetes in people and westernized diets. While an individual might not necessarily become obese or develop diabetes as a result of consuming such a diet, the risk is significantly higher once there is a shift in the intestinal microbiome. In mouse studies, they have even been able to induce diabetes in mice by transferring the microbiota from a diabetic mouse.

Dr. Laflamme: An impaired microbiota can lead to gut dysbiosis. What is dysbiosis and what is the clinical impact of this condition?

Dr. Suchodolski: The classic definition of dysbiosis is a change in the composition of the gut bacteria. While that is accurate, I think we need to widen the definition of dysbiosis and understand it is an evolving concept. We have tools today to define populations in the gut; in our laboratory, we have developed a microbiota dysbiosis index. We measured a large number of healthy animals and compared them to disease phenotypes. Now we actually have a reference interval for a healthy population. With the dysbiosis index, we measure eight bacterial groups together and express the results as one single numerical value using a mathematical algorithm. Understanding the functions, metabolomics and interactions of the microbiota with the immune system may help us better correlate dysbiosis with the clinical picture in the future.

"While we know that antibiotics can actually cause diarrhea, we sometimes forget that or we don't look for it. By using antibiotics to treat an animal with chronic diarrhea, we could actually give the animal dysbiosis and diarrhea."
Dr. Karin Allenspach

Dr. Lappin: In clinical studies, we see animals with what we call dysbiosis and some are clinically unaffected. It prompts us to ask if we are observing cause or effect. I think we are in the infancy of this work and metabolomic studies will give us important information in the future.

Dr. Allenspach: We can define dysbiosis, but it is not always associated with disease. Consider the common paradigm in veterinary medicine of using antibiotics to treat an animal with chronic diarrhea. In doing so, we may induce or worsen dysbiosis. Some veterinarians may argue that treating the diarrhea is more important for the owner than the dysbiosis. But what if the dysbiosis triggers a longer-term problem? While we know that antibiotics can actually cause diarrhea, we sometimes forget that or we don't look for it. By using antibiotics to treat an animal with chronic diarrhea, we could actually give the animal dysbiosis and diarrhea. It's complicated.

Dr. Bercik: The term "small intestinal bacterial overgrowth" (SIBO) is sometimes employed to describe dysbiosis in patients with symptoms such as diarrhea and bloating, although it is used less than it once was because of the difficulty defining the condition. We typically use hydrogen and methane-based breath tests when making a clinical diagnosis; an abnormal value indicates the presence of a higher load of bacteria in the proximal small bowel.

I try to minimize antibiotic use in general because of the risk of causing more harm in the long term due to the dysbiosis we could induce. However, for those patients with symptoms and a positive breath test, treatment with antibiotics is indicated.

PROBIOTICS AND THE BENEFITS OF ALTERING THE MICROBIOME

Dr. Laflamme: A probiotic is a live microorganism that is administered to confer health benefits to the host. What are some of the primary applications for probiotics in gastrointestinal conditions?

Dr. Bercik: When you look at the effect of probiotics, we know they are effective in diarrheal diseases, especially forms of acute diarrhea. There is also evidence of effectiveness in conditions like irritable bowel syndrome and ulcerative colitis, but in the latter, studies are relatively small. If you dig deeper into the data, you see that probiotics always work in a portion of patients. The question is, do we need an individual approach?

For example, meta-analyses have clearly shown that many probiotics are beneficial in irritable bowel syndrome but it currently is difficult to recommend a specific probiotic for an individual patient. I think we are trying to put too much in one basket—analyzing and pooling studies with different organisms with different modes of action along with trials with different outcomes and different designs.

Dr. Suchodolski: Traditionally we thought we were giving probiotics to modulate the microbiota. I think we need to rethink that assumption. In the last few tests we've done, it appears we simply do not give enough probiotics to drastically change the microbiota. However, there is some data that shows that if you give a probiotic, there is an attachment of the probiotic bacteria to the small intestinal mucosa that generates immunomodulatory effects in the host.

Dr. Laflamme: Let's discuss further the effects of antibiotic therapy on the microbiota. What approaches should practitioners consider?

Dr. Suchodolski: We have done several studies looking at the effects of common antibiotics like metronidazole, clindamycin and amoxicillin on the microbiota. We consistently see that antibiotics induce major shifts in microbiota. We're not sure what this dysbiosis means long-term for the health of the animal, particularly when antibiotics are administered to puppies and kittens. We do know that epidemiological studies in humans have demonstrated that antibiotic use can increase the risk of chronic conditions such as allergies and inflammatory bowel disease. This is clear evidence we should be using antibiotics more prudently, particularly when you factor in the added problem of antibiotic resistance.

Dr. Allenspach: I believe we need to be paying more attention to the side effects of antibiotics. In a study that was recently presented at a European conference, a fluoroquinolone in combination with amoxicillin was given to healthy normal adult dogs and 100 percent of them broke with diarrhea and quite a few of them had vomiting and had to be removed from the study. That really shocked me, because I think these side effects are often ignored or missed. We prescribe an antibiotic and send the animal home. But how many owners take their animals off the antibiotic because of side effects? And how does that impact the problem of antibiotic-resistant bacteria? I think it's a huge problem.

Dr. Lappin: We conducted a study at Colorado State in which we administered Clavamox to healthy cats in order to study how often it would induce diarrhea, as well as how the diarrhea might be mitigated by probiotic administration—specifically, the probiotic *Enterococcus faecium* (SF68). We had two groups in the study: one that received the antibiotic and placebo and one that received the antibiotic and the probiotic.

We didn't see much of an effect of the probiotic on dysbiosis, but we did see clinical effects. Overall, the fecal scores were better in the group that received the probiotic, showing the severity of the diarrhea was somewhat mitigated by administration of SF68.

Dr. Laflamme: How long should a probiotic be administered in cases of diarrhea?

Dr. Suchodolski: The length of probiotic therapy depends on the condition. There are some clinical studies in antibiotic-induced diarrhea that show starting the probiotic just prior to or at the same time as the antibiotic is effective. Giving it one or two days before may be enough to exert a prophylactic effect. In the case of an acute event like antibiotic administration, I think continuing for an additional week after you finish the antibiotic should be enough. Based on most clinical trials with chronic diarrhea, a therapeutic window of a couple of weeks is needed to show a first effect, but then the probiotic should be continued for several months.

Dr. Laflamme: Staying on diarrhea and GI health, it is clear that not all studies show beneficial effects, and it's clear that probiotics are not all alike. How can practicing veterinarians determine if a particular probiotic might be appropriate for an individual patient?

Dr. Suchodolski: I think we have to go back to the question of how probiotics work. We also need to understand that every strain has a specific function that

"Giving a probiotic will be beneficial to some patients and not to others... It is...important to have data for each organism and for claims to be backed by studies."
Dr. Michael Lappin

makes it useful for a specific disease phenotype. Both acute and chronic diarrhea have multiple causes, so it can be very difficult to apply one single product to a whole range of different diseases. Just as individual dogs with chronic diarrhea will not respond the same way to an antibiotic or steroid, they also won't necessarily respond the same way to a probiotic. If we can understand how a particular probiotic strain functions, we can tailor it to disease management. I also stress that only a few probiotic products are guaranteed and show efficacy in controlled studies. That should also be a factor in selection.

Dr. Lappin: Giving a probiotic will be beneficial to some patients and not to others. When we have a long track record of safety with certain products, we know that probiotic administration may not always help, but it probably does no harm. It is also important to have data for each organism and for claims to be backed by studies. While it's natural to assume that "more is better," you cannot say that in the case of probiotics without dose titration studies. Many companies or manufacturers tend to claim higher organism numbers are more effective, even if data proving the claim is not available. It is a poorly regulated field.

Dr. Laflamme: Another clinical approach to managing gut dysbiosis is fecal microbiota transplantation (FMT). What results have you observed with this approach?

Dr. Suchodolski: We have done quite a few studies now with FMT. In people, *Clostridium difficile* infections have been successfully treated with FMT, but dogs and cats don't typically experience *C. difficile* diarrhea; instead, veterinarians are more likely to see chronic diarrhea from inflammatory bowel disease that drives dysbiosis as a component of the process. In our studies, approximately 30 percent of dogs responded clinically well to FMT; however, for many, success is limited to a few weeks and repeated administration is needed. When we look at the dysbiosis pattern of disease, we see improvement after FMT, but three to four weeks later the inflammation is still there and it will drive recurrent dysbiosis.

For dogs that are effectively managed with FMT, long-term, repeat administration is needed. It may take months to cure, because we can only temporarily improve the dysbiosis. Nevertheless, I believe that FMT is going to play a role in veterinary medicine. It is an easy procedure and it is useful to try.

PROBIOTICS: APPLICATIONS BEYOND GUT HEALTH

Dr. Laflamme: While probiotics are probably best known for their role in managing GI conditions, researchers continue to explore benefits that extend beyond the gut. What are some of these uses?

Dr. Lappin: A number of studies with different probiotics have now been published in dogs or cats documenting either an enhancing or a dampening effect on the immune system. It depends on the bacterium itself, because obviously they are not all the same. Studies with SF68 were the first to show potential positive effects on immune responses in puppies. In a study, higher distemper virus titers were maintained in puppies that were supplemented with SF68 versus those given a placebo over time, suggesting an immune modulating effect on the B cells. Positive effects on T. lymphocytes have also been documented with this probiotic when fed to either dogs or cats.

Dr. Bercik: I think we are also learning more about metabolic syndrome and its direct link with bacterial populations in the gut. It's one more way the gut's microbiota acts like a functional organ.

Dr. Allenspach: There have been some fascinating studies in human medicine in the past 10-15 years on probiotics and allergies. If infants are given probiotics from very early on, they are less likely to develop allergies, such as atopic dermatitis, later in life.

Dr. Bercik: I think that almost every human disease now has been linked to microbiota and I am convinced that both the microbiota and certain probiotics can affect distinct organs in multiple ways. One randomized, crossover study took a group of healthy individuals and administered them different probiotic strains. Every half hour, the subjects drank a preparation that contained one of three different lactobacilli or a placebo. After several hours, doctors performed endoscopies and took the biopsies from the small intestine. The results showed changes in the expression of 500-1,000 genes. The most interesting result was that these three lactobacilli had different effects on the host. While one affected genes related to immune pathways of TH1 and TH2, the other two affected genes involved in hormonal signaling, iron homeostasis and angiogenesis.

We have also learned from animal studies that bacteria can produce neuroactive molecules. I am very interested in the effect this may confer on the central nervous system. We know that some bacteria can produce classical neurotransmitters as well as short-chain fatty acids—both of which can act on the enteric nervous system and most likely on the brain.

"I think that almost every human disease now has been linked to microbiota and I am convinced that both the microbiota and certain probiotics can affect distinct organs in multiple ways."
Dr. Premysl Bercik

Dr. Laflamme: Dr. Bercik, you've done a lot of work in rodents with stress behavior and behavior modification. What is the evidence that altering the microbiota can alter brain function?

Dr. Bercik: It has been well established that the microbiota affect not only behavior but also brain structure and the levels of certain neurotransmitters. Some of the effects we see in behavior profiles between germ-free and conventional mice can be related to the interaction of bacteria with the immune system, especially its innate arm. Microbial colonization can also affect serotonin production and tryptophan-kynurenine metabolism. We—as well as others—have shown that altering microbiota composition in conventional mice through antibiotic administration changes their behavior and brain chemistry. In addition, we have recent data demonstrating that it is possible to transfer the behavior profile of patients with anxiety disorder into mice just by transplanting microbiota profiles.

Dr. Laflamme: Dr. McGowan, your research has focused on probiotics and how they can affect anxiety and the brain. Can you explain how the gut microflora influence the brain?

Dr. McGowan: There is a direct two-way communication via the vagus nerve and via chemical messengers from the gut to the brain; it's what we call the gut-brain axis. Extensive research has shown that the gut microbiota influence stress responses, beginning early in life, which is quite fascinating. So there really is something to that old adage about having a "gut feeling" about something. These feelings are rooted in the gut and the communication goes both ways. You experience stress and the stimuli sends communication down the vagus nerve. This creates a visceral response that can lead to stress diarrhea and other effects. Conversely, what happens in the gut sends signals up to the brain that, in turn, can affect behavior.

Dr. Laflamme: Dr. McGowan, you recently conducted a study with the probiotic *Bifidobacterium longum* BL999. Can you tell us more about it?

Dr. McGowan: In our study, we enrolled 24 anxious Labrador retrievers, half female and half male. We raised these dogs from puppies and observed anxious behaviors from a very early age. Dogs of varied ages were enrolled to assess if probiotic administration could be beneficial at different age timepoints. The dogs had a wide variety of anxiety issues; some had social anxiety (e.g. fear of strangers); others had generalized anxiety, where they feared novel situations; and others had phobias of noises like thunderstorms. Some dogs were hypervigilant and overreactive while others were more fearful and tended to retreat. The aim of our blinded, placebo-controlled, crossover study was to assess if probiotic administration resulted in any changes in behavior, as well as physiological changes, such as cortisol levels, heart rate and heart rate variability.

We followed the dogs' day-to-day behavior, using caretakers blinded to the study, during each 6-week test period. The caretakers kept daily logs noting any changes—specifically, behaviors like jumping, barking, spinning and pacing. Behaviorists did weekly assessments in the kennels and play yards. A formal anxiety test was conducted at the end of each treatment phase. During this test, the dogs were brought into a novel room they had never been in before. We observed how they explored, including how much time they spent in the middle of the room versus the edges. We then made a number of changes to test their vigilance responses, as well as social and separation anxiety behaviors. All stimuli were the types of things that anxious dogs find stressful and non-anxious dogs find interesting. Throughout the test, we monitored the subjects' cardiac activity and also took saliva samples before and after to measure cortisol levels. This allowed us to pair behavioral and physiologic measurements, strengthening and validating the findings of each.

Dr. Laflamme: What benefits did you see from BL999 administration?

Dr. McGowan: The results were interesting. In day-to-day kennel behavior, we noted significantly less barking, jumping, spinning, and pacing when the dogs were supplemented with the probiotic—all differences we felt an owner would notice in a home setting. In the formal anxiety test, there was less reactivity to strangers and novel objects, along with more exploration of the room—in essence, the behavior was less anxious. Physiologically, we saw significant differences, including lower cortisol response to stressors and more normal levels of cardiac activity when the dogs were supplemented with the probiotic.

Dr. Laflamme: Beyond anxiety, are there other conditions, in humans or animals, for which altering the microbiota/giving probiotics is proven or thought to be beneficial?

Dr. Allenspach: I have collaborated with neuroscientists at Iowa State University who are conducting research on Parkinson's disease. Toxins such as manganese have been linked to development of lesions in the enteric nervous system and the brain. The hypothesis is that the disease may start in the gut with the microbiome or metabolome altering the innate immune system of intestinal epithelial cells. This may then inflame the enteric nervous system and alter the gut-brain axis. It's pretty massive as a concept. Similarly, Alzheimer's disease lesions actually are first seen in the enteric nervous system years before people develop neurologic signs. Again, this implies that what we eat and what that does to our microbiome over decades will eventually lead to diseases such as Alzheimer's.

"In day-to-day kennel behavior, we noted significantly less barking, jumping, spinning, and pacing when the dogs were supplemented with the probiotic—all differences we felt an owner would notice in a home setting."
Dr. Ragen McGowan

Dr. Bercik: Our recent trial showed that comorbid depression in patients with irritable bowel syndrome improved after treatment with *B. longum* BL999, which was associated with changes in neuronal activity in multiple brain regions. Apart from that, I think that the strongest evidence that gut microbiota affects the brain comes from clinical practice in hepatology. Hepatic encephalopathy occurs in many patients with end-stage liver disease and the effects on patient cognition can range from a subtle change in sleep pattern or lack of attention all the way to coma in the most severe cases. When the patients are treated with antibiotics or laxatives and/or their bowels are flushed, they suddenly wake up and have a dramatic improvement in their cognition.

WRAP-UP

Dr. Laflamme: What is the most important message that you want to convey regarding the importance of the microbiome—as well as the importance of probiotics—for the health and well-being of pets or people?

Dr. Bercik: I think that we are just scratching the surface now. Today we recognize that the microbiota—as well as probiotics—have a significant potential for diagnosis and treatment of many disorders. In a few years, after learning more about the role of microbiota in pathophysiology of diseases and the mechanisms of action of probiotics, we will be able to offer personalized microbiota-based therapies.

Dr. Suchodolski: My biggest takeaway is to recognize the importance of the microbiota as an organ. In gastrointestinal disease, I also think we should be moving away from focusing on intestinal bacteria as pathogens and moving in the direction of achieving microbiota balance. I think it is more important to address what is missing in the microbiota than to try and manage secondary overgrowth of presumptive pathogens. Long-term, if we can change our approach to gastrointestinal

disease and focus on prevention vs. treatment, I think we will have higher success rates.

Dr. Lappin: Because maintaining a healthy microbiome is crucial, we should strive to reduce the use of oral antibiotics for syndromes that do not require them, such as dogs or cats with suspected acute bacterial diarrhea without evidence of sepsis and cats with likely viral upper respiratory tract infections. Probiotic manufacturers need to provide results of safety, stability and efficacy trials to document marketing claims.

Dr. Allenspach: I think the most important take-home message is a lot of diseases we used to or maybe still treat with antibiotics—like acute diarrhea and upper respiratory tract infections—may be conditions antibiotics are not indicated for. Meanwhile, the antibiotics themselves can induce dysbiosis. Whether this will be a crucial factor in development of future disease, we do not know. However, from current data it is looking more and more like we should move away from using antibiotics to treat these conditions. If practitioners want to treat with probiotics, there is some evidence of efficacy with some strains for acute diarrhea in dogs and cats, and I would feel comfortable with treating acute diarrhea with those probiotic strains.

