

Euthanasia: The last act of love

Ending an animal's suffering is one of the veterinary profession's greatest responsibilities. page 34

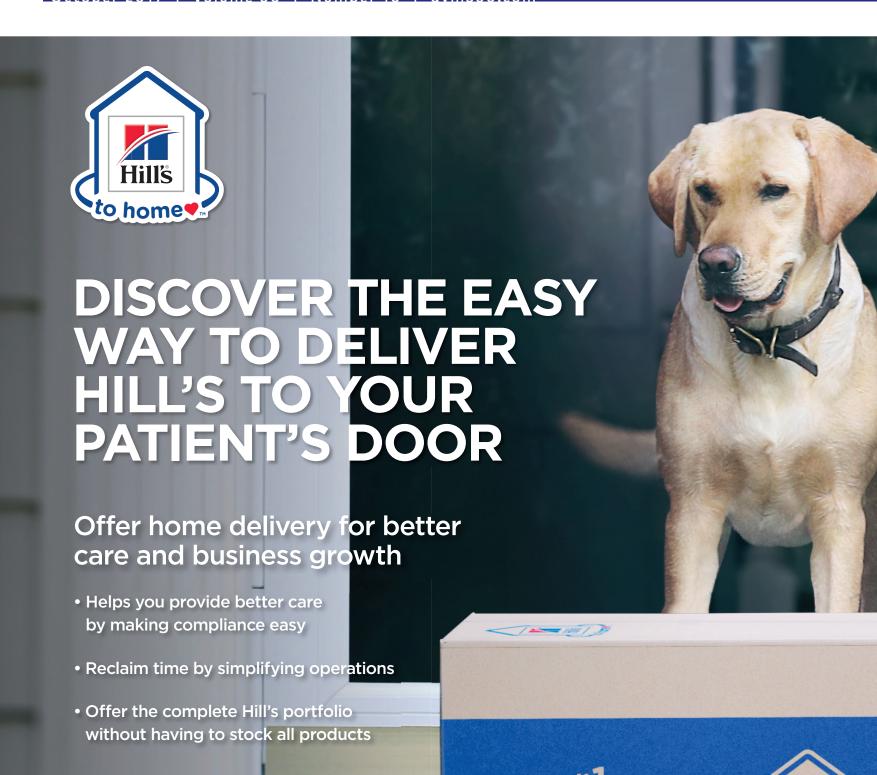
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Euthanasia: The last act of love Ending an animal's suffering is one of the veterinary profession's greatest

responsibilities.

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CBD requires legal caution

While some in the veterinary world might want to throw a 'CBD is legal!' parade, there are a few caveats keeping you from tossing confetti. Let's walk through it.

By Dawn Merton Boothe, DVM, MS, PhD, DACVIM, DACVCP

ewspapers and other advertisements are claiming that, with passage of the 2018 Farm Bill, "CBD is now legal."

Not quite yet.

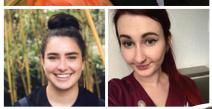
Regulatory barriers have made it difficult to access marijuana or its medically relevant constituents. While it is true that cannabidiol (CBD) is likely to become legally accessible by our clients, this is not without caveats.

The changes in legality of CBD actually began with the 2014 Agricultural Act (Farm Bill). It was in this bill that Congress defined "industrial hemp" as "... the plant Cannabis sativa L. and any part of such plant, whether growing or not, See page 18>











10 vet tech superstars to follow

National Veterinary Technician Week is all about celebrating the great work technicians do every day. Meet 10 standout techs who are going above and beyond the call of duty to advance the profession they love.

By Tasha McNerney, BS, CVT, CVPP, VTS (anesthesia and analgesia)

e all know that National Veterinary Technician Week (happening this month, Oct. 13-19) celebrates the contributions of all veterinary technicians. Because every person brings something different to the table, however, it's important to celebrate each team member's unique contribution. Every clinic has a few technician rock stars who excel at patient and client care. In honor of National Veterinary Technician Week, here are 10 technicians who are inspiring the next wave of vet tech heroes.