Dr. McGowan: One takeaway is that the microbiome is important to every aspect of pet health, whether it is physical health or behavior. My other takeaway is that not all probiotics are the same. Many people think that a probiotic is a probiotic, but that's not the case.

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*McGowan, R. T. S. (2016). "Oiling the brain" or "Cultivating the gut": Impact of diet on anxious behavior in dogs. Proceedings of the Nestlé Purina Companion Animal Nutrition Summit, March 31-April 2, Florida, 91-97.

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AAFP releases consensus statement on feline feeding

American Association of Feline Practitioners aims to address behavioral needs and reduce stress-related eating problems.

The American Association of Feline Practitioners (AAFP) has released a consensus statement about how to feed cats—along with a client-facing brochure—to the veterinary community, according to a release from the group.

The consensus statement, called "Feline Feeding Programs: Addressing Behavorial Needs to Improve Feline Health and Wellbeing," was published in the *Journal of Feline Medicine and Surgery* and explores the medical, social and emotional problems that cats can experience as a result of the manner in which they are being fed. It focuses on how to feed cats, the release notes, because it is an overlooked aspect of feline health.

The statement identifies normal feeding behaviors, such as hunting and foraging and eating frequent, small meals in solitude, and provides strategies for accommodating these normal behaviors in the home—even if the home has more than one pet—the release says. Allowing for these behaviors regularly can help reduce or prevent stress-related issues such as cystitis or obesity-related problems such as inactivity and overeating. Anxious cats in multi-pet homes may also lose weight because, in an attempt to avoid other pets, they may not eat frequently enough.

"Currently, most pet cats are fed in one location ad libitum or receive one or two large and usually quite palatable meals daily. In addition, many indoor cats have little environmental stimulation, and eating can become an activity in and of itself," says the consensus statement's chair, Tammy Sadek, DVM, DABVP (feline), in the release. "This type of feeding process does not address the behavioral needs of cats. Appropriate feeding programs need to be customized for each household and should incorporate the needs of all cats for play, predation and a location to eat and drink where they feel safe."

The statement and client brochure help identify strategies that cat caregivers can use to provide a proper feeding environment that makes their cats happier and helps them avoid both overfeeding and underfeeding, the release states. The materials also emphasize the use of feeding programs, which should take into account whether or not the cat is indoor-only or has outdoor access, the other pets in the home, and if the cat is aged or has debilitations of some kind.

To read the full consensus statement and see the client brochure, visit catvets.com/guidelines/practice-guidelines/how-to-feed.

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Bayer announces plans to exit animal health industry

Company will focus on core businesses of pharmaceuticals, human health, crop science.

Bayer Animal Health's parent company—Bayer AG, based in Leverkusen, Germany—announced changes this week to its global business portfolio, including exiting the animal health industry.

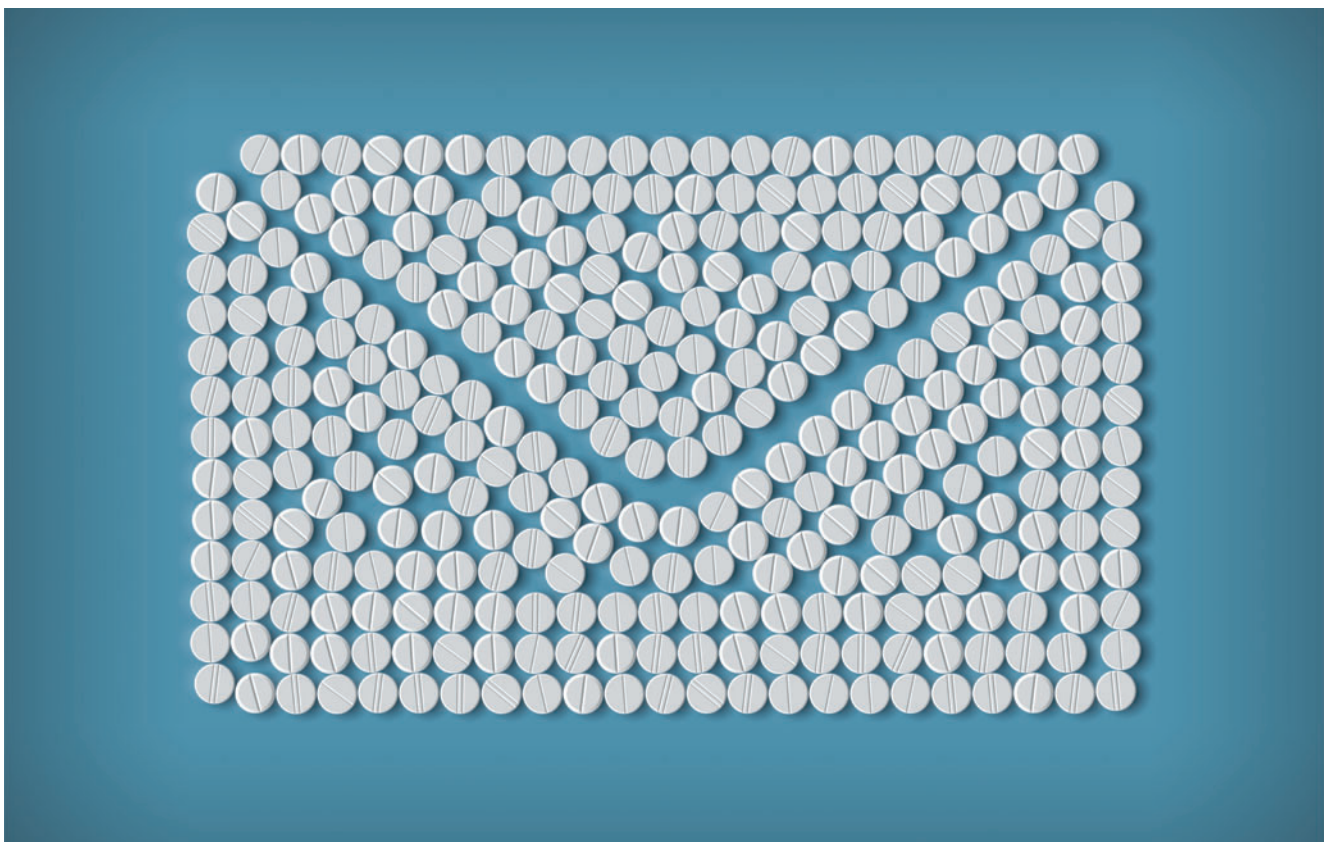
The company says it is assessing available options for exiting its animal health business and looking for new ways to use those resources. "Although this unit offers growth options in an attractive market, Bayer intends to allocate the investment resources necessary to support Animal Health to Bayer's core businesses of Pharmaceuticals, Consumer Health and Crop Science," the release states.

Bayer Animal Health is headquartered in Shawnee, Kansas, and employs about 550 people, according to the *Kansas City Business Journal*. The *Journal* also reports that Bayer intends to sell the Animal Health business.

"We have made very good progress with Bayer's strategic development in recent years ... [and] we are laying the foundation to sustainably enhance Bayer's performance and profitability," says Werner Baumann, chairman of the board of management for Bayer AG, in the release. "With these measures, we are positioning Bayer optimally for the future as a life science company."

Bayer is also exiting consumer health categories that include the sun care (Coppertone) and foot care (Dr. Scholl's) product lines and divesting its 60 percent interest in German site services provider Currenta.

According to Bloomberg, Bayer is under mounting pressure from investors since its $63 billion takeover of crop-sciences company Monsanto initiated a round of lawsuits.



Petco and Express Scripts announce online pharmacy alliance

New business partnership promises dog and cat owners access to their pets' prescription medications from their homes.

Petco has joined forces with Express Scripts to offer the owners of dogs and cats online pharmacy services through its websites, petco.com and petcoach.co, according to a Petco release. The news comes less than a week after the pet specialty retailer's announcement that it will soon ban pet foods and treats with certain artificial ingredients.

According to the new joint press release, Express Scripts dispenses more than 100 million human prescriptions every year with 99.9 percent accuracy—a feat made possible in part by the company's automated pharmacy technology, tamper-proof packaging and weather algorithms.

"By leveraging the industry-leading technology and fulfillment processes Express Scripts already has in place, we're able to offer pet parents an easier, more affordable, faster and more convenient way to get the medicines their pets need," says Petco's chief innovation and digital experience officer, Brock Weatherup, in the release.

While Petco sells products for small pets, fish, reptiles and birds, its online pharmacy currently caters to dogs and cats only. Once the pet retailer confirms a pet's prescription with its veterinarian, the medication is shipped to the pet owner's door within 24 to 48 hours. Petco's online pharmacy service also offers a price-match guarantee, and ordering can be done through the retailer's website or app.

To learn more, visit petco.com/pharmacy.

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UC Davis veterinarians honored for saving K-9 officer's life

When German shepherd Haakon suffered a ruptured bladder, the UC Davis veterinary team performed a lifesaving surgery.

UC Davis School of Veterinary Medicine reports that its veterinary team successfully saved the life of San Joaquin County K-9 Haakon this past March.

Haakon's handler, Deputy Joshua Stillman, first noticed that the 7-year-old German shepherd was sluggish one night after work.

"We came up to UC Davis and found that he had a broken uterine tub, basically leaking urine into his body cavity," Stillman says in a release from the university.

Haakon was immediately rushed into surgery, where the UC Davis veterinary team removed a large portion of his bladder that was necrotic.

At the same time, the surgical team performed a preventative gastropexy on Haakon, because of his breed's susceptibility to bloat and gastric dilatation-volvulus.

"German shepherds and some other large-breed dogs are prone to developing a condition where their stomach fills with fluid and air and rotates on itself," says Ingrid Balsa, MEd, DVM, DACVS, assistant professor of clinical, surgical and radiological sciences at UC Davis. "So having a gastropexy can prevent that twisting of the stomach."

According to the release, Haakon has had one prior brush with death. In 2014, he was stabbed while trying to apprehend a suspect.

"The suspect had a knife and he had cut [Haakon's] neck. We pulled him out and took him to a vet hospital in Stockton and they saved him," Stillman says.

At a special awards ceremony, the San Joaquin County Sheriff's Office presented the UC Davis veterinary team with a plaque and a donation check for their work on Haakon.

The release states that Haakon has fully recovered and is back at work. As he nears retirement, Stillman hopes Haakon can join the whole Stillman family full time.

Dr. Ingrid Balsa, assistant professor of clinical, surgical and radiological sciences, is shown here with K-9 officer Haakon and his handler, Deputy Joshua Stillman.

Dr. Balsa pets Haaokon.

PHOTOS COURTESY OF UC DAVIS SCHOOL OF VETERINARY MEDICINE

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Opioids and veterinarians

> Continued from the cover

ians to join in the fight against human opioid abuse.

"While opioids are just one part of the veterinarian's medical arsenal for treating pain in animals, it's important to understand the role veterinarians, who stock and administer these drugs, play in combatting the abuse and misuse of pain medications," Gottlieb says in the statement.

The FDA created new guidance specific to veterinarians to help increase understanding of state and federal regulations, including how to tell if a prescription is being abused by a pet owner, and more. According to a recent study in the *American Journal of Public Health*, 13 percent of veterinarians polled were aware of cases where pets were made to appear ill or injured so that a staff member or pet owner could obtain an opioid prescription, and 12 percent had uncovered opioid use or diversion by veterinary staff—yet only 62 percent of veterinarian believed they play a role in preventing opioid abuse.

"We want veterinarians to have a seat at the table when discussing what laws are going to be changed and how it's going to impact veterinary medicine."

—Lisa Perius, executive director, Indiana Veterinary Medical Association

While the FDA doesn't have specific figures that quantify the extent of the problem veterinary medications play in opioid abuse, FDA spokesperson Juli Putnam says there are many anecdotal reports of abuse by veterinary staff and pet owners.

"Veterinarians have an important role in addressing the opioid epidemic by ensuring the responsible opioid prescribing for pain management in animals," Putnam says. "It's critical that all healthcare professionals understand their role and responsibility in prescribing these products, and the FDA is committed to lending its support in appropriately managing them."

Putnam again detailed the resources the FDA has created for veterinarians and offered additional guidance.

"Among the recommendations the FDA has provided for veterinarians is a reminder about the importance of following all state and federal regulations on prescribing opioids to animals for pain management and how to properly safeguard and store these medications to ensure they remain tightly controlled and in the legal supply chain," Putnam says. "While each state has their own regulations for the practice of veterinary medicine within its borders, including regulations about secure storage of controlled substances like opioids, veterinarians should also follow professional standards set by the AVMA in prescribing these products to ensure those who are working with these medications understand the risks and their role in combatting this epidemic."

Putnam also notes that the FDA is recommending veterinarians use alternatives to opioids for pain management when appropriate.

"We're educating pet owners on the safe storage and disposal of opioids; we're advising veterinarians to develop a safety plan in the event they encounter a situation involving opioid diversion or clients seeking opioids under the guise of treating their pets; and we're taking steps to help veterinarians spot the signs of opioid abuse," Putnam says. "We've also provided a list of additional resources on opioid abuse and proper disposal of unused medications, advice on how to keep opioids and other medications safe in a veterinary clinic or other veterinary facility, and access to federal opioid training, among other resources."

The AVMA did not respond to requests for comment for this story, but in a statement on the veterinarian's role in addressing the opioid epidemic, the association acknowledges a role—albeit a limited one—in mitigating abuse.

"As healthcare providers who administer and prescribe controlled substances, we recognize our responsibility in contributing to solutions for this crisis," the AVMA declares in its statement, while also recognizing some key differences between human and animal medicine. "Many unique aspects of the practice of veterinary medicine must be considered in the development of laws and regulations that govern the use of opioids and controlled substances in animal patients."

While the AVMA supports continuing education and ongoing work to develop extended regulations to mitigate opioid abuse, the association stops short of supporting a blanket extension to the veterinarian's role in electronic prescribing and prescription drug reporting. The association suggests in its statement that veterinarians should be exempt from accessing pet owner prescription data when prescribing animal medications due to a lack of training and knowledge about why the pet owner's medication was prescribed.

"Veterinarians are not trained to evaluate the appropriateness of a human prescription and are not trained in the privacy practices surrounding human medical information," the AVMA states.

The association also supports the "exemption of veterinarians from mandatory electronic prescribing for controlled substances due to the lack of veterinary electronic medical record compatibility with electronic prescription programs. Remediation of this problem would require funding, resulting in an increased financial burden to taxpayers and clients." Additionally, the AVMA suggests that when prescription drug monitoring and reporting are required, that software be developed equivalent to that of human healthcare software, and that more research be completed on how veterinary prescriptions intersect with human medicine and the opioid epidemic.

Mark Cushing, JD, CEO and founder of the Animal Policy Group, says there are just 17 states that now require veterinarians to report to prescription drug monitoring programs, but the number is growing—and for good reason.

"You cannot make the case that veterinarians don't have any involvement with opioids or controlled substance," Cushing says. "There's no question that opioids are part of veterinary practices. But does that obligate veterinarians to have a broader social responsibility in their practices to try and slow the use of controlled substances more broadly by society? This is where viewpoints split. Some veterinarians think they are not a big enough part of the problem, and others think everyone needs to take steps to minimize use and access."

The number of states requiring veterinarians to join in efforts to mitigate the opioid crisis is growing, partly due to the scope of the problem and partly due to awareness, Cushing says. He thinks the FDA's call to continue to increase the veterinarian's role and Commissioner Gottlieb's assertion that veterinarians are obligated to be part of the solution simply because they handle opioids makes sense.

"It's a very simple premise," Cush-

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ing says of Gottlieb's position. "I think a progressive veterinarian today will understand that. I think it's foolish given the scope of the problem to try and carve veterinarians out and say we are special, trust us, we care—but don't ask us to do anything when it comes to the opioid problem."

Some state veterinary medical associations are seeing the trend toward increasing regulation on veterinarians and working to be part of the solution, Cushing says. One of these is the Indiana Veterinary Medical Association.

"They saw legislation begin to be introduced and got engaged," Cushing says. "They created an internal task force to educate themselves and members. They went to the state capitol and met with committees, they met with the state health department. They began to talk through concerns and possible regulations, and how to implement them. They worked through pretty much all of the issues quietly."

Lisa Perius, executive director of the Indiana Veterinary Medical Association, credits the board of directors of the association with leading the charge for collaboration when it became clear that Indiana's governor was making the opioid crisis an area of focus.

"We can't put our heads in the sand. It's not just the human side," Perius says. "We want veterinarians to have a seat at the table when discussing what laws are going to be changed and how it's going to impact veterinary medicine, and how to educate members on what is going on at the state level."

A prescription drug monitoring program (PDMP) was already in place in Indiana for human medicine, and by 2021, veterinarians will have to query pet owners prior to writing prescriptions, Perius says. Veterinarians will also have to complete two hours of continuing education training on opioid prescribing before renewing controlled substance registrations. IVMA is now working on legislation to clarify certain requirements of the new regulation, including what pet owner queries will look like in the PDMP, supply limitations for opioid prescriptions, and other veterinary-specific issues. The IVMA's early involvement brought forth questions that can now be asked well before regulatory deadlines, and provides amply time for education, she says.

"We look at this as another proactive way to close any potential impact points where someone could figure out how to get a medicine," Perius says. "It's a way to be able to tighten up any point where they could make any kind of inroad to access."

Cushing says some practices are concerned about the cost of implementing new regulations. While there is little specific cost data, Cushing says many practices already have electronic health records, so software costs and the labor costs associated with queries on PDMPs should be not be exorbitant. Fighting against a call to become involved in opioid abuse reduction measures, however, could be costly in terms of public relations and the good reputation of veterinarians.

"Every state in the country has a huge opioid problem, period. Regulators don't have the goal of punishing veterinarians. They don't start out with a bias, but they don't know what they don't know about how veterinary practices work," Cushing says. "Get in front of it and work it out."

Rachael Zimlich is a former reporter for dvm360. *In addition to freelance writing, she works as a registered nurse at the Cleveland Clinic in Cleveland, Ohio.*

Practice Manager of the Year

> Continued from the cover

one-on-one meeting, her response was sheer excitement. She's a new leader and thrilled about her new journey. When I saw her response, I realized if I didn't enter my application, I was giving her permission to doubt her own accomplishments and the imposter syndrome would attack her. If one of my goals is to lead others to be strong, live with self-awareness but overcome self-doubt, I had to lead by example and overcome my own self-doubt."

Angelina Morgan, CVPM, dvm360/ VHMA Practice Manager of the Year

The judges have spoken

Morgan was picked from dozens of entrants who were then whittled down to 10 finalists announced during Fetch dvm360 in Kansas City in August. Her win was announced during Fetch dvm360 in San Diego in December.

Morgan's entry was a "well-written, detailed account of a manager experiencing the direct impact she had on practice and team," said one judge. "[Her entry] clearly explained her thought process and the 'why' behind her decisions."

Another judge praised her approach to the morale and management problem: "Loud applause for putting the brakes on, allowing the dust to settle and establishing some trust within your technician team before making any more changes."

The team at the Veterinary Hospital Managers Association (VHMA) was just as impressed.

"I had the opportunity to tour Angelina's hospital in October while the VHMA's conference was in Baltimore," says executive director Christine Shupe, CAE. "It was impressive to see how her efforts enhanced the efficiency and organization of the facility and made real the information and details contained in her application."

"I sat, wide-eyed. This meant it was me running solo with a $9 million practice, never having actually handled a budget."

—Angelina Morgan, CVPM, dvm360/VHMA Practice Manager of the Year

"Angelina embodies the qualities of a high-performing practice manager," says VHMA President Jim Nash, MHA, CVPM. "She sets high standards and leads with confidence, knowledge, motivation and ingenuity."

Read on for excerpts from Angelina Morgan's award-winning entry …

Q Describe an instance when you adapted to change at your practice or change in the veterinary marketplace with courage and creativity.

A In 2015, I had been working for a year or so for a multispecialty emergency hospital in one of my first positions in veterinary medicine: office manager. Around the beginning of 2015, our CEO visited the hospital. This was only maybe the third time I had interacted with her in person. She was about three hours outside of our area, so we didn't see her much. This day, she was coming to let us know that our executive director—who had been training me—was taking leave on sabbatical. We had also recently fired our medical director. I sat, wide-eyed, and listened to the words coming from her mouth. This essentially meant it was me running solo with a $9 million practice, never having actually handled a budget or done anything beyond running the front desk and making the technician schedule. Tough times were ahead.

The CEO started visiting the hospital more frequently and mentoring me. This change was proving to be difficult for the team, because there were no established protocols in place. The executive director had handled almost everything personally, and there wasn't much on paper.

Employees were jumping ship and by the time we were able to stop the hemorrhage, I had accepted over 33 resignations in five months. I dove in head first and teamed up with one of our senior clinicians. Together, we rallied our team and started making more independent decisions that made sense to us, in real time. We held one-on-one meetings with employees off site to get a sense of what they were feeling. We started delegating project areas and tasks. We reached out to other hospitals for advice on how they were doing things.

The team saw us respond to this change by taking ownership. They began to take ownership themselves and would come to the table with solutions to their problems instead of merely complaining about nothing getting done. As a result, we were able to develop and implement new growth positions that highlighted employee skill sets. We built a charge nurse team, we promoted an individual exceptionally gifted in inventory management to a full-time salaried inventory position, and we appointed a technician manager. As we started to create our own structure, the CEO responded by promoting me to practice manager.

Q Describe an instance when you needed to make a crucial decision that affected the entire practice. How did you gather information from people and resources? How did you make the decision?

A When I joined my current practice group, the hospitals had seen significant turnover, and employee morale was at a critical low point. Within my first 40 days, it was apparent the leaders were keeping the

ship from sinking but it was beginning to capsize. The low morale ran deep, yet the employees continued to come to work and seemed to genuinely appreciate their job.

I began mentoring the team leaders. Some of them felt empowered and renewed, and our weekly one-on-ones were successful. Others wanted to improve and grow but found roadblocks. Each hospital in our two-location group had different management roles and reporting structures. Nothing was the same from one location to the other. One of the leaders had been given the title of operations manager in one location and was overseeing the day-to-day and reported to me. She had been with the company for many years. Under my mentorship, she established leadership meetings and improved protocols for many areas. However, the role wasn't finding success. In the other location, we had a client service manager but no operations manager. It became apparent that part of the morale issue was the inconsistency. Together with my managing DVM, we made the decision to create the same role in each hospital and eliminate the operations manager and client service manager positions. Each hospital would now have an office manager who reported to the hospital administrator.

That meant the operations manager found herself in a pay bracket out of line with any benchmarked position comparable to the number of employees and annual revenue. We made the decision to eliminate her position and offer her the office manager position. This position did come with a significant pay reduction, appropriate for the responsibilities and hospital function. While the office manager role defined her role better and offered her a path to future growth, she saw it as a demotion because of the pay reduction. She declined, accepted a severance package and her last day was the very next day.

The moves have increased employee morale. Employees feel better supported and understand who does what in our company. I can see them holding one another accountable and going through the right routes to handle their conflicts and concerns. We also created internal growth opportunities for individuals interested in moving into management or leadership down the line and created appropriate pay brackets for them.

Q Describe an instance when you influenced and motivated others, encouraged a team atmosphere, or took the initiative on an important problem or project. Provide details about your leadership qualities. Was your project a success?

A When I joined our team, they were still reeling from the abrupt loss of yet another technician manager. Many applications were coming in, but the qualifications weren't there. Within the first month, though, it was apparent that the team responded well to their shift leads. They trusted them, and they felt safe with them. Our managing DVM felt strongly that a technician manager needed to be credentialed to manage. I challenged her convictions by suggesting we hit pause on the technician manager position and instead mentor and grow our shift leads. She agreed to try the plan for a few months.

The shift leads and I met as a group monthly, and I met with each of them individually every other week. We talked through problems, the history of the company, past management changes, personnel issues and conflict resolution. We created open lines of communication to the team. Quite rapidly, we noticed employees becoming more vocal. They felt they were being heard. These shift supervisors were their representatives. Protocols were being enforced, people were being held accountable and gossip was no longer tolerated. But there were many tears, a product of many years of stress melting out of them.

We set the goal of six months with shift supervisors to see if we all felt a technician manager was still needed. We hit that mark, and as a group, they said it was time. They felt they had done the ground work to bring the team back together and be more receptive to a manager.

We decided we would no longer open positions of this level externally without reviewing our talent first. As a result, two of the shift supervisors applied for the position along with five other employees and we went through a formal interview process. I set up time for each internal candidate to meet with one of our national recruiters to mark up and improve their resumes as if they were applying externally. They went through interview coaching. They came to their interview with me dressed as professionals and ready to passionately answer my questions.

In the end, we selected the two shift supervisors to act as co-managing technician managers. When we announced this at our all-staff meeting, there was genuine excitement from all team members. Both overnight and day teams cheered and congratulated the two new managers.

Q Describe how you stay educated about changes in veterinary medicine and business.

A As a certified veterinary practice manager, I'm an active member in the VHMA and review their blogs and chat boards frequently. I attend veterinary conferences, where I've built a great network of peers. I graduated from Purdue University's Veterinary Practice Management Program and stay connected to their newsletters and Facebook posts on new initiatives. I communicate frequently with our state board and also partner with our animal cruelty investigations team. I also stay in the know is through our corporate partner, NVA. They offer many lectures and training opportunities.

I have one-on-one meetings with my managers and check in with each employee personally about once a quarter. By sharing new knowledge or ideas with the leadership team, I get their buy in and it makes it that much easier to disseminate policy changes or innovation in our field.

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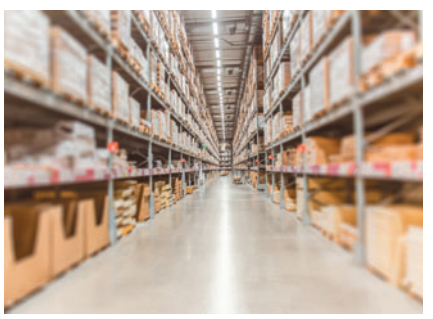
Read all about it!
The top 10 veterinary news articles of 2018

From big box retail and mental health research to the ever-controversial CBD products, here's what you, our readers, were most interested in this year.

We know you're busy. And we know you're likely behind on the reading you've been meaning to get done—so let us help you out. If you can only read 10 articles this year, these are the ones that caught the veterinary profession's eye in 2018, based on dvm360.com web traffic analytics. Check them out and stay in the know.



10 What's Amazon doing in the pet consumables market?

Amazon surprised many animal health insiders recently by announcing its intention to expand into the pet retail market, causing whispers and worries about how retail may be affected at veterinary clinics. The dvm360 team got a peek inside the retail giant's thought process at the NAVC E-Commerce Summit.

9 dvm360 Investigative Report: Where have all the good dogs gone?

This three-part special report explores the critical questions behind where our dogs come from, what the future of animal sheltering might look like and the secret world of dog auctions.

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8 Walmart's offerings will soon include veterinary care

PetIQ, a pet health and wellness company, announced plans to open 20 VetIQ Petcare clinics in Walmart locations by the end of May 2018. This isn't the first partnership between the two companies, as Walmart has carried PetIQ's products for many years. The expanded alliance comes after PetIQ's acquisition of VIP Petcare in early 2018 and is part of PetIQ's plan to bring veterinary services to major retailers in order to gain a larger share of the veterinary products and services market.

7 Merck study: Veterinarians have normal mental health but poor well-being

The findings of a study spearheaded by Merck Animal Health, unveiled Feb. 6 , 2018, during VMX in Orlando, Florida, show that veterinarians are not plagued with mental health problems when compared with the general population, but they do experience significant stress—or, put another way, lower levels of well-being.

"The good news is that veterinary medicine does not have a mental health crisis," senior analyst John Volk of Brakke Consulting told the dvm360 team during a private briefing on the results of the study, an extensive investigation of veterinarians designed to quantify the prevalence of mental illness and stress in the veterinary profession.

6 6 mistakes to avoid in the veterinary ER

Does the idea of a dog presenting with pale mucous membranes, a weak pulse and a heart rate of 190 beats/min make your knees sweat? Do you get tachypneic when you see a dyspneic cat fish-mouth breathing in front of you? If you don't see emergency cases every day, you're in the right place—this article discusses how to avoid common errors in emergency patients and save your patients' lives. Having practiced everywhere from a busy inner-city emergency room to the ivory tower of academia, Dr. Justine Lee has seen these mistakes made and has made them herself.

5 Study shows tramadol has no effect on pain scores for osteoarthritis

Researchers from the University of Georgia have found that tramadol is ineffective in alleviating signs of pain associated with osteoarthritis in dogs, according to a release from the Morris Animal Foundation (MAF), which funded the study. But experts differ on whether this controlled substance still has a place in veterinary pain management.

4 RNs fight veterinary technicians over the word 'nurse'

Human nurses say they—and only they—have the right to use this word to describe their work. Webster's defines "nurse" as a person who cares for the sick or infirm. While the definition doesn't specify whether the recipient of that care is an animal or a human, the debate over whether to extend this title to veterinary technicians is a heated one.

3 FDA alerts veterinarians, pet owners about neurologic risks associated with isoxazolines

The newest class of flea and tick preventive products has generated reports of muscle tremors, ataxia and seizures, but the FDA says the products are still safe for most animals.

2 Grit vs. grades: Veterinary schools face potential flaws in admissions system

There's no question that the veterinary profession has changed through the years in its demographic makeup, from a profession that was mainly made up of men to one that becomes more and more female each year. But is veterinary medicine lacking diversity in other areas? Are there groups of people who would make great veterinarians but are pushed out before they can even complete an application? And what does that mean for the profession?

1 Cornell takes the lead in cannabidiol research

Still wondering if CBD oil lives up to the hype, or if you'll go to jail for recommending it? Research from Cornell backs the claims, and the federal government seems to be loosening the noose on veterinary recommendations.

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The importance of in-clinic veterinary blood donor programs

A recent public exposure of a canine blood supply company leaves Dr. Nicholas Dodman asking all those who love dogs to consider the best practices for blood donation. *By Nicholas H. Dodman, BVMS, DACVA, DACVB*

Blood transfusion, a procedure that should bring nothing to mind but its lifesaving effects. But it has recently come to my attention that one of the most prominent commercial canine blood banks—Hemopet in Garden Grove, California, which claims to supply blood to 40 percent of the veterinary clinics in North America and Asia—keeps dogs in disturbing substandard conditions. An eyewitness from People for the Ethical Treatment of Animals (PETA) documented that hundreds of "retired" racing greyhounds—whose blood is coveted because they commonly have the canine equivalent of a universal blood type—are caged for up to 23 hours a day in small kennels or crates.

According to an investigation by PETA, Hemopet keeps this greyhound and approximately 200 others (many of them discarded by the racing industry) in barren enclosures and sells their blood to more than 2,000 veterinary clinics in North America and Asia.

As I looked at photographs and video footage of the dogs' living conditions, I was concerned about the lack of adequate bedding for such lean, thin-skinned dogs. They showed signs of hair loss, calluses and pockets of accumulated fluid under the skin, which are likely the result of prolonged confinement and pressure on their joints. These issues, if not addressed, can lead to painful open sores and infections.

PETA's eyewitness noted that the dogs barked and howled incessantly. As we all know, constant exposure to noise, confinement to small spaces and a lack of stimulation cause high levels of stress, which may have contributed to the diarrhea that many reportedly suffered from and to the fighting that occurred among those who were caged together, resulting in bite wounds and other injuries.

Up to 10 percent of the dogs' blood was extracted every 10 to 14 days. In my opinion, removing so much blood so frequently is dangerous to their health and compromises the quality of the blood taken.

Hemopet bills itself as a "rescue" for retired racing greyhounds even though it takes and sells their blood for 18 months or longer before ever allowing them to be available for adoption. The blood-collecting aspect of this registered nonprofit earns it over $1 million a year but does nothing to benefit the dogs held captive there. To keep them in prison-like conditions with limited space—lying in crates or muzzled in kennels—for 23 hours a day is inhumane. From what I can see, they don't have any semblance of a natural life, just a barren existence with very limited opportunities to engage in natural canine behavior.

These dogs are helpless to save themselves, but veterinarians and canine guardians can help them. Veterinarians can encourage their clients to volunteer large, healthy dogs occasionally to have their blood drawn and stored for transfusions. Many veterinary clinics and teaching hospitals at veterinary schools have a pool of regular volunteers that donate blood periodically and then go right back home. Some facilities even have bloodmobiles, similar to those used in American Red Cross blood drives.

Often, clinics offer discounts on services, free exams or other incentives to guardians who volunteer their dogs a couple of times a year to give blood. A study published in *Journal of Applied Animal Welfare Science* concluded that "nonprofit, community-based canine volunteer donor programs for animal blood banks can be successful while maintaining high safety standards and ethical treatment of volunteers."[1]

Animals whose blood is collected for transfusions belong in loving homes, not cages. As more veterinarians develop ethical blood-collection practices and more clients ask for and support them, fewer animals will be incarcerated in cages and used as living blood bags.

Reference

1. DeLuca LA, Glass SG, Johnson RE, et al. Description and evaluation of a canine volunteer blood donor program. *J Appl Anim Welf Sci* 2006;9:129-141.

Nicholas H. Dodman is professor emeritus of animal behavior and behavioral pharmacology at the Cummings School of Veterinary Medicine at Tufts University.

PHOTO COURTESY OF PETA

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Personal Accounts narrative highlights poor lifestyle choices

The anonymous veterinary associate who wrote the Personal Account "An associate veterinarian paying down $110K in debt" (November issue of *dvm360*) needs more than financial help. Not only is she stressed by her financial situation, she's not making good dietary and lifestyle choices. In one week she picked more than 15 fast food or fatty restaurant options! Nowhere does she mention exercise in her schedule and expense log. Walking is free! Stress can make one reach for poor food choices. Read *The Hacking of the American Mind* by Robert Lustig, MD. This underpaid and overworked associate needs to be encouraged to take care of herself; otherwise she won't survive to pay off her loan and enjoy being debt-free.

—Janet Lawson, DVM, MPVM; Half Moon Bay, California

Shorter workweek means greater financial challenges

The veterinarian who wrote "An associate veterinarian paying down $110K in debt" describes some frustrating financial difficulties. I honestly didn't pay much attention to the details of the actual expenditures. Of note, however, was the limited workweek. I do think the trend in our profession is toward shorter hours. But it is very difficult for most to make a decent living working 30 to 32 hours a week. I would imagine it could be done in some very busy clinics with higher transaction fees. Otherwise, I'm afraid the majority will find it necessary to work a 45- to 50-hour week to pay the bills.

—Ralph Pope, DVM, DABVP
(canine/feline practice)
Collierville, Tennessee

Thanks for getting the word out about student debt

The November issue of *dvm360* magazine had fantastic and very relevant content. It is getting the word out about student debt, and even though our "leadership" has been slow to respond, at least there has been some positive movement.

Interesting that one of the chief culprits—the AAVMC (the veterinary colleges collectively)—is charged with finding solutions! Maybe a hard look at tuition cost relative to training to make a sufficient living and serving society deserves some consideration. A total transformation in our education and delivery system is in order and maybe the discussion has begun! The individual and collective health of our profession is at stake!