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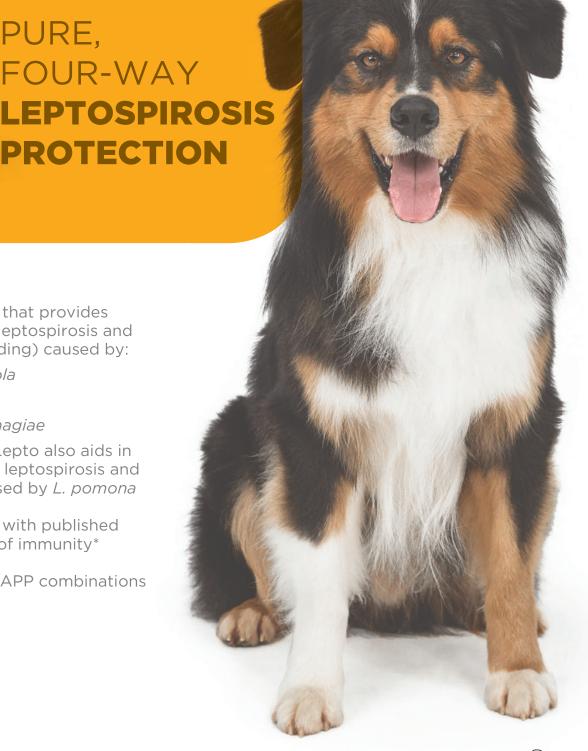
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Get ready for a busy conference season

autumn are starting to appear here in New Jersey. The mornings feel a bit crisper. The leaves on some of the trees are starting to change from green to their more vibrant fall hues. And everything you see at the store, maybe even your

s I write this, subtle hints of

office, is now flavored with pumpkin spice for the foreseeable future.

For most of you and for us at MJH Life Sciences[™], this time of year means conference season. Kicking off in August with the American Veterinary Medical Association meeting in Washington, DC, and culminating with Fetch dvm360° in San Diego in December, this time of year provides several great opportunities to network with peers and stay up to date on the latest industry research. For those unable to attend these meetings in person, the dvm360° content team will be on site to provide live coverage on our website, dvm360.com.

At the keynote presentation at the

recent Fetch dvm360° conference in Kansas City, Mary Gardner, DVM, and co-speaker Sue Ettinger, DVM, DACVIM (oncology), discussed a subject that is near and dear to many veterinarians' lives: Surviving Work-Life Imbalance. Ettinger said, "[These pets] are why I love going to work."

Dr. Gardner, who wrestles with periodic migraines and back pain, said she pushes back against people who tell her to work less: "I get told every single day I work too much. My biggest tip when people ask how they can help? 'Don't tell me I work too much."

Like many other veterinary practitioners, attendees were in the audience at that meeting to find out what a better way might look like. Although the elusive "balance" is difficult to find, the duo did share their hacks and tips for maximizing joy in the chaos, and you can read more about that in this issue.

Also, in the weeks ahead, veterinarians will make their way

to the Atlantic Coast Veterinary Conference® (ACVC) in Atlantic City, New Jersey, and Fetch dvm360° $\,$ in San Diego, California. The 2019 ACVC will take place Oct. 14 to 17 at the Atlantic City Convention Center and is not just for veterinarians. There is something for everyone in the office with custom tracks specific to technicians, practice managers and even front office staff. Fetch dvm360° San Diego is also a great event for the entire office team, and is scheduled this year for Dec. 12 to 15 at the San Diego Convention Center.

With so many great opportunities to learn and network, take the time to consider attending a conference this fall. Not only do these conferences provide a great opportunity for education, they may also provide some great sightseeing opportunities during leisure time. Go register and enjoy the season ahead.

—Mike Hennessy Sr. Chairman and CEO

Build the bond to reach millennials

77% of millennials favor veterinarians who discuss the benefits of the human-animal bond. By Erica Tricarico

e know that for millennials, their pets are their babies and they mandate quality [care]," said Steve Dale, a certified animal behavior consultant and pet journalist, at the 2019 AVMA Convention in Washington, DC.

And the emotional wellbeing of these pets is a high priority for this demographic, born between 1981 and 1996, which became the largest pet-owning demographic a few years ago: "Happy pets do mean happy clients," Dale said. Here are some of his key takeaways:

> Dr. Google rules ... at least at first. Before a veterinarian shares a

diagnosis, millennials have already asked online search engines for answers. And they don't just want to hear the diagnosis—they want to know what it means. According to the Pew Research Center, 92% of millennials have smartphones (no surprise), and they're also likely to ask friends and family for advice, with 45% visiting Facebook daily.

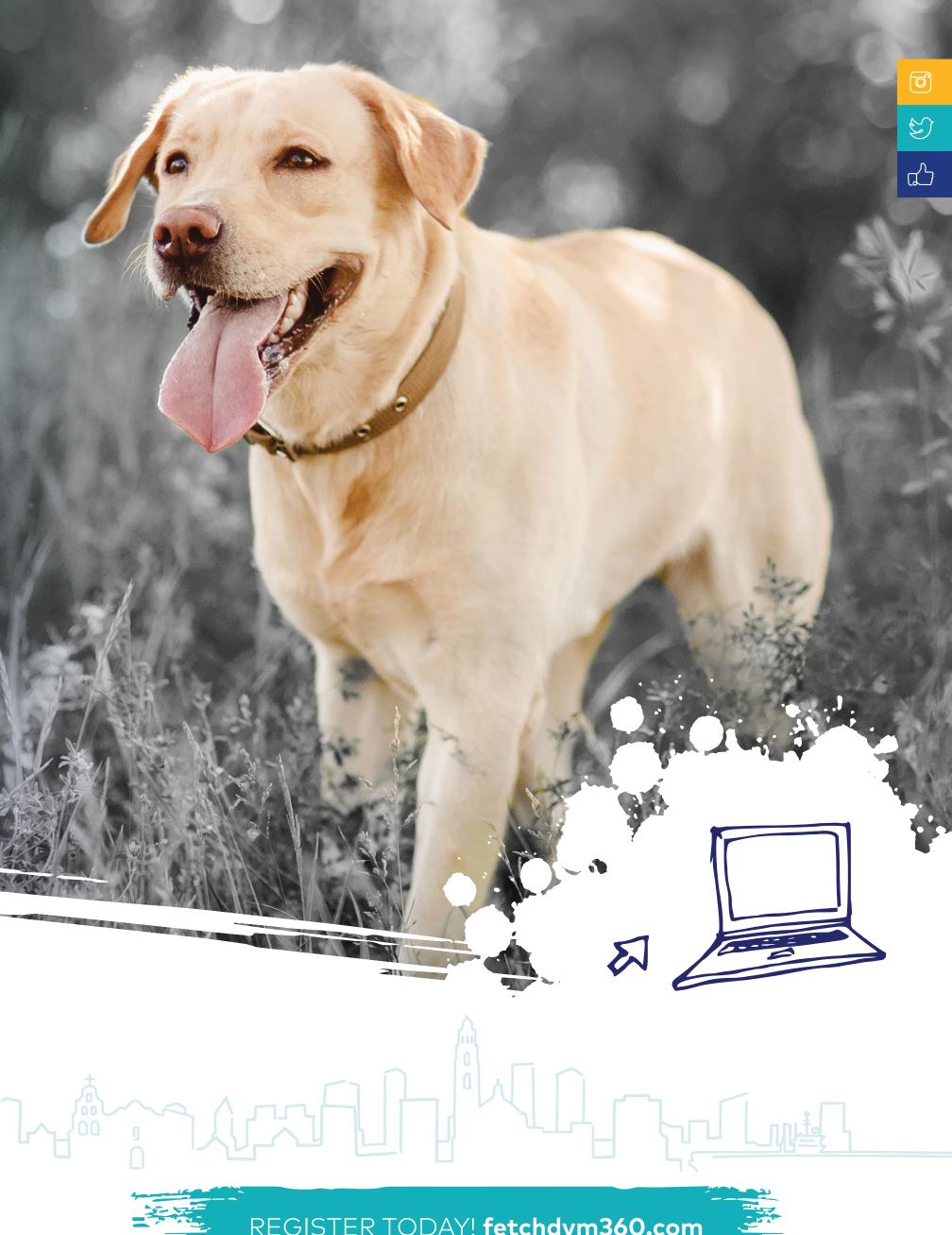
> Millennials are spending money on alternative treatments such as acupuncture. They also spend more money on pet clothes, toys and boutique foods, and they're more likely to take their pet to the groomer. Millennials are even setting up GoFund-Me pages to help raise money for expensive medical treatments. "By 2020, millennials are going to spend more than any other demographic group," Dale said.