I had better shut up as this only was meant to compliment *dvm360* on continuing to deal with significant issues. Hang in there and keep up the good work.

—Robert C. Brown, DVM
Herndon, Virginia

A vote against adopting the 'veterinary nurse' title

Thanks for the views of Liz Hughston, MEd, RVT, CVT, VTS, presented in the article "RNs fight vet techs over 'nurse'" (October *dvm360*). She has said eloquently what I also believe. The numbers listed by NAVTA on whether technicians want their title changed to "veterinary nurse" are skewed, with "con" being much higher than reported.

—Donna Shepherd, LVT, CVT
Mesa, Arizona

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Why are we arguing about who can use the term 'nurse'?

The acrimonious debate over the potential title change for veterinary technicians is ridiculous, says Dr. Michael Petty.

Editor's note: *This letter is in response to the article "RNs fight vet techs over 'nurse'" from the November issue of* dvm360 *magazine.*

As a nurse shark that has descended from a long line of nurse sharks, I am vehemently opposed to the adoption of the title "nurse" to describe veterinary technicians. It was bad enough when humans who care for other humans adopted the term—this additional insult will just dilute the meaning and value of my species.

I have always been bothered by the title "technician," which seems more appropriate to describe other jobs in the medical field, such as laboratory technician.

In all seriousness, there is enough tribalism in today's world (political affiliations, religion, race, etc.) without arguing about a name change that is only meant to more properly describe the duties that veterinary technicians perform. I have always been bothered by the title "technician," which seems more appropriate to describe other jobs in the medical field, such as laboratory technician.

The veterinary nurses in my practice perform the same duties as an LPN or RN. I would even argue that they're more qualified for many procedures than most human nurses are—for example, anesthesia and dentistry. To claim that one segment of the medical profession "owns" a job descriptor is ridiculous. And by the way, Ms. Haebler's claim that veterinarians are never referred to as physicians, although true in the U.S., is not true in other parts of the world. Titles vary depending on geography.

I hope that this argument over what our veterinary nurses are called is settled within the veterinary community and not subject to pressure from other industries like it is right now. Next month I am going to write an opinion from the nurse shark's distant relative, the doctor fish, about the misappropriation of that poor creature's name as well.

—Michael C. Petty, DVM, CVPP, CVMA, CCRT, CAAPM
Canton, Michigan

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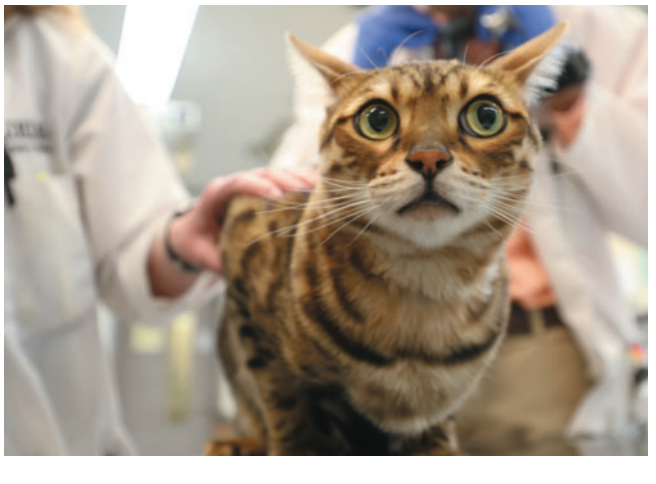
Hip replacement in cats is not new news

One reader notes that this procedure dates back over a decade.

I read the article "Veterinarians perform Purdue's first-ever hip replacement on a cat," published in the September 2018 issue of *dvm360*, with interest. Thank you for raising awareness that total hip replacement is entirely feasible in cats and highlighting that the procedure provides much better outcomes than performing a femoral head ostectomy. Femoral head ostectomy (FHO) was reported in 1966 and is outdated technology in most instances.



However, hip replacement in cats compared to FHO was reported more than 10 years ago.[1] The dvm360 article would have been much more informative if the academic literature would have been at least cited as a reference. Many cats have received a hip replacement during the last decade even though the cat reported on was the "first-ever" at Purdue. As such, the article appears to be more of an interest story and perhaps marketing from Purdue rather than a real factual "first-ever" as it is portrayed.

—William D. Liska, DVM, DACVS
Katy, Texas

Reference

1. Liska, WD, Doyle N, Marcellin-Little DJ, et al: Total hip replacement in three cats: surgical technique, short term outcome and comparison to femoral head ostectomy. *Vet Comp Orthop Traumatol* 2009;22:505-510.

Pets on the street may be better off than their counterparts indoors

I am not advocating for more homeless people owning pets, but in response to "Can you believe that homeless guy owns a pet?!" by Dr. Mike Paul (see the November issue of *dvm360*), I'd like to add a couple things.

Let's look again at that person living on the street with a pet. Pretty awful situation, right? No, actually, it's not so bad. I frequently work with, and stop to speak with, people living on the streets. I believe most of these owners feed their pets first and feed them as well as they possibly can. Most of the pets are slim but not underweight. There definitely is not the obesity problem we see rampant in pets with real houses, endless bowls of food and too many treats.

These pets have a real job—to watch over and protect their owner. They are not alone for endless hours inside with nothing to do. They are attentive and often (though not always) well-socialized. They do not have the compulsive and anxiety-related behaviors we see in pets with real houses who have nothing to do but sleep and wait.

These animals get exercise. Their owners cover a lot of ground walking between the church, the soup kitchen, and the shelter (if pets are even allowed) or viaduct where they live. The mental and physical benefits of walking every day are considerable.

I advocate that money and a roof are not what make a good home. These pets are adored by their owners and their basic needs are often covered. Sure, they could use medical care and, yes, some have chronic conditions untreated. And so do the pets I see whose owners could afford to do more.

Oh, and yes, as Dr. Paul mentioned, the mental health benefits to the owner are immeasurable. To say these folks should not have their beloved pet reeks of not understanding the life of the person or the pet. Would that animal really be better off adopted and left home alone eight to 10 hours each day with a big bowl of food and nothing to do? I think not.

—Susan McMillan, DVM
Old North End Veterinary Clinic
Vet to Pet Mobile Veterinary Service
Burlington, Vermont

Meet Dr. Seasoned!

Wedding bells are ringing for Dr. Greenskin—what does her growing family mean for her veterinary career ambitions and her future life?

Little known to our readers, Dr. Greenskin has fallen in love! While she's been hard at work as an associate veterinarian at Doc Codger's clinic, she's also managed to sneak in regular date nights with a wonderful fellow she met online. His name is Will Seasoned, and he moved to the same town several years ago after attending medical school and completing hresidency.

Before moving to his new home, Will downloaded some online dating apps to try to meet someone interesting. Will and Greenskin were surprised to find each other and to discover that they were a perfect match! As a bonus, Greenskin found out Will owns two beautiful border collies.

Today is finally the big day! With the stress of planning the offer to Dr. Codger well behind her (check out the entire journey at **dvm360.com/campfield**), and with things at work mostly stabilizing since the corporate takeover, Greenskin and Will have seized the moment to get hitched and start planning their lives together.

Thinking that perhaps things do work out for the best, Greenskin has been contemplating starting a family, which makes her wonder if a corporate lifestyle is the best option after all. When she and Will first got together, he made a few comments and observations about his fiancée's work schedule—specifically, that she was on call all the time without necessarily being compensated for it. But ever since Practice Gobblers Inc. sent Doc Codger on his merry way, "on call" is no longer in the practice vocabulary. And some added efficiencies mean Dr. Greenskin arrives home in time for dinner much more frequently than before the buyout. Will has begun to think that marrying a veterinarian isn't actually the worst decision ever!

All wrapped up in the wedding festivities, Greenskin hasn't spent too much time thinking about her career lately. It may be that she feels more settled as an employee of a large corporation. She's letting go of ambitions to take over the world one pet at a time and realizing that caring for one animal and client at a time—day in and day out—is really more of a job than her vision of a "real" career. And maybe that's OK! This may be a natural progression for someone who worked hard to achieve the DVM dream but is now shifting her focus to her personal and family life.

The vows are done, the rings are on and the chapel is full of smiles and happy tears. The organ starts as she begins the walk of her life, hand in hand with the one she loves. At work or at home, Dr. Seasoned is ready for whatever lies ahead!

Dr. Greenskin has come so far in a short few years. Are you happy with how she's handled the twists and turns of her early life as veterinarian? Would you like to follow her career as Dr. Seasoned? What path would you like to see her embark on?

Let us know your thoughts and cast your vote on the future of Old School, New School by emailing **dvmnews@ubm.com**.

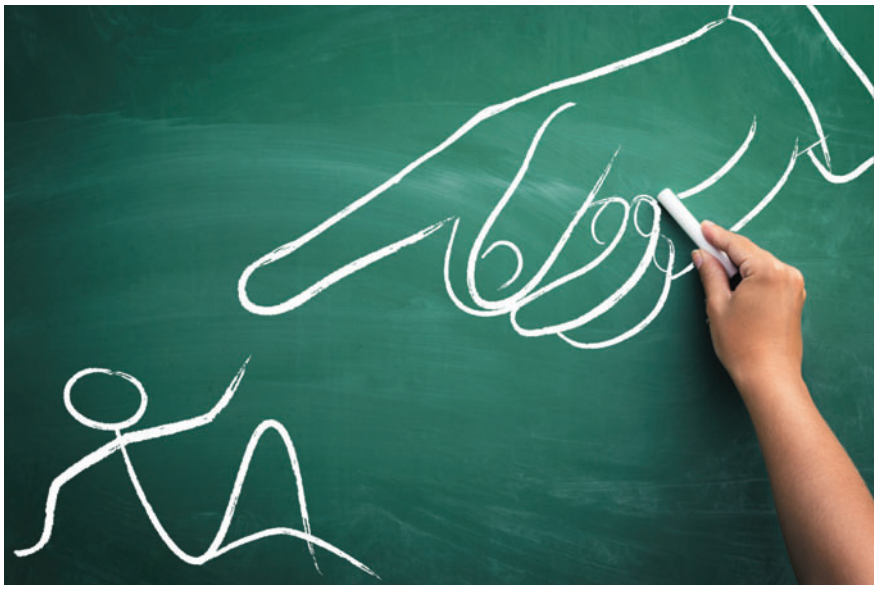
Dr. Jeremy Campfield lives near Sacramento, California, with his family, including an aging mini Aussie and an obstreperous pitbull mix that some mistake for a chocolate Lab (to the delight of her owners).

ILLUSTRATION BY RYAN OSTRANDER

How rude!

Bullying isn't limited to the playground these days. And when it comes to your veterinary workplace, bullying can affect everything from team member morale to your financial bottom line.

In March 2018, I wrote a column in *dvm360* titled "When did everybody get so rude?" It examined incivility and aggression in society and how these kinds of interactions impact us daily. One of the places rudeness appears most often is the workplace, affecting customers, employees and management. Recently I was in a restaurant where a couple of waitresses were engaging in a rude conversation within earshot of customers. My dinner was not ruined, but it was certainly made unpleasant by them. I left a good meal in a nice restaurant feeling full but having paid for a bad experience. I believe that left unchecked, bad behaviors get worse, and incivility is no exception.



Where does incivility lead?

As you can imagine, incivility can be costly to your business. For example, I will think twice before returning to that restaurant. Incivility also has negative effects on morale and productivity and can even increase employee turnover. While the cost of civility is minimal—a smile, recognizing someone by name, a morning greeting—incivility reduces participation and commitment, resulting in inappropriate emotional responses and dysfunctional and aggressive thinking.

Dig a little deeper ...

Continual incivility can progress to workplace bullying. This behavior doesn't have to be physical or even that overt—it involves interpersonal hostility, persistent verbal and nonverbal aggression, personal attacks and social ostracism. It is deliberate, repeated and directed at another individual. It is an effort to control another employee and often impacts the entire organization.

How common is workplace bullying?

According to *Forbes*, a survey conducted by Judy Blamdo of the University of Phoenix indicates that almost 75 percent of employees have been subjected to or have witnessed workplace bullying. Gary Namie also reported in "Workplace bullying: Escalated incivility" in the *Ivey Business Journal* that as many as one in six workers have experienced bullying, but targeted persons rarely raise the issue because of embarrassment. Perhaps because the bully is often in a superior position, frequently nothing is done even when the issue is raised.

Why should employers care about bullying?

Here's why veterinary practice owners and managers need to be concerned about bullying in their practices:

- Much like other forms of harassment, workplace bullying can require a significant amount of time to resolve grievances.
- It's costly. Liability from civil proceedings can be substantial. And bullying targets—often some of the most talented employees—may be driven out. We all know turnover takes a financial toll.
- Bullying often results in poor morale and undermines employee commitment and productivity throughout the practice.
- If a business has a reputation for tolerating bullying, it may be difficult to recruit and retain employees.

How do you prevent bullying in your practice?

The answer is to control incivility in your practice before it progresses to bullying. In her 2016 book *Mastering Civility: A Manifesto for the Workplace*, Christine Porat presents some surprising statistics about the impact of incivility. Workers who are treated with incivility are more likely to reduce their work effort, spend less time at work, experience a decline in performance and even intentionally reduce the quality of their work. They are also more likely to express decreased commitment to the organization, take their frustration out on customers and seek other employment. (Though not before incubating and transmitting their negative attitude.)

Remember, nature does not tolerate a vacuum and turnover can result in new villains. It can allow behavior to spread to a previously great employee. Confronting workplace bullying is the only way to minimize destructive behaviors.

Dr. Mike Paul is a former executive director the Companion Animal Parasite Council and a former AAHA president. He is currently the principal of MAGPIE Veterinary Consulting. He is retired from practice and lives in Anguilla, British West Indies.

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A culture of 'no': When regimented rules stunt practice growth

Should this doctor learn to say yes more often to his clients, even if it means bending rules and inconveniencing his veterinary team?

Dr. Smith owned a practice in an affluent East Coast suburb. His clientele was well-informed and able to afford cutting-edge medical care for their pets. Before becoming a veterinarian, Dr. Smith was in the military for eight years. He believed the regimentation he learned in the Army helped him run his veterinary clinic effectively.

As is often the case in upscale suburban areas, there was a good deal of competition from other veterinary hospitals in the community. Eventually Dr. Smith noticed that his income and practice growth were stagnating. His practice offered excellent veterinary care, competitive fees and efficient customer service—why were the neighboring practices beating him?

Dr. Smith decided to retain a veterinary consultant to assist him in making changes that would increase practice growth. He was skeptical of the value of a consultant because he believed that no one knew his practice better than he did, but Dr. Smith was at his wits' end.

The practice management consultant told Dr. Smith that team members were too comfortable saying no to pet owners.

The consultant spent two weeks at the practice, then scheduled a meeting with Dr. Smith to discuss his findings. At the meeting, the consultant confirmed what Dr. Smith already knew: The medical care was excellent, the fees competitive and the staff delightful.

However, the consultant also stated that team members were too comfortable saying no to pet owners. For example, when clients asked for a single heartworm preventive pill, they were told the product could only be purchased in packages of six. When a client called late in the day wanting to be seen right away—anxious about her dog's non-emergency issues—the staff said the dog could only be seen the next day at the first available opening. When a client called and asked that Dr. Smith return his call, the staff responded that Dr. Smith would not be in for two days but that another doctor would be glad to speak with him.

Dr. Smith pushed back a bit. All of the responses his team had given were appropriate and necessary for fairness among clients and staff alike.

The consultant defended his critiques, stating that a private practice succeeds only when excellent medicine is combined with excellent customer service. He recommended that the practice's "culture of no" be changed.

It was true, the consultant allowed, that this would require some inconvenience to the team and unorthodox exceptions to the rules. But, he continued, it was the little things that would make the difference between a practice fighting to maintain the status quo and one that continued to grow.

Dr. Smith listened but disagreed. He believed his clinic must have equitable rules or things would become chaotic. He thanked the consultant for all of his hard work, thinking to himself that consultants were overrated. How could a consultant know his practice better than he did? Adjusting his fees and working harder were the solutions he chose to implement.

Do you agree with Dr. Smith or did the consultant find the practice Achilles' heel? Tell us at **dvmnews@ubm.com**.

Dr. Rosenberg's response

Veterinary practice is a true hybrid between the practice of compassionate medicine and the running of a competitive small business. When a human hospital is the only option within 25 miles and must abide by third-party insurance dictates, rules are set in stone. In veterinary practices where clients have many options, flexible rules and excellent service are invaluable tools.

When you say no to a client with a reasonable explanation, they still hear the word "no." The examples pointed out to Dr. Smith by the consultant all could have had "yes" responses. Sure, they would have been inconvenient and a small burden to Dr. Smith and his staff, but those positive answers would have ultimately resulted in satisfied clients. I would go so far as to prohibit clinic staff members from saying no to clients. If the occasion arises when "no" must be the response, consultation with a supervisor should be required to resolve the situation.

It is truly the little things that shape the affection and allegiance of veterinary clients. Veterinarians unhappy with practice growth should look at the little things. Remember, we're not doing pet owners a favor when they call for an appointment and are told we can "fit them in at 3:30." I think that until Dr. Smith understands this, he will continue to be frustrated by his practice's growth.

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, the veterinarians and the employees described are fictional.

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New pet ownership data can **help practices grow**

Mining the trends identified in the AVMA's new *Pet Ownership and Demographic Sourcebook*.

The AVMA's new *Pet Ownership and Demographics Sourcebook*, just released in November 2018, spotlights shifting patterns of pet ownership and points to unmet healthcare needs among America's pets. These present opportunities for veterinarians to improve patient care, attract new clients and even expand services.

Key findings

Here are some ownership trends that can guide your business strategy:

Pet ownership is on the rise. The average number of pets in pet-owning households has jumped from 1.5 to 2.2 since 2011. While this doesn't necessarily mean more veterinary visits, our study did find an increase in total veterinary expenditures. It might be worthwhile to take an inventory of your multipet clients. If the number is significant and includes pets you aren't seeing enough—or at all—think about ways to structure scheduling, create promotional incentives and deliver service offerings tailored to support clients with multiple pets.

Dogs are still the nation's most popular pets, numbering about 77 million and growing. Nationally, 38 percent of all households owned a dog at year-end 2016—the highest rate since we began tracking in 1982. If your business is seeing a healthy growth in canine patients, consider expanding your inventory of canine products or planning for a possible team expansion if demand continues to rise. If not, you might want to start asking all clients if they have other pets at home that haven't come in for checkups.

Pet poultry ownership is on the rise, up 23 percent in five years. Whether or not you currently offer avian services, the rise in popularity of backyard poultry could pose a growth opportunity for your practice.

Specialty and exotic pets are also more popular. Ownership of these animals has grown more than 25 percent, and more than 13 percent of U.S. households owned at least one at year-end 2016. Start asking your clients if they have fish, reptiles or pocket pets that you don't see, and talk to them about the special healthcare needs of these species. You can reach new clients with exotics by offering an educational seminar to pet-owner groups—and make sure your website and social media reflect these services.

About one in four pet owners don't go to a veterinarian for annual preventive care. The biggest reasons are inability to afford services and believing their pets have not been sick or injured. This suggests a couple of strategies to bring in more pets: communicating the value and benefits of preventive care, and experimenting with different business models—such as monthly payment plans—to capture owners who are having difficulty affording services.

More than one-third of cat owners see the veterinarian only when their cat is sick, compared to 12 percent of dog owners. But fewer cat-owning households cite money as a reason. Greater awareness of wellness care for cats is very much needed. Ask current clients if they have cats at home, and talk with them about preventive care if they do. Also use your social media feeds to talk about the importance of wellness care for cats.

DIY presents new opportunities

Another important trend identified in the new report is the popularity of "do-it-yourself" care by pet owners. Some of the most common pet ailments are handled by owners at home, without consulting a veterinarian. These include:

- Hairballs (treated at home by more than 70 percent of owners)
- Canine ear infections (one-fifth of owners)
- Canine heartworm prevention and treatment (nearly half of owners)
- Flea and tick prevention (67 percent of owners).

There's no simple solution to get all owners to consult you every time they notice a possible health problem. But the frequency of do-it-yourself treatment suggests an opportunity to proactively talk with clients about these conditions and urge them to contact you when they occur. If your hospital uses telemedicine, a virtual consult might offer a convenient way for existing clients to contact you before treating pets on their own. If not, check out the resources at avma.org/practicemanagement/telehealth.

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Tackling obesity for patient well-being

Veterinarians know that many of America's pets are overweight or obese, and the new data confirms this. Asked to identify their pets' weight range based on images representing different body conditions, about 36 percent of cat owners and 34 percent of dog owners chose images that indicated their pets were either overweight or obese.

But very few owners are addressing these weight issues—only 5 percent of all dog-owning households and 6 percent of cat-owning households. Whether owners don't understand the importance of weight management or don't realize their pet's size and shape indicate a weight issue, there's plenty of opportunity for improvement. Proactively educate clients about weight risks, provide diet and exercise advice, and even offer formal weight loss programs with regular check-ins. Moving more clients to work with you on weight and nutrition can be good for both patients and your practice.

Tools to help you

AVMA members can download a free executive summary of the Pet Ownership and Demographics Sourcebook at avma.org/PetDemo. Use it to better understand ownership patterns and think about ways to expand your business and improve patient care. Additional resources from the AVMA include the Telehealth Resource Center, the Obesity Toolkit, Backyard Poultry 101, the Partnership for Healthy Pets' forward booking tools and client brochures. Visit avma.org to find these and more.

Dr. Matthew Salois is chief economist and Veterinary Economics Division director at the AVMA. He has worked in private industry, government and academia. He earned his PhD in food and resource economics from the University of Florida.

MEDICINE | Dentistry

The ABCs of veterinary dentistry: 'Q' is for quality, not quantity

Has the flurry of Dental Health Month compromised the careful dental care of our patients? Let's take a look. *By Jan Bellows, DVM, DAVDC, DABVP, FAVD*

In 1993, the president of the American Veterinary Dental Society, Ken Capron, DVM, FAVD, DAVDC, wanted to draw attention to the dental needs of dogs and cats. To raise awareness, Dr. Capron created Pet Dental Health Month, which takes place every February. Two years later, Hill's Pet Nutrition added much-needed national marketing, which continued for 25 years. With the help of Hill's, Robert Wiggs, DVM, DAVDC, spoke on national television in over 22 cities in the United States about National Pet Dental Health Month.

What initially began as a campaign for dental awareness, Pet Dental Health Month in some practices has morphed into discounted dentistry to bring clients and their pets into veterinary offices in the prime of winter. Some hospital administrators gauge the health of their practices based on how many "dentals" are performed in February. This is far from the original intention of Drs. Capron and Wiggs.

All of this to say—squeezing in numerous discounted dental cases where veterinary assistants remove plaque and calculus from the crowns of teeth without conducting a tooth-by-tooth evaluation, including probing and intraoral radiographs and treatment of all periodontal pockets, is the practice of quantity, not quality medicine.

Achieve quality with COPAT

The challenge is incorporating quality dentistry into everyday practice. How do you focus on quality over quantity of dental cases without harming the hospital's bottom line by doing fewer cases? Answer: By adopting COPAT—comprehensive oral prevention, assessment and treatment.

Prevention involves measures taken to prevent the development or progression of oral disease by means of routine oral examinations, professional dental cleanings, home oral hygiene, etc. The COPAT visit is not complete until you discuss with the client how to keep their pet's mouth clean and how to minimize recurrence of disease.

Assessment is the collection and analysis of data to identify the patient's needs and includes obtaining a patient history from the owner and performing a physical examination of the conscious patient, laboratory and other tests to determine patient health and anesthetic risks, and a tooth-by-tooth intraoral examination including diagnostic imaging while the patient is anesthetized.

Treatment is the oral care recommended and performed by a professional based on the findings from the anesthetized tooth-by-tooth and oral cavity examination. The client's input is important in order to tailor individual treatment plans based on the exam findings and the client's financial ability and willingness to provide home care for further prevention.

Executing the perfect setup

The COPAT appointment is made based on the veterinarian's recommendation during a general examination or when a client calls concerned with

Figure 1. A receptionist fielding questions and explaining the COPAT visit.

Figure 2. An assessment of a patient's teeth.

PHOTOS COURTESY OF DR. JAN BELLOWS

PARASITOLOGY M4
The dog was on preventive but still picked up hookworms?

BEHAVIOR M6
Stop fake news! Bust these common behavior myths

SURGERY 43
A veterinary client's perspective on cranial cruciate ligament repair

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Figure 3. A patient being preoxygenated before anesthesia.

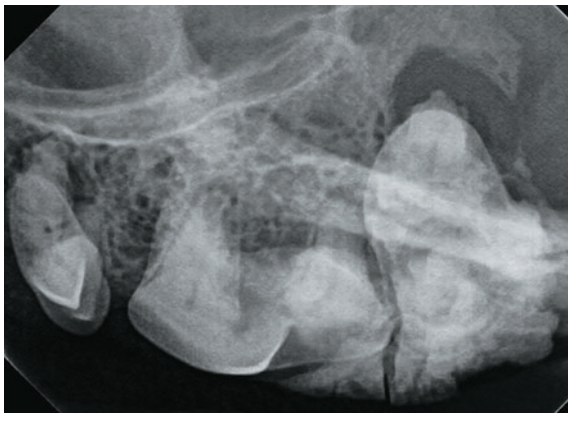


Figure 4. Left maxillary cheek teeth radiographs revealing advanced periodontal disease affecting the third premolar and first molar teeth.

Figure 5. A veterinarian discussing exam findings and gaining approval for needed therapy.

Figure 6. Completion of oral surgery.

oral malodor. The receptionist booking the appointment should discuss the process—patient examination, preanesthetic testing, general anesthesia, tooth-by-tooth examination including probing and intraoral radiographs, dental scaling, polishing, treatment of pathology, sealant application and prevention recommendations. Generally, drop-off appointments are not recommended for the initial conscious examination. It helps for the client to be present while the veterinarian initially examines the mouth.

The receptionist should also explain that further care recommendations will be discussed with the pet owner after the veterinarian examines the teeth and oral cavity while the dog or cat is anesthetized. If time is not available to treat discovered pathology, or if the client wishes to consider treatment options longer, the cat or dog should be recovered from anesthesia and a future appointment made to complete treatment.

Fees for the visit should be discussed by the receptionist when booking the appointment. Keep in mind, the receptionist cannot tell the pet owner what the final charges will be to care for the patient without the anesthetized diagnostic doctor examination. Expenses for what is known, such as preanesthetic examination, preanesthetic tests, anesthesia, monitoring, dental scaling, polishing, sealant application, and dental radiographs, can be quoted. The pet owner should be advised there will be additional fees to care for any potential pathology found, which would be discussed before additional therapy is provided (Figure 1).

Before the patient goes under

Unless a recent examination has been conducted, the veterinarian usually performs a general physical examination with the client present. This exam typically includes as much of an oral assessment as the patient will allow. It's important that the examination be conducted in a fear- and pain-free manner. The extent of an examination on a nonsedated animal depends on patient cooperation and expertise of the examiner and assistant. Most dogs and cats will allow an initial evaluation of their teeth and oral cavity when approached in a slow, gentle manner. Some are too fractious to inspect without chemical restraint, which can be accomplished in the exam room setting or during general anesthesia. Periodontal probing should never be done in an awake patient.

The gingival margin lies next to the tooth coronal to the attached gingiva. Healthy gingiva appears light-pink. Gingival inflammation clinically presents as erythema and is often accompanied by rounding of the originally knife-edged gingival margins. As periodontal disease progresses, tooth roots may be exposed secondary to gingival recession.

Exam findings and the plan for the day are shared with the client together with a printed list of estimated fees for the assessment (preoperative blood/urine/heart/radiographic tests based on age and condition; dental probing; and intraoral radiographs), teeth cleaning, polishing and irrigation with sealant application. The client is given a time to return to the office to learn

The dental top 10: Options for basic and advanced dental care

1 Future follow-up within six to 12 months after dental scaling in cases where pathology is found in a pain-free, functional mouth.

2 Dental scaling, irrigation, polishing and application of professional plaque barrier gel or sealant in cases of stage 1 gingivitis (inflamed gingiva without evidence of support loss) and stage 2 nonpocket periodontal disease (< 25% support loss) as evidenced by gingival recession.

3 Local antimicrobial administration: Clindoral (Trilogic Pharma) and Doxirobe (Zoetis) may be helpful in periodontal disease stage 1 bleeding on probing areas, stage 2 and stage 3 (25% to 50% support loss) where there are periodontal pockets from which plaque and calculus have been removed and where the pet owners can provide home care to control periodontal disease progression. Locally applied antimicrobials are not indicated in deep infrabony pockets and should not be administered without first taking and examining intraoral radiographs.

4 Periodontal surgery to save teeth if the tooth and patient are appropriate. Operculectomy (removal of the gingiva over an unerupted tooth crown) is indicated in a young dog or cat (less than 8 months old) where the tooth is expected to fully erupt in normal alignment once the obstructing gingiva is excised. Open-flap surgery for cleaning and débridement is used to expose a tooth root in selective cases where the periodontal pocket extends > 5 mm and the client is committed to providing home care to save the pet's teeth despite a guarded prognosis. Gingivectomy can be performed to remove pseudopockets in cases of focal or generalized gingival enlargement.

5 Vital pulp therapy is performed to treat a recent (less than 48 hours) crown traumatic fracture that has penetrated dentin exposing the pulp. Vital pulp therapy and crown restoration can also be performed after reduction of crown height for the treatment of tooth malposition causing gingival trauma.

6 Root canal therapy is often the treatment of choice for end-stage pulp disease secondary to fracture, chronic pulpitis or caries. Therapy planning must consider the age of the animal, duration of pulp exposure, importance and condition of the tooth and periapical structures.

7 Crown reduction with gingival closure can be used to treat type 2 root resorption. Crown reduction and restoration can also be used to alleviate a traumatic occlusion.

8 Orthodontic care can reposition teeth into functional occlusion. An inclined plane fabricated from acrylic composite or metal can move linguoverted mandibular canines, and orthodontic buttons can be cemented on teeth affixed with elastics to move malpositioned teeth into functional nonpainful positions.

9 Oral surgery is usually the treatment of choice to care for oral masses, both benign and malignant. When considering oral surgery, generally a 1-cm margin is indicated for benign masses and 2-cm or greater margins for malignant tumors.

10 Extraction is the chosen therapy for moderate and advanced periodontal disease, fractured teeth with pulp exposure when root canal therapy is not an option, tooth resorption exposed to the oral cavity, and penetrating malpositioned teeth.

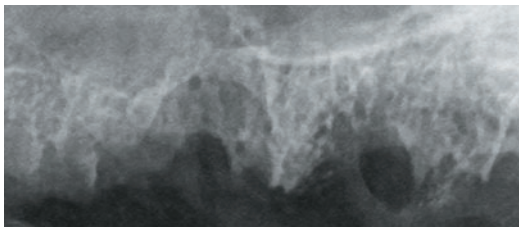


Figure 7. Postoperative intraoral radiographs of the left caudal cheek teeth confirming complete removal of all hard dental tissue.

Figure 8. Recovery monitoring, including assessment of pulse oximetry and elevated heart rate.

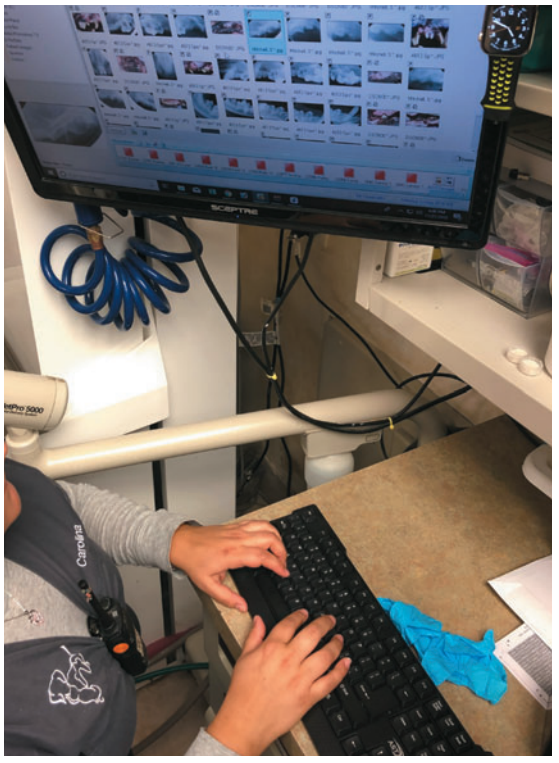


Figure 9. A veterinary assistant preparing the pictorial report.

Figure 10. Review of the COPAT visit with the client.

what additional care is needed or a callback time to discuss findings and the treatment plan after the tooth-by-tooth examination (Figure 2).

While the patient is under

The patient is anesthetized and monitors attached. Teeth are scaled, crowns are polished, and the gingival sulcus is irrigated to remove plaque and calculus. Full-mouth radiographs are taken and prepared for the veterinarian to examine. The veterinarian or technician performs a tooth-by-tooth exam, noting missing, fractured or mobile teeth and periodontal pockets. All abnormal findings are charted, providing a graphic report of the pet's teeth and mouth in order to develop an accurate and comprehensive treatment plan (Figures 3 and 4).

Don't forget this while the patient is out

Once the tooth-by-tooth therapy plan is generated, contact the client to discuss and gain approval. In cases where time doesn't permit treatment after dental scaling and diagnostics, appointments are made for future care (Figure 5).

Before you go ... thoughts after surgery

At the completion of surgery, postoperative intraoral radiographs are taken and examined for remaining dental hard tissue. The patient is recovered with continuous monitoring. (Note: Most adverse anesthesia events occur during the postoperative period). After the patient fully recovers, the dental chart is completed and a report is generated to review with the client (Figures 6-10).

Dental home care highlights for clients

One of the challenges in veterinary dentistry is diminishing the accumulation of plaque and calculus after the COPAT visit. Before periodontal treatment is initiated, talk with pet owners about their commitment and ability to provide aftercare. There is little reason to perform intermediate or advanced periodontal surgical procedures if the pet owner will not, or cannot, actively participate in ongoing plaque control. If there is little to no commitment to home care and follow-up examinations, it's better for the veterinarian to extract teeth affected with stage 3 or 4 periodontal disease.

After the professional oral hygiene visit, schedule weekly progress examinations until the owner is comfortable with the home care process. Thereafter, recheck advanced periodontal surgical cases every two to three weeks and, eventually, less frequently. Pets that have been treated for stage 1 or stage 2 periodontal disease and whose teeth are brushed or wiped once or twice daily can be reexamined every three months. The automatic reminder interval for recalls can be linked by the practice's software to the degree of periodontal disease (i.e. if the patient is treated for stage 3 periodontal disease, a monthly progress reminder can be automatically generated).