So how exactly will millennials affect veterinary practices? Focusing on bond-centered care may help millennials take their pets to the veterinarian more regularly, Dale said. Approximately 77% of millennials say they're more favorable to a veterinarian if he or she discusses the health benefits of the human-animal bond with them. Roughly three-quarters of millennials said they're more likely to visit the veterinarian if they discuss the health benefits of the human-animal bond.



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Fetch dvm360 keynote: 'There's no such thing as work-life balance'

Whether it's interval training or a search for fun, Fetch dvm360 speakers Drs. Sue Ettinger and Mary Gardner have tips for building your beautiful, imperfect veterinary life. By Brendan Howard

he thing we have in common," says Mary Gardner, DVM, about herself and co-speaker Sue Ettinger, DVM, DACVIM

out what a better way might look like. While the elusive "balance" is difficult to find, the duo did share their hacks and tips for maximizing joy in the chaos.

Dr. Ettinger's 80/20 (exercise) rule

No, exercise doesn't fix all your problems, although Dr. Ettinger does recommend it (she works out six to seven days a week as a "hobby"). Rather, her favorite running expert Tommy Rivers Puzey has inspired her to apply the 80/20 running rule to veterinary life.

This means you don't want every day to be a moderate- or high-intensity day. Instead you want 80% moderate-to-low-intensity days punctuated by 20% that claim all-out effort.

"That's how Tommy says runners improve their performance," Dr. Ettinger says. "Instead, we push ourselves too much; we train too hard. And if we burn out, we injure ourselves. Don't punish yourself day after day."

On certain days—those high-intensity days—you give it all your motivation and focus, and you train to "get comfortable with the discomfort," she says. These are the difficult, grueling hours or days or weeks, the high-intensity intervals, and you balance it out with time for recovery. Maybe you only have time for a 15-minute break in the car, or you build rest time into your weekend. The important thing is to ease up so you can make "slow, steady, consistent progress," Dr. Ettinger says.

Dr. Gardner's F.G.C.

When people talk about so-called work-life balance, Dr. Gardner always wonders, "What are we balancing? Fun? Money? Purpose? If it's time, well, the amount of time I spend at work is something I love."

Dr. Gardner says she makes sure she

has fun, growth and compassion in her all aspects of her life.

1. Fun: Enjoy how you spend your time. "I picked my first practice [to work in] because I knew every day I'd be working with fun people," she says. You know fun when you see it and feel it.

Sometimes "fun" means "mind candy that makes my mind just melt," says Dr. Gardner—for her, that's Bravo TV.

2. Growth: Find purpose and challenge yourself. Growth can be a little harder to pin down, but Dr. Gardner says you need purpose in your work, and that means thinking about your own values and judging everything in your life against it: "Is it worth your time to do these things?"

Sometimes that means you pay money for a maid service or food delivery to get time back for things you love. Sometimes that means drastically rethinking your life—as she did when she turned from software development to veterinary medicine as a career.

3. Compassion: You deserve kindness. Last but not least, Dr. Gardner says you need a little help (and compassion) from your friends: "Surround yourself with good people who get it and don't dwell in the negativity. When a friend's not around, turn to your scrapbook or folder of nice comments, cards or notes you've received.

If how you're spending time isn't ever fun, doesn't match your values and finds you working with people who bring you down, Dr. Gardner says, "If you don't love it, get out. The option is staying and trying to be happy. But if you can't be happy there, get out."

If you need the help of a mentor, a coach or a therapist to help you out, don't hesitate, both speakers emphasize. There's no shame in asking for some backup to get through these moments of self-reflection and change.



Drs. Mary Gardner (left) and Sue Ettinger had practical work-life advice for veterinary professionals at their keynote address at Fetch dvm360 in Kansas City in August: 1) Work intensely for a period of time, but balance with less intense time and breaks, and 2) always, always remember to enjoy the time you spend working.

(oncology), "is that we have a very imbalanced balance in life."

It was a transparent opening to their keynote presentation at Fetch dvm360 conference in Kansas City, "Surviving Work-Life Imbalance."

The two veterinarians shared, first, details of busy lives—for Dr. Ettinger, long hours in veterinary oncology, constant social media activity as Dr. Sue Cancer Vet, speaking engagements, and dogs and kids. Dr. Gardner works crazy hours as a speaker, writer, co-founder of Lap of Love and now co-owner of an aquamation crematory in Florida.

First of all, let's be clear—all this work brings them joy: "I have very stressful days," Dr. Ettinger said, "but [these pets] are why I love going to work."

Dr. Gardner, who wrestles with periodic migraines and back pain, pushes back against folks who tell her to work less: "I get told every single day I work too much. My biggest tip when people ask how they can help? 'Don't tell me I work too much."

Like many other veterinarians, attendees were in the audience to find

dvm Find it all here.

Dr. Mary Gardner talks balance

See Dr. Mary Gardner talk about fostering fun, growth and compassion in her life at dvm360.com/life-balance.

Green joins consulting group, will leave Texas A&M

Prominent vet school dean joins Mark Cushing at industry consulting and lobbying firm.

well-known veterinary school dean has announced her transition to the consulting world. Eleanor Green, DVM, DACVIM, DABVP—the Carl B. King dean of veterinary medicine at Texas A&M University—is joining the Animal Policy Group as senior advisor and consultant, according to a press release.



Green will support the Animal Policy Group's focus on regulatory, policy and strategic issues, including accreditation, and serve on industry boards.

In her new consulting role, Dr.





Texas A&M—through June 2020 or until the school finds a successor. As dean, she'll also finish her work preparing for Texas A&M to host the 4th Veterinary Innovation Summit April 3 to 5, 2020, an event that brings more than 500 industry leaders to the campus.

"Dean Green is an icon in the world of animal health and veterinary education," says Mark Cushing, Animal Policy Group's founder and CEO, in the release. "She has served this profession well, and we look forward to having her incredible energy and insights focused on the future of veterinary medicine and animal health."

"I've worked on many projects with Mark Cushing," says Dr. Green. "I look forward to a variety of initiatives to increase opportunities for veterinarians, and both expand and improve animal healthcare throughout the United States."



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Study: Is there a veterinarian shortage? Yes. Can we fix it? Yes

During Banfield's annual Pet Healthcare Industry Summit, a veterinary economist quantifid the difference between open positions and DVMs seeking employment. By Kristi Reimer Fender

ust a few years ago, the buzzword associated with the market for veterinarians was "oversupply"—there were too many veterinarians for the number of pet owners seeking veterinary care, many people in the profession asserted. Others countered that, strictly speaking, there wasn't an oversupply (since veterinary unemployment was negligible) but rather "excess capacity"—a certain percentage of veterinarians' ability to provide services was going unused.