The sweet spot: Quality and quantity

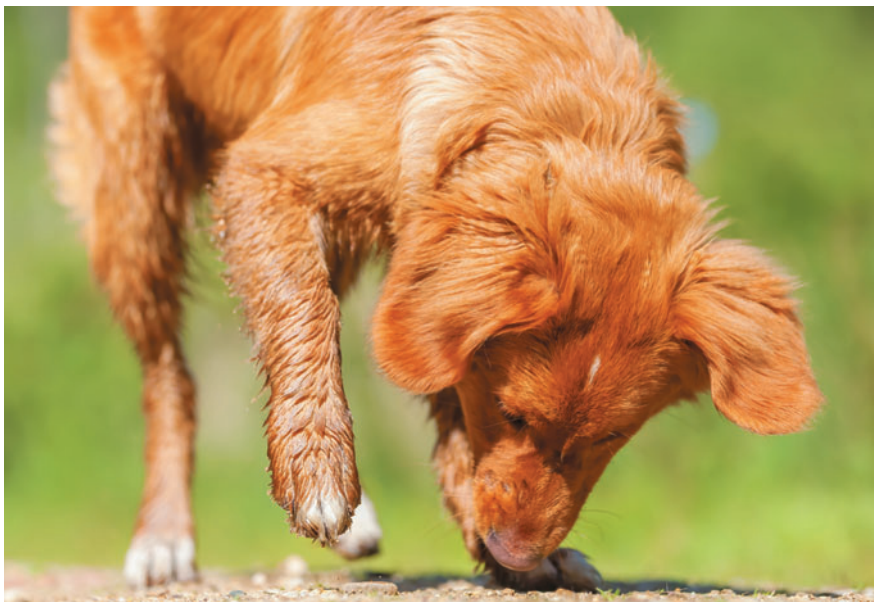
Quality dentistry takes more time to deliver than quantity dentistry. But with at least 80 percent of adult dogs and 70 percent of cats nationwide suffering from periodontal disease, there is a lot of quality dentistry that needs to be delivered. Invest the time and resources to find the cause of your patient's halitosis. As a result, the proper therapy will generally be approved and charged accordingly. Charge what you need to keep the patient and hospital healthy.

Dr. Jan Bellows owns Hometown Animal Hospital and Dental Clinic in Weston, Fla. He is a diplomate of the American Veterinary Dental College and the American Board of Veterinary Practitioners. He can be reached at (954) 349-5800; email: dentalvet@aol.com.

The patient is receiving preventives, but still **picked up worms?**

Veterinary parasitologist Richard Gerhold sets the record straight about monthly preventive medications and the possibility of pets still contracting parasites. *By Richard Gerhold, DVM, MS, PhD*

Q: *We have a patient that is receiving a monthly ivermectin/pyrantel preventive for heartworm, ascarids and hookworms. The owner says that for the four years she has owned him, she's never missed giving him a dose. He's been experiencing periodic diarrhea, and his fecal test shows he's picked up hookworms somewhere. Is the preventive not effective and is the dog now at risk for heartworm infection? If the owner is unsure of the source of the infection, how do we ensure that he won't pick them up again?*



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Answer: Given that hookworms have about a two- to three-week prepatent time, the most likely explanation for this case is that the dog is ingesting the larvae from the environment and then eggs appear in feces after two to three weeks. Since the preventive is given every month, there is enough time for a dog to be infected and shed eggs in between preventive doses. Also, some hookworm larvae can arrest in muscle. They will remain in the muscle until the dog is treated (which only kills the adult hookworms in the intestinal lumen). Only after the adult hookworms are killed will the arrested larvae develop into adults, leading to egg shedding.

The preventive effectiveness and the continued contamination of the premises of hookworm larvae are two separate issues. The monthly preventive drugs hit a high level of effectiveness soon after they are administered, and then a few days later the drug levels drop below a therapeutic level. During the period the drugs are at or above the therapeutic level, the compounds will kill the adult worms and any recently ingested larvae. However, the arrested larvae will not be killed. Once the drug levels fall below the therapeutic level, the arrested larvae can enter the gastrointestinal (GI) lumen, develop to adults and shed eggs. In the case of GI parasites, there needs to be both environmental control of the parasites in addition to the monthly preventive or treatment. The only way to determine if there is drug failure is to do a fecal exam seven to 10 days after administration of monthly preventive. If eggs are seen during this period—and they are indeed hookworm eggs—it would suggest there is incomplete protection of the compound.

Care should be given to try and break the life cycle by changing the area where the dog is housed if it's in an outside kennel, since the kennel environment may be contaminated. Dogs should also be stopped from eating the fecal material of other dogs, which could also lead to infection. Although resistance to pyrantel may occur, this is less likely. It would be worth performing a fecal float exam about 10 days after treatment to determine if there is shedding. If shedding of eggs is occurring at this point, it may suggest that the hookworms may be resistant to pyrantel.

One final consideration should include determining if the dog has been ingesting wild or domestic ungulate feces. The eggs of the GI nematodes of ungulates may be confused with hookworm eggs. If these are GI nematode eggs, they are just passing through the dog and are not infecting the dog.

There is no evidence to suggest that the dog may be at a higher risk for heartworm infection. However, all dogs, regardless of which preventive is administered, should be tested yearly for heartworms using an antigen test in conjunction with a concentrating microfilariae test (Knott's or filter test).

Dr. Richard Gerhold is with the Department of Biomedical and Diagnostic Sciences at the University of Tennessee.

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Stop fake news! Debunking pet behavior myths

Does Max 'know he's been naughty' after pooping in the house? Will 'socialization' in the dog park cure Daisy's anxiety? Set the record straight with your veterinary clients by correcting some common misconceptions. *By Julia Albright, MA, DVM, DACVB*

Let's talk about fake news. Not the political stuff cluttering up your social media feeds, but the kind surrounding canine and feline behavior. False behavior beliefs come from many sources: misguided TV "experts," conversations at the dog park, online message boards, and simple urban legends that have been handed down for decades. Correcting these myths with your clients (gently, without shaming) can go along way toward enriching the bond between pet and owner. Let's take a closer look.

Myth 1: Dogs are little wolves

The myths and misconceptions surrounding canine origins, social structure and communication are the stuff of legend—great for movies and television, not so great for your patients and their owners. Yes, dogs are descended from the gray wolf, but the domestication process has drastically altered canine genetics, resulting in a creature unique from any other canid species.[1]

While it's tempting to ascribe all kinds of domestic dog behavior to their descendance from wolves, such thinking is often erroneous—and can harm the human-animal bond, says Dr. Julia Albright.

For one thing, dogs don't form packs like wolves—the word ecologists use for alliances of dogs is actually "groups," and the ties are much looser and more transient. Dogs also rarely hunt cooperatively like wolves, and they can digest starch, something wolves can't do. And finally, dogs don't raise their young together, with the alpha male and female breeding while everyone else plays a supporting role.

So the "experts" who talk about dominance and pack hierarchy being at the root of all dog behavior are just wrong. When humans try to assert dominance through actions like "alpha-rolling" or physically forcing the dog down, we aren't mimicking natural relationships but likely scaring the dog, conditioning an aversion and increasing the risk of a bite. A structured human-animal relationship can successfully be formed through nonconfrontational methods, such as teaching the dog to say "please" by sitting.

Myth 2: Dogs are little people

The human-animal bond is equally at risk when we assume animals think like people, especially when we believe they feel guilt or remorse about past actions. Animals do not have complex language or thought processes that allow them to connect a past act with a current consequence. When your clients arrive home to find poop on the rug and the dog is hiding, it's erroneous (though perhaps understandable) for them to conclude that the dog "knows he's been naughty."

When a dog looks "guilty," evidence strongly suggests that he's actually fearful. In other words, the last time there were feces on the carpet when the human came home, the human became very angry. Now there are feces on the carpet again, and the human has returned, so there may be yelling and physical discomfort again. Not only does punishing the dog at this delayed stage fail to correct the undesirable action, it also increases anxiety by making correction and the person unpredictable in the dog's mind.

Cognition research confirms that a consequence must occur within one second for the animal to pair the consequence with an action. Bottom line? If pet owners don't witness a specific behavior, they cannot successfully reward or punish it.[2]

Myth 3: Stress in pets is obvious

Most of us humans don't recognize that a dog or cat is distressed until we see overt body language—crouching, extreme tail tuck, refusal to move, elimination, growling, snarling or hissing. Therefore, many aggressive instances seem to come "out of nowhere." In reality, the animal was likely displaying many subtle (to us) behaviors indicating apprehension or fear long before the aggression occurred. Signals we can learn to recognize as signs of stress displacement include lip-licking, yawning, eye aversion, and slow or stiff body postures in dogs—even mount-

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3. Maintained their muscle mass while Royal Canin™[3] cats lost over 11%[2]

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[1]Hill's® Prescription Diet® k/d® Feline with chicken dry food. [2]Data on file. Hill's Pet Nutrition, Inc. 2018. Results are average values with statistical significance (p value less than or equal to 0.05). [3]Royal Canin™ Veterinary Diet Renal Support A Feline, dry food sold in the US market.

ing. And then we can change the situation to keep the peace.[3]

For example, veterinary team members can try a different type of approach if a dog stiffens and licks her lips in the exam room. Clients can be advised to remove the dog from the room if she yawns and averts her eyes when kids are roughhousing close to the where she's resting on her dog bed. Cat bites can often be avoided if the owner stops petting the cat (or approaching altogether) when it gives a tail lash, stiffens or moves slightly away.

Myth 4: We should reach out to a new dog

Many instances of human-directed aggression in dogs are a direct result of the way the person approached the dog. For decades we have been taught to stick out a hand to let the dog sniff us when we first meet it. But most dogs consider it a threat, at least to some degree, if another creature reaches out and over it. Many become nervous simply being approached. Let's teach our veterinary clients a better way: When they meet an unfamiliar dog, they should adopt an unthreatening body posture—turning to the side, kneeling down, avoiding any outward motions, using food to lure—and allow the dog to approach them. This can make the difference between an aggressive and friendly encounter in any setting.[4,5]

Myth 5: Training is how you solve behavior problems

Animal training is the process of changing the behaviors we can observe. Various techniques can be used to get pets to voluntarily change their motor pattern (for example, to stop jumping, pawing or counter surfing)—a process called operant conditioning. Almost all of these techniques involve the animal learning how to gain a reward or avoid something unpleasant. Decades of research demonstrate both approaches work.

However, many behavior problems result from an animal's poor emotional state or an association it makes with a person, place or other environmental trigger. Relying on typical "training" completely ignores this emotional basis. And many aversive techniques that appear to stop the unwanted behavior actually don't solve the problem because they don't improve the underlying association.

The good news is that we can teach simple associative learning techniques (as elucidated so well by Pavlov's dog) to help clients improve many behavior problems. And we can do this without in-depth dog training or the high risk of side effects—such as increased fear and redirected aggression—associated with aversive tactics.

At the heart of associative learning, also known as classical conditioning, is the process of pairing something the pet doesn't like with something it does like. For example, many dogs are reactive to other dogs while on leash walks, and half of cats show severe aggression when first introduced. If we adopt some common-sense safety protocols (head halters, baby gates, adequate distance) and give treats just before and during the interaction without any stern correction, the pet will start to associate the trigger with the reward. This tactic addresses the core emotional motivation and not just the surface-level behavior.[5]

Myth 6: 'Socialization' will help adult pets learn to cope

The socialization period, which is approximately 4 to 14 weeks of age in dogs and 2 to 7 weeks of age in cats, is the critical stage during which the neural system is primed to receive input about future stimuli. Socialization is critical, as evidenced by extreme fear and fear-related aggression in many poorly socialized animals. Unfortunately, some people falsely assume that socialization of adult animals can solve existing behavior problems, and they put their pets in dangerous situations as a result.

Dogs showing aggression to other dogs should never be indiscriminately exposed to unsuspecting dogs and people in dog parks, day care or shopping areas. Not only is this unsafe, but it could also sensitize the animal, or worsen the negative emotion. Educate your client about implementing some solid foundation behaviors, taking appropriate safety measures and practicing body language interpretation before exposing the dog to public situations. For example, the pet should master a redirection cue for a reward ("watch me"; "leave it") in increasingly distracting situations before a walk through the pet store.

Myth 8: Vaccinations are more important than early socialization

Socialization of puppies and even kittens is extremely important for a behaviorally healthy animal.[6] Behavior problems are a factor in almost every case of rehoming or relinquishment, and 16 weeks of age is past the critical socialization period, so it's a mistake to limit a young pet to environmental stimuli until all core vaccines have been completed.

Recent studies have shown that puppies from diverse areas that received one or two rounds of vaccines and attended puppy socialization classes were no more likely to contract infectious diseases than those that didn't attend a class. Of course, it's important to ensure that other animals in the area have been properly vaccinated and that the facility is using proper biosafety standards. For this reason, reputable private facilities (including veterinary clinics!) are the best choice for socialization classes, and public dog spaces should be avoided.

Myth 9: Avoidance will make a behavior problem worse

Just as indiscriminate exposure to triggers can cause more problems, avoidance of triggers can help an animal and its owners live a more peaceful life. As veterinarians, we need to say this to our clients! Their safety, and that of our patients and the public, is our top priority, and our assurance that avoidance is not making the problem worse can provide great comfort to the family—and possibly make the difference between life and death for that pet. On an emotional and biological level, avoidance prevents the problem from worsening by keeping the animal in a calmer state and not strengthening the negative association. Exposure to the trigger can then occur on a gradual level.

Myth 10: Psychoactive medications should be a last resort

The prevailing public sentiment is that psychoactive medications should only be used as a "last resort." But would you take this approach with an antibiotic or pain control? The goal of most psychoactive medication usage is to provide anti-anxiety effects. And although the use of these drugs should not be taken lightly, early intervention with all behavioral therapies, including medications, can limit the damage and improve success. Most of us would not hesitate to institute pain medications or antibiotics early in the treatment of injury or disease, yet many of the same practitioners wouldn't consider psychoactive medications until the problem is at a very severe stage. Mental health should be considered part of overall health. You can decrease your clients' fears that commitment to start medications is somehow a lifelong commitment to keep the patient on medication for the rest of that animal's life.

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A client's perspective on CCL repair surgery

I learned firsthand how hard these injuries are for pets and their owners.

By Katie James

Last spring, my then-6-and-a-half-year-old Australian cattle dog mix, Blitz, ruptured his right cranial cruciate ligament (CCL). By early July, he was 14 weeks past his tibial plateau leveling osteotomy (TPLO) surgery. Here's my perspective on the caregiving and recovery process to help you know what concerns your clients might also face during this extensive repair process.

Blitz, the first night at home post-surgery.

The injury and ER trip

I knew immediately that something was wrong. Blitz went from zooming excitedly around my apartment, to letting out a heart-wrenching series of cries. I was in the kitchen and didn't see what happened exactly, but he'd gotten excited and started running laps, from the front door to jumping on my bed down the hall and back.

Blitz's cries continued as he hopped out to the living room on three legs. As an editor and writer for the veterinary industry, I've learned enough to recognize the signs of pain and knew it couldn't wait until morning when my regular veterinarian was open. Luckily, I had a 24-hour emergency hospital about four blocks from my apartment.

The wait to be seen was a little more than 30 minutes but it felt much longer. Knowing my pet was in pain and that I couldn't do anything about it was awful. It didn't help that there was an overtired toddler in the waiting room who was shrieking and working Blitz up further. The veterinarian we saw told me it was one of the clearest examples of a CCL tear he'd ever seen. He didn't need radiographs to confirm it, just a physical examination. We were sent home with pain meds and instructions for rest and to call the surgery service in the morning.

Deciding on the next step

The first night post-injury was the worst. Once we got home from the emergency hospital I stayed up with him, willing the meds to take effect faster. I was consumed with guilt. It was my fault. I kept imagining how things would change and I felt like I'd ruined his life. I knew I shouldn't have let him run like that, but at a stocky then-60 pounds, it was hard to stop him. I knew I shouldn't have let him jump on the bed. I'd gotten a new, taller mattress a few months earlier and had seen him not quite make it up once—a moment that had made me think, "I should look into getting bedside stairs." I knew he needed to lose some weight, and I was trying to get the extra pounds off. In fact, we'd just gone running earlier that evening.

The next morning, I called my regular veterinarian and he said they didn't perform TPLO procedures at his practice. He recommended the emergency-specialty practice near my apartment or the Kansas State (K-State) or University of Missouri veterinary school.

I called K-State, a couple of different practices in the area and the emergency-specialty practice we'd been at the night before, where they didn't have a surgeon available for TPLO for a month and a half. I was welcome to call a different branch, though.

I was overwhelmed. The emergency veterinarian had recommended TPLO, so that's what I asked each practice about. But by the end of my calls, I had two more procedures to think about. I couldn't completely absorb the details of each surgery over the phone or understand why I'd choose one over the other. I was pretty set on TPLO from the start, so trying to picture something else was difficult. But our dvm360 medical director gave me a super-helpful resource from the American College of Veterinary Surgeons (ACVS) that showed me what each doctor had recommended. (It helped me so much that we worked with the ACVS to create a similar printable handout that can be downloaded from our site for clients: see **dvm360.com/CCLhandout**.)

The team at K-State made me feel comfortable, and they could get us in in two weeks, so I decided we'd drive the two hours to the veterinary school.

I live on the second floor of my apartment building and spent the next two weeks carrying Blitz up and down the stairs to go out. He's heavy and I

PHOTOS BY KATIE JAMES

was nervous every time that I'd slip and harm both of us—not to mention it was terrible for my back—but he wouldn't tolerate a sling, though I tried four different versions.

Time to fix Blitz!

The day of the surgery, both the veterinary student assigned to Blitz's case and the surgeon assessed Blitz and answered all of my questions. They reassured me that he'd be able to be a dog again after we came out the other side of this, which was a relief. The only thing that surprised me was how long Blitz would have to be activity-restricted—including stairs. It wasn't going to be hard to keep him still and resting. I'd either kennel-rest him or keep him on a short leash sitting next to me, which he enjoys. But the stairs were going to be a problem.

I'm fortunate to live near my parents, whose home only has two steps up, and they agreed to let us stay with them (*thanks, Mom and Dad!*). I don't know how someone who doesn't have that option would manage the recovery process successfully. I was having back pain after only two weeks of lifting him—I can't imagine what it would have been like to do it for another eight to 12 weeks. No matter how much you try to lift with your knees and not your back, a dog is an odd shape and size to lift. (I feel you, veterinary team members.)

One of the things that I loved about K-State was that they'd monitor Blitz for a few days after surgery, and "my" vet student called me twice a day with updates. It made me feel much better knowing that a team of highly qualified caregivers was watching over him while he was the most fragile and I could pick him up after a few days.

Because Blitz was being treated at a veterinary school, I had the opportunity to enroll him in a clinical trial as well. The study was investigating the efficacy of Fortetropin supplementation after TPLO surgery to prevent muscle atrophy, and perhaps to improve the rate of muscle mass increase after surgery or shorten the time to resolution of the lameness. All I had to do was feed Blitz the supplement and come back for rechecks, which included radiographs and ultrasound. It sounded simple enough, and if it would potentially help with his atrophy, I was all for it.

Back home and on the mend

The morning I picked Blitz up from surgery he'd been a little febrile, so we were sent home with antibiotics in addition to two pain medications and the study supplement. I was nervous loading him in and out of the car, but it all went smoothly.

I realized when we got home that his kennel, which is appropriately sized under normal circumstances, was too small to accommodate Blitz and his e-collar. Not that he was doing a lot of moving around at the moment, but once he was in, he wasn't going to be able to move around at all. I didn't want him to be uncomfortable for the two weeks he had to wear the cone, so I turned back around after the two-hour drive home and went to the pet store to buy a Great Dane-sized kennel, which I've since dubbed the "Puppy Palace."

The first few days at home were rough. Blitz had no appetite, and taking multiple medications four times a day plus a protein powder was just not something he wanted to do. The antibiotic alone was four capsules at once four times a day. And they had to be taken with food. I tried everything to get him to eat: softening his food with warm broth, adding his favorite veggies, hiding the meds in peanut butter or cheese, even gently warmed canned food—to no avail. He did love the hard-boiled egg I gave him out of exasperation. At least he ate something. I was having serious second thoughts about being able to continue in the clinical trial, no matter how much I wanted to help future TPLO patients.

A saving grace is that my coworkers were more than understanding when I had to leave in the afternoon to give medication, and they were patient as I worked remotely in the afternoons until we were done with meds. This is just one of perks of working in an industry where people understand the commitments involved in pet ownership, but not all veterinary clients have such flexible and understanding employers.

Once we got past the initial few days of inappetence, the recovery process went a lot smoother. Blitz tolerated the supplement well if I mixed it into peanut butter. I wouldn't say it was easy, but I wasn't having to force medication in him anymore, which was nice.

We settled into a routine at my parents' house. If I wasn't home, Blitz would stay in his kennel. I wasn't sure how well this would work, because my parents have a dog of their own who has the run of the house. I had a feeling Blitz would make it known that he didn't want to be in his kennel, but for the most part he just quietly sat and watched what was going on. When I was home, I'd put him on a leash and hook it under the leg of a chair or table so he couldn't wander. Then I'd sit right next to him, further cutting down on his want to wander.

I was overwhelmed. The ER veterinarian had recommended TPLO, but by the end of my calls, I had two more procedures to think about. I couldn't completely absorb the details of each surgery over the phone or understand why I'd choose one over the other.

Will this happen again?

I was probably overly cautious with the activity restriction, but I was constantly worried he'd overdo it or slip and reinjure something. Or blow the other knee. My parents' house has an area of wood floor that I couldn't avoid completely, and I'd make him cross it carefully and slowly when he needed to go out. In the back of my mind I was always thinking of not only his post-surgical knee but also his good knee. Within 30 seconds of seeing the technician and veterinarian that first night in the emergency practice, they'd both told me that their own dogs had ruptured the CCL in both of their knees. And did I know, they added, that the likelihood of him doing it again in the other knee was 40 to 60 percent?

I did know it could happen, though those numbers were higher than I'd hoped—because I never want to do this again. The team at K-State further reminded me that it could happen again and gave me the same odds.

Even though I knew I'd followed the recovery instructions closely and had been extremely careful, I was nervous at the eight-week follow-up. What if he'd messed something up and I didn't know it? I needed to see that the radiographs looked good and have the veterinarian look at him. Of course, it was all fine and they said he was doing great.

After the eight-week checkup, we both felt some relief because Blitz was cleared to begin easing back into walking. I'd essentially placed myself on house arrest because I hated to leave Blitz kenneled day and night. Yes, I'd leave for work or to meet friends on the weekend, but as much as I could I'd sit in my parents' living room and keep him company. Even so, it was great to get out of the house at times. Prior to his injury, we'd go on a several-mile-long walk after I got off of work each evening, and we both missed it.

Moving cautiously forward

Between the eight- and 12-week follow-ups I thought it'd be hard to keep Blitz from going too far too fast because he felt better, but he was fine with it. I gradually let him off the leash a bit in the house when I could gate him in a single room. After the 12-week final follow-up, we started going on longer walks again to build up his endurance slowly, and he got the run of the first floor of the house after work. I still hadn't quite worked up the courage to turn him loose in the backyard because I knew he'd all-out sprint, and it gave me a little bit of post-traumatic stress just thinking about it. I knew we'd get there though.

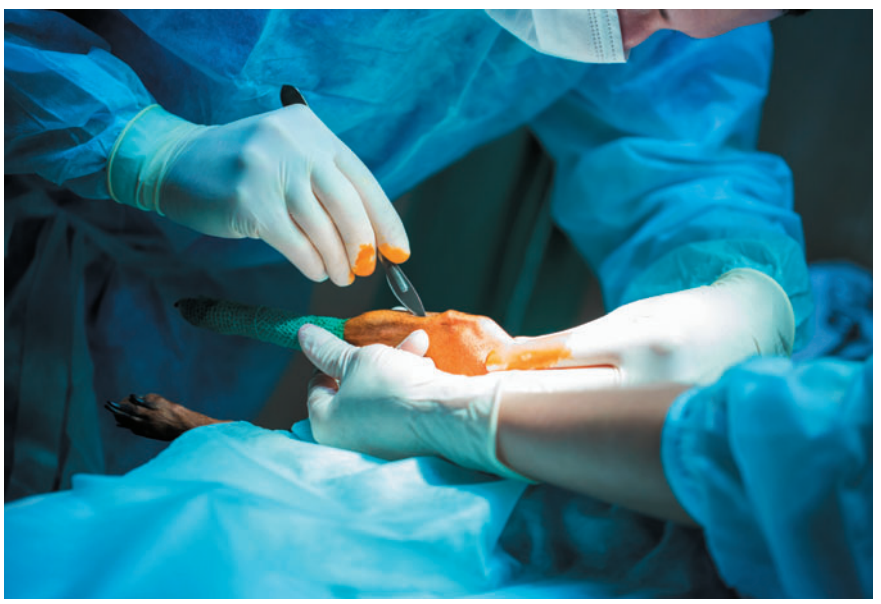
I'll probably never know if Blitz was on the Fortetropin or if he received the placebo, but his muscle atrophy—and, boy, did his leg muscles atrophy in the two weeks before and two weeks after surgery—almost entirely resolved by 14 weeks, and there was no visible limp at that point either. I'm hopeful that he was on the active supplement and that it works. How cool would that be for future patients?

While this experience was traumatic, and I don't want to go through it again (fingers crossed he'll be one of the ones who doesn't rupture both CCLs), I do think the bond I have with Blitz has become stronger because we've spent so much time together. A small bright spot in this journey.

Journal Scan:
In veterinary surgery, check thrice, cut once

Can checklists reduce veterinary surgical complications?

By Amy Van Gels, DVM



As any carpenter knows, the adage "measure twice, cut once" highlights the wisdom of careful planning. Just as a rushed carpenter can cut a board too short by measuring only once, the veterinary team can make simple mistakes that can result in dire consequences for their surgical patients. Surgical complications can range from mild (such as a seroma at the incision site) to severe (such as major dehiscence, profound hemorrhage, multiple organ failure or anesthetic death).

A major study coordinated by the World Health Organization (WHO)[1] and other follow-up studies have found that utilizing surgical safety checklists reduces postoperative complications and mortality in people. A recent prospective study[2] performed at a university animal hospital in Sweden examined the use of surgical checklists in cats and dogs to see if a similar reduction in postoperative complications was found.

What they did

The postoperative complications of 520 dogs and cats undergoing major soft tissue and orthopedic surgeries were evaluated. The surgical checklist, which was based on the one created by WHO, was read aloud at three essential time points: 1) before anesthetic induction, 2) before the start of surgery and 3) before recovery. The checklists were not used for the first 300 patients but were completed for the final 220. Any complications that occurred during the four to six weeks following surgery were recorded and classified as mild, moderate or severe. The complications between the two groups were then compared.

What they found

A total of 67 postoperative complications occurred. There were significantly more complications in patients whose surgeries did not include a safety checklist (17%) as compared with the group that did (7%).

The most common types of complications were: unexpected additional surgery, surgical site infection and wound complication without infection (such as dehiscence, delayed healing or seroma formation).

There were significantly fewer surgical site infections and wound complications after the implementation of the checklist. A significant difference was not found between the groups regarding the severity of complications or mortality. However, the low number of deaths (one with the checklist, four without) is not sufficient to compare mortality rates between the groups.

Take-home message

Similar to what is seen in people, the use of a surgical safety checklist reduces postoperative complications in dogs and cats. This may be due to the combination of improved surgical team communication, identification of medication errors or equipment oversights, antibiotic administration, and sterility checks, or an overall improvement in the "safety culture" of the practice.

Considering a surgical safety list's potential to reduce postoperative complications, consider implementing one. Modify the list to fit your needs and update it annually. Keep it short and easy to use for staff compliance.

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Dr. Amy Van Gels practiced small-animal medicine for seven years before becoming a medical writer and editor.

dvm360 Find it all here.

Check out more on these checklists

To see the surgical safety checklist used in this study and to get a downloadable surgical safety checklist based on the one used in this study and adjusted by Amy Van Gels, DVM, and Jennifer Wardlaw, DVM, MS, DACVS, check out the links on this story online at dvm360.com/cutonce.

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These horses, er, veterinary clients may look alike, but they're not. Some pay on time, don't demand to be seen, and take your medical recommendations. Take that into consideration when you're figuring out whether to accommodate a visit on *that* day and *that* time.

How to manage your **equine client herd**

Do you know which clients are prize Thoroughbreds and which ones to just plug in when it's convenient? That's step one in a three-step process to work with clients asking to be seen right now. *By Kyle Palmer, CVT*

We know it's common for horse owners to maintain a relationship with more than one veterinarian, and in many cases, they move quickly to Plan B when their preferred doctor is too busy to see them in 48 hours or less (or in a manner befitting the convenience that they expect on a desired day or time). Given that, are veterinarians left to simply accommodate clients' every wish or face the threat of losing the appointment?

Not necessarily. Here are three steps that I see equine docs take to keep their scheduling needs in mind while also improving client retention.

Step 1: Figure out who's really paying your bills

Most practice software can easily spit out a list of your clients ranked by the amount of money they spend each year. Without question, there are other factors that make a client valuable, but this is a great place to start. Print the list, then take some time and add a ranking based on four other variables (to be clear, you provide the rankings, but let a staff member do the paperwork).

Rank your practice's top-grossing clients according to:

- how often they get their horses ready for appointments, making your visits more efficient
- whether they're often demanding or unreasonable about the urgency in which they need seen
- their general willingness to accept your recommendations and take quality care of their animals
- your difficulties in the past collecting for services rendered.

Use this data to drill down to a list of your real top clients so you know who you'll squeeze into a busy schedule—even when it may cause another client some inconvenience. In other words, when Mrs. Smith (provided she scores high on the above list) calls with an urgent need and your schedule is full, make room for her, even if it means rescheduling a client who may not score as highly on the above rankings.

Clients like Mrs. Smith are the foundation on which your practice is built, and you can't afford to let them move onto Plan B. As you provide the best and most accessible care to her horses over time, you'll slowly develop more clients just like her. Letting your schedule get tipped upside down for clients who score poorly on your list poses a long-term danger to your practice, as "A" clients will eventually float off to parts unknown for other doctors to appreciate.

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When you do have to reschedule another client, make it clear that you're attending to an emergency. If possible, make the story relatable by telling them what it is that's caused the emergency. Most of your clients will appreciate that you take emergent care seriously because they know you'll be there for them when the time comes. When you're running late, or unable to be reached, you should always be attending to an emergency—after all, aren't you? Telling a client that you're "full" or too busy to address their needs is another way of saying that they aren't important enough to you.

Step 2: Ask, "How long?"

An accurate history needs one very important question: How long has this condition been going on? And you're the judge of how important the answer is.

Most clients are in a hurry to communicate their observations, and in many cases they assume that a condition that's been occurring for longer is more severe. While that's certainly true if an animal hasn't eaten for days, it's not at all true for an animal with an occasional cough for the same period of time.

If you get clients to admit they've been aware of the condition for some time, you've taken away their power to insist that it's critical to be seen immediately. After all, if it's so important, why did they wait so long to call you? Fortunately, you don't usually need to actually say that—it's just human nature that, once they say it out loud to you, they probably won't feel like they can play the urgency card.

Step 3: Don't ignore your part in negotiations

You need to understand the two-person negotiation happening when someone calls for an appointment. Do you ask your clients for a time? Do you offer a time? Do both occur?

The first move should always be a question about what the client had in mind for a day and time. This shows that you start the exchange caring about what's important to them, and it's necessary to put yourself in a position to achieve your scheduling goals instead of theirs (in a perfect world, both are nice).

After you hear the client's "goal" for an appointment, it's your turn to offer two options that fit as close to their needs as possible. If you're offering appointment spots at a day or time that wasn't their choice, don't draw attention to that—simply let them know that you could schedule them at (fill-in-the-blank time) or at (fill-in-the-blank time). If neither of the two options work for them, select two new options and repeat the process. Continue until they accept one of your recommendations. They will.

Equine clients can be fickle, and successfully scheduling appointments without sending them to their Plan B is a critical skill. If managed correctly, they will schedule with you, even if it takes a bit of time to arrive at a day and time they're happy with. Most humans have a natural sense of guilt when they can't give the other party what they want. They also have a natural sense of guilt when they don't accept something that's been offered multiple times. As a result, it's vital that the scheduler (whether the doctor or a team member) ensures that he or she is playing the role of the "offerer" and the client is kept in the role of the "accepter." If those roles are reversed, you end up with an appointment that doesn't work for your busy day.

The more times a client declines whatever day and time is offered, the more likely they become to eventually "settle" as your offers are evidence of your trying to satisfy them. Conversely, if the client is doing the offering, your scheduler will become increasingly willing to "settle" for all of the same reasons. If you handle this exchange strategically, you should be able to schedule non-emergency clients out at least a few days, despite their initial request to be seen immediately.

Using the above steps—knowing who your best clients are, assessing urgency, and negotiating well—is a template to help with every scheduling conversation. Manage these requests properly, and you should be able to confidently schedule clients out several days without any risk that they'll move onto their second choice for care.

Kyle Palmer, CVT, is a frequent contributor to dvm360 and a practice manager at Silver Creek Animal Clinic in Silverton, Oregon.

What drives a client's need for an appointment right now?

Urgency of whatever condition exists. Urgency is subjective, so it's up to you to extract the information needed to accurately assess this.

Client convenience. Especially in this day and age, clients will almost always try to fit you into their normal routine, not the other way around. It's good to be convenient, but you know your own schedule best and what you can manage in a busy day or week—and who you're willing to spend time juggling.

Emotions. Many clients look at the fact that you squeeze them in as an indicator of how much they mean to you. So, go back to Step 1 above and remember which clients mean the most to you and adjust your schedule accordingly.

So you *really* want to **increase profits?**

Try free vaccines, loyalty points or dental discounts. *By Hannah Wagle*

At Fetch dvm360 in Kansas City, veterinary finance guru Gary Glassman, CPA, shared a list of ways for practices to increase value. The list he provided was hefty—chock-full of things veterinary professionals could incorporate immediately. Here are a select few:

Free vaccines for life—no kidding

The concept here, according to Glassman, is that veterinary clients pay a membership fee upfront to make this happen. For that, they get their basic vaccines included on a regular basis (once a year for basic vaccines). In exchange, you get the promise that your veterinary client will come in every year for a wellness exam.

"You're trading the price of a vaccine for a wellness exam," Glassman says in his session. "But that's so important, because when we get them into a wellness exam, we can sell them another product or educate them on a certain diagnosis."

Most importantly? You're making sure that your practice's patient is happy and healthy.

Gary Glassman, CPA

"It's invaluable to us," Glassman says. "And you don't have to do it for all of your vaccines—just the basics. What's the cost of the vaccine? Not much. How often do we administer it? Yearly. So what are you really giving up here? Not much, yet you gain a lot."

Reward programs—what's old is new again

Think of loyalty programs outside of the veterinary profession to get behind this one, Glassman says: "If you're the type who loves frequent-flier or hotel reward points, you know that these sorts of programs work."

Also a proven fact? People hold those points near and dear. They work to earn them. If this didn't work, Glassman states, then these big companies and chains wouldn't be incorporating them into their business.

Dental discounts—that stick around

February is National Pet Dental Health Month. Glassman has an entirely new concept that he dropped on attendees: "Every month is National Pet Dental Health Month," he says. "We should want to make the concept of dentistry important at all times, always."

In other words, Glassman doesn't want veterinary clients trained to only think about their pets' dental health every February. And that can change with the concept of a dental program and discount. "If Ms. Jones comes in for her February dental appointment, we can tell her that if she comes in for a check-up in 30 days, we'll give her 10 percent off."

Hospital design? They wrote the book on it!

A new book from AAHA Press highlights the how-to of the design process for some of the nation's most important buildings. (Hint: We can all agree that's your veterinary hospital, right?) *By Brendan Howard*

Covering territory from hospital touch-ups to the process of building brand-new facilities, a new book covering veterinary hospital design is available now.

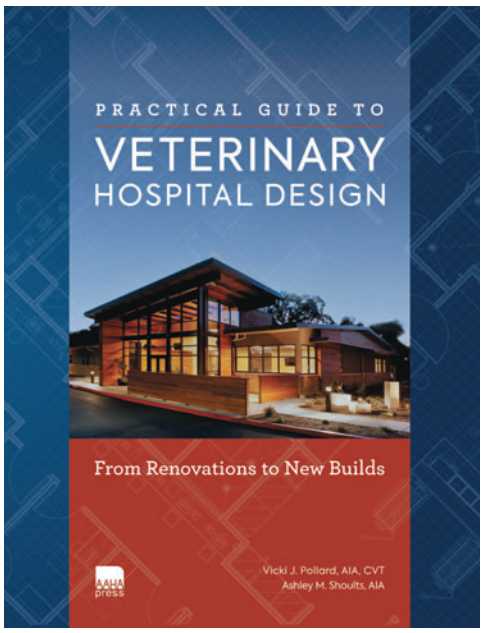
Practical Guide to Veterinary Hospital Design: From Renovations to New Builds (AAHA Press, 2018) provides a detailed look at the design and building of veterinary facilities, including choosing the right property to move into, for owners planning the smallest remodel to the largest ground-up new build, according to a release.

The architect authors—Vicki Pollard, CVT, AIA, and Ashley Shoults, AIA, both from design firm Animal Arts in Boulder, Colorado—say the goal was a "start-to-finish manual" to help new facilities "provide the best care for pets."

"This was our opportunity to share what we've learned over the years about designing spaces for the care of animals from our many wonderful clients," the pair wrote in an email to *dvm360*. "We wrote this book to help guide owners in making the decisions that will be fundamental to creating spaces that will promote healing and support the wellbeing of animals, clients, and staff."

Pollard and Shoults have worked with dvm360 and our HospitalDesign360 conference (**fetchdvm360.com/hd**) in the past, with work featured on **dvm360.com/hd**.

The book is available at aaha.org for $134.95 for AAHA members and $174.95 for nonmembers.



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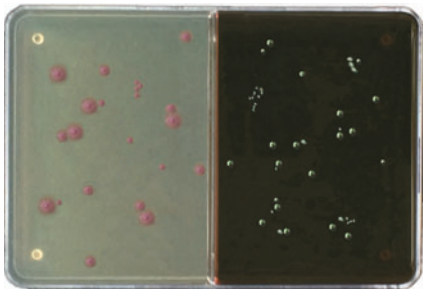

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VetMedWear

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The Sputer Shirt is universal for cats, dogs and rabbits—both males and females—providing safe and effective postoperative care. An alternative to E-collars, the Sputer Shirt is a postoperative dressing designed to protect abdominal wounds from scratching, biting or licking. It provides comfort, allowing animals to move freely, and keeps the surgical site clean and protected, which reduces the risk of infection. It also reduces stress by applying a gentle pressure around the animal's body, which creates a calming effect.

For fastest response visit vetmedwear.com

Ruffwear

Performance dog gear

Designed to enhance and inspire exploration for canine outdoor adventurers and their human companions, Ruffwear introduces several new performance garments to their line made especially for outdoor winter fun. The Powder Hound Jacket, shown here, is a weather-resistant and insulated jacket. It's ideal for cold-weather activities with a recycled polyester insulated upper panel and a fleece-lined lower panel that holds in warmth and sheds water, snow and dirt. A full selection of canine coats and accessories is available on the Ruffwear website.

For fastest response visit ruffwear.com

Harness Biotechnologies

Equine performance and recovery gels

Harness Biotechnologies has announced its patent-pending natural performance and recovery gels for topical application and distribution of carnosine. Carnosine has been widely studied for its effects on improved wound healing, its antioxidant activity and its anti-aging properties since the early 1900s. Harness's gels are found to be effective in an hour and offer no loading phase, resulting in faster race times, longer stamina, improved endurance and quicker recovery. Harness Equine Performance and Recovery Gels are "Informed-Sport Certified," which means they have been tested for banned substances by LGC's world-class sports anti-doping laboratory.

For fastest response visit harnessbiotech.com

Clorox

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Clorox Disinfecting Bio Stain & Odor Remover cleans, disinfects and deodorizes surfaces and can be used on both hard and soft surfaces for accidents involving tough bio soils such as blood, feces, vomit and urine. The product is formulated to break down bio soils, eliminate stains and odors, and kill microorganisms in as little as 30 seconds, helping reduce the spread of pathogens and keep surfaces clean and stain-free. With the oxidizing power of hydrogen peroxide and stain-lifting power of surfactants, the formula provides strong cleaning performance, is compliant with the OSHA Bloodborne Pathogens standard and is ideal for use in veterinary settings.

For fastest response visit thecloroxcompany.com

Brakke Consulting

Telehealth market report

Veterinary industry professionals have many questions about veterinary telehealth, including what exactly telehealth means and whether it's even permitted by state veterinary practice acts. The Companion Animal Veterinary Telehealth Landscape Report from Brakke provides answers to these questions and more. The report discusses the forces driving the growth of telehealth and the barriers to its adoption, including the regulatory framework governing veterinary telemedicine. More than 20 veterinary telehealth providers are profiled in the report, which also includes surveys of nearly 450 companion animal veterinarians and 500 pet owners.

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For fastest response visit lexagene.com

New products from Purina and BI target stress in veterinary patients

Canine anxiety causes stress for both pets and owners, but two new products are designed to provide relief for this common condition. Purina Pro Plan Veterinary Diets has launched a probiotic supplement—Calming Care—for managing anxiety, and the FDA has also approved Boehringer Ingelheim's Pexion (imepitoin tablets) to treat noise aversion in dogs, according to media releases from Purina and the FDA, respectively.

Purina's Calming Care targets anxiety at the gut, using the probiotic strain *Bifidobacterium longum* (BL999). According to Purina research scientist Ragen T.S. McGowan, PhD, "Scientific evidence has shown that manipulating gut bacteria through probiotic administration can have a positive influence on anxious behavior in both rats and humans."

The Purina Pet Care Center conducted a 15-week, blinded, placebo-controlled crossover study, which administered BL999 to 24 Labrador retrievers that exhibited anxious behaviors. Over 90 percent of dogs showed improvement in their anxious behaviors during the study, the Purina release states.

"In addition, dogs in the study showed reduced salivary cortisol concentration, decreases in heart rate and increases in heart rate variability in response to various stimuli—all of which were considered physiologic evidence of improvement," Dr. McGowan says.

To maintain calm behavior in pets, Calming Care requires ongoing use and is packaged in sachets for once-daily administration.

Pexion, manufactured by Boehringer Ingelheim, specifically treats anxious behavior caused by noise aversion. Dogs with noise aversion may become distressed after hearing loud noises like fireworks, traffic and gun shots, and they will react by hiding, vocalizing, panting, shaking or trembling, vomiting, urinating or defecating, according to the FDA release.

A study of dogs that had previously demonstrated noise aversion behaviors during fireworks evaluated Pexion's effectiveness. Owners of 66 percent of the dogs receiving Pexion rated the treatment effect as excellent or good, while owners of 25 percent of dogs receiving the placebo rated the drug reported the same effect, the release notes.

Pexion is available in 100-mg or 400-mg scored tablets and should be given to the pet twice daily beginning two days before an expected noise event—such as the Fourth of July or New Year's Eve—and continued through the event.

Common adverse reactions observed in the study included difficulty standing and walking, increased appetite, lethargy and vomiting. Of 90 dogs that received Pexion as part of the study, three pet owners reported that their dogs exhibited aggressive behaviors while taking the drug, according to the release.

Pexion will be available by veterinary prescription only.

Onsior labeled in Canada for long-term pain management in cats

Elanco has announced that Onsior (robenacoxib) 6-mg tablets for cats are approved in Canada for the treatment of pain and inflammation associated with chronic musculoskeletal disorders, such as osteoarthritis.

Kristin Butler, DVM, veterinary technical consultant with Elanco, says, "This new indication for Onsior tablets for cats is very exciting. Onsior is the first labeled nonsteroidal anti-inflammatory drug (NSAID) in Canada that veterinarians can use to treat chronic painful conditions like osteoarthritis in their feline patients. Veterinarians and cat owners [in Canada] now have an effective, safe and convenient solution when treating chronic pain, allowing cats to enjoy more active lives."

Onsior is labeled for chronic pain in cats in Europe as well. In the U.S., it is approved only for the control of pain and inflammation associated with orthopedic surgery, ovariohysterectomy and castration in cats for a maximum of three days.

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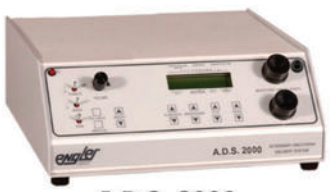

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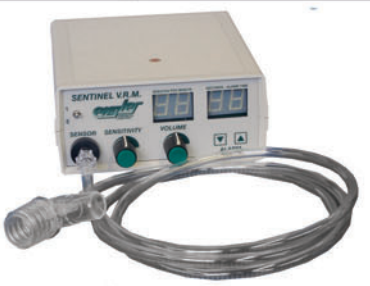

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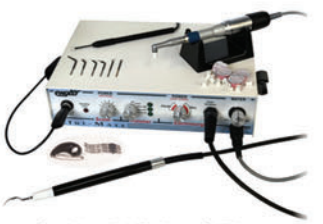

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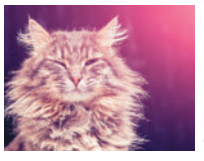

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veterinarydentistry.net

February 16-17
Veterinary Dentistry for Technicians Weekend Extravaganza
Orlando, FL
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February 17-20
WVC 2019
Las Vegas, NV
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wvc.org

February 22-24
2019 Music City Veterinary Conference
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tvmanet.org

March 15-17
28th Annual Food Animal Conference
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March 19
Updates in Soft Tissue Surgery and Behavior
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March 29-31
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April 5-7
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August 2-5
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August 2-6
AVMA Convention
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avma.org/events

August 15-18
13th Keystone Veterinary Conference
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pavma.org

August 21-23
HospitalDesign360 Conference
Kansas City, MO
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August 21-24
Uncharted Veterinary Conference: Staff Drama
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unchartedvet.com

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September 25-26
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(215) 746-2421
vet.upenn.edu/education/continuing-education/penn-annual-conference

September 26-29
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(972) 664-9800
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September 27-29
Pacific Northwest Veterinary Conference
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Thank you, Momma—and yes, I actually do know what I'm doing

It's the time of year to reflect on those who've shaped our lives as veterinary practitioners and just good human beings, Dr. Brock says.

Every veterinarian has someone to thank for getting them there. In most cases it's one of the "big six" in life—that is, the four grandparents and two parents. One of them, or perhaps all of them, guided and influenced an easily molded mind into realizing and chasing after a dream.

It's no easy ride becoming an animal doctor. Just getting into veterinary school is an unbelievably difficult undertaking. Once there, the amount of material thrown at you is staggering. I stacked my notes from vet school in a corner of the room I studied in. Back then, there were no computers, and the faculty would hand out typewritten notes at the beginning of each class. By the time I had finished my four years of vet school, my stack of notes was more than seven feet tall.

This past Thanksgiving, the family gathered at our house for a feast and a weekend of remembering what we're thankful for. My Momma was there, and at 80 years old she's the last living member of my big six. She's still sharp as a tack and agile as a cat. I sat across the living room and watched her tell stories and interact with her great-grandbabies. It reminded me that I made it through all that vet school rigor because of her.

I listened to her tell my oldest daughter how she's a wonderful mother. My Momma has a way of finding the good things about a person—and not just finding them, but telling them. I watched her and realized she had done the same thing with me.

Dr. Brock and his Momma.

My Momma made me feel like I was the smartest person alive while I was growing up. She would brag to her friends or other relatives about me when she knew I could hear. She said she couldn't believe how smart I was, or how fast I could run, or how wonderful I was no matter what endeavor life threw at me—and I believed it.

The years passed and I eventually figured out I really wasn't all that smart or fast, but it was too late—I had already accomplished things that were beyond my capabilities and didn't even know it. I am educated far beyond my intelligence, and it's all because my Momma made me feel like I could do anything.

While she was here, Momma came to the clinic and watched me stick the scope in a few horses' joints. I have a custom of squirting the lavage fluid that runs through the scope on anyone who wants to watch. I squirted it at her just like all the others. She scolded me like I was a little kid, and everyone in the surgery room laughed and told her she needed to stick around and scold me more.

I've scoped nearly 10,000 joints in my career and have had hundreds of people watch me over the years, but having my Momma watch made me nervous. I couldn't believe it. She wasn't afraid to ask me a million questions, tell me she couldn't see what was going on and wonder aloud if I had any idea what I was doing.

I've always thought she would have been a wonderful veterinarian. She has great hand skills, a logical way of reasoning through things and the stubbornness of a mule. I watched her watching us repair the broken joint on a racehorse and I could tell that she was proud of me. It still makes me feel happy when Momma's proud.

My middle daughter, Abbi, is also a veterinarian. She's doing a one-year internship at Alamo Pintado, an equine clinic in California. I was there two weeks ago to watch her work and listen to what her mentors said about her, and it made me imagine what my Momma must feel when she watches her oldest son work.

I'm thankful for my Momma and all she did for me when I was growing up. I am humbled by her caring, and even though she's only five feet tall, I believe she could still whoop me if I ever needed it.

Bo Brock, DVM, owns Brock Veterinary Clinic in Lamesa, Texas. His latest book is Crowded in the Middle of Nowhere: Tales of Humor and Healing From Rural America.

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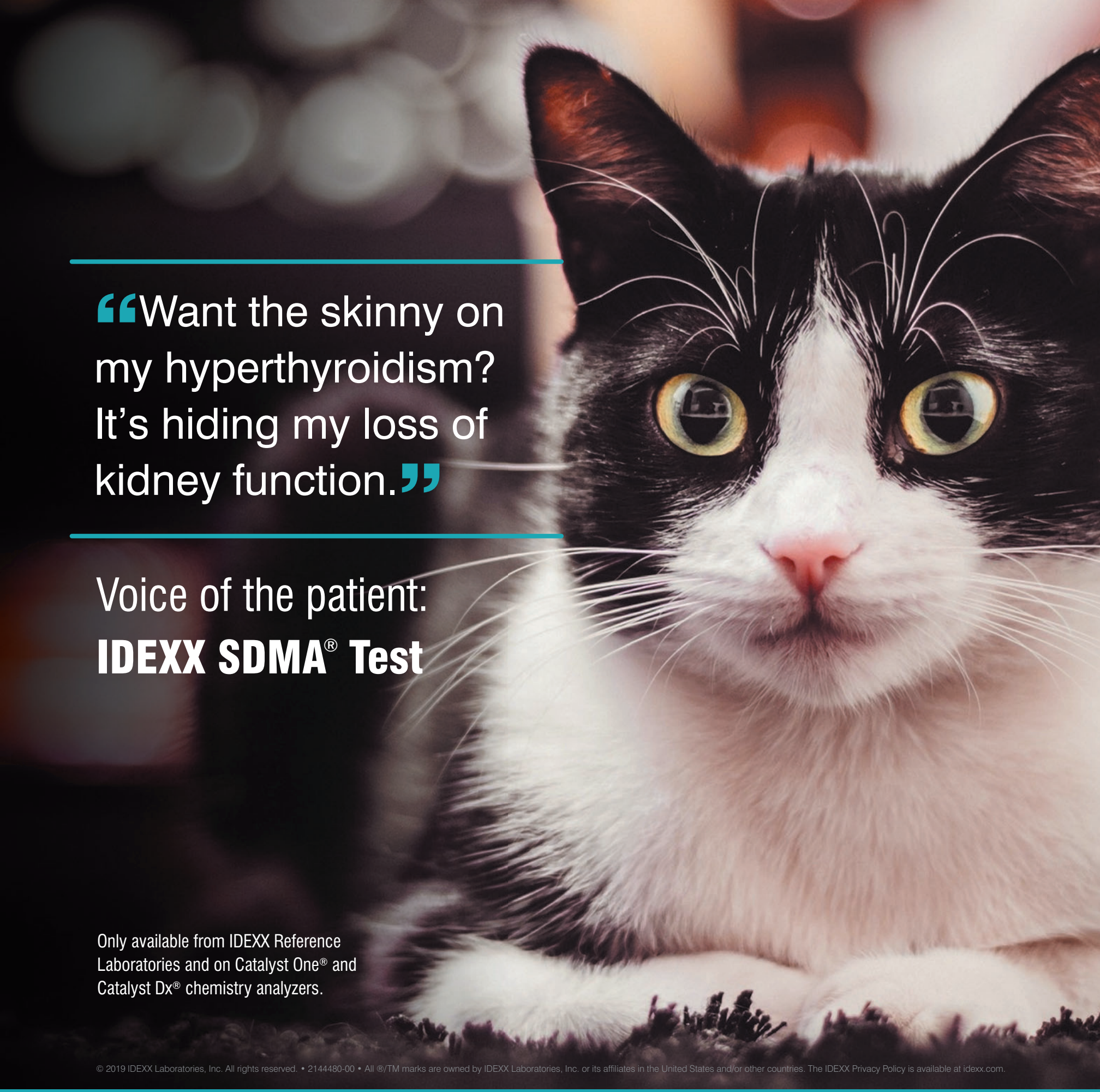

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