Regardless of terminology, the pendulum has clearly swung back the other direction, and the industry is now using the term "shortage"—there simply aren't enough veterinarians to fill the positions available in practice or to serve the number of clients who want care for their animals. While much of the evidence for this shortage has heretofore been anecdotal, noted veterinary economist James Lloyd, DVM, PhD, presented preliminary research at the annual Pet Healthcare Industry Summit hosted by Banfield Pet Hospital in Portland, Oregon, Sept. 12 that introduced some data into the discussion.

The study, "The Current U.S. Employment Market for Veterinarians," was conducted under the auspices of Dr. Lloyd's Animal Health Economics consulting company—he recently retired from his position as



Banfield's annual Pet Healthcare Industry Summit takes place at the historic Sentinel Hotel in downtown Portland, Oregon. Summit attendees include corporate CEOs, nonprofit presidents, association executive directors and other veterinary industry leaders.

dean of the University of Florida College of Veterinary Medicine—and commissioned by the Animal Policy Group lobbying and consulting firm, which has ties to Banfield.

"This study is meant to provide a snapshot in time," Dr. Lloyd told the corporate CEOs, nonprofit presidents, association executive directors and other veterinary industry leaders who made up the group of summit attendees. "The goal was to quantify the shortage of veterinarians using a 'one point in time' analysis comparing the number of open positions for veterinarians to the number of applicants seeking employment."

To provide this "snapshot," Dr. Lloyd looked at the number of veterinary job postings on Indeed.com, along with data from the AVMA and AAVMC on how many veterinarians were likely to be seeking employment at that point in time. He concluded that there were about 1,400 open positions with no one to fill them, or about 1.7 positions per candidate. When Dr. Lloyd added in additional job openings from government, large animal medicine, industry and academia, the total number of open positions with no one to fill them totaled 2,000 plus.

Dr. Lloyd next looked at the number

of candidates applying to veterinary schools: Were enough of them at sufficient caliber to fill that many vacant positions in the profession? On a basic level, he asked, could veterinary schools accept enough high-quality students to eliminate the shortage? His answer is yes.

In 2018, he found, 51% of veterinary school applicants received an offer from at least one school. Among those who did not, his research showed, between 2,000 and 3,000 applicants exceeded minimum levels of academic achievement—as determined by grades and GRE scores—compared to those in the pool who were accepted. While being careful not to draw too many cause-and-effect conclusions, Dr. Lloyd also pointed out that first-generation college students and non-white applicants were significantly less likely to receive an offer.

"Schools have to ask themselves the following question," Dr. Lloyd said. "Are we recruiting students who will be successful in veterinary school or successful in veterinary practice?"

So, in very broad terms, Dr. Lloyd concluded—and leaving aside such important issues as any admission process weaknesses, the expense associated with educating veterinarians and massive levels of student debt—veterinary schools could theoretically eliminate the shortage by accepting more qualified candidates.

To prevent suicides, Banfield wants veterinary teams to ASK

Campaign to help colleagues "assess, support, know" designed especially for veterinarians, team members; will be offered to whole profession in 2020.

uring its annual Pet
Healthcare Industry Summit
in Portland, Oregon—and
in conjunction with National Suicide
Prevention Month—Banfield Pet
Hospital announced a new program
called "ASK" (assess, support, know),
designed to help veterinary professionals recognize and address
emotional distress and suicidal
thoughts in themselves and others.

According to CDC research, one in six veterinarians experiences suicidal ideation. In observance of that "one-in-six" statistic, Banfield says it will do the following by Jan. 6, 2020:

- Close all Banfield hospitals nationwide for two hours to conduct mental health and wellbeing training for its associates.
- > Make the ASK training modules available as a free resource for the

- entire veterinary profession.
- > Share the ASK training with all U.S. veterinary colleges.

"This is a \$3 million investment for Banfield," said Molly McAlister, DVM, MPH, Banfield's chief medical officer, during the summit on Sept. 12. "I think everyone knows we are passionate about pets—that's a given. But now it's time to make equally sure we are passionate about people."

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ADVERSE REACTIONS: The field safety analysis included evaluation of 152 dogs. The most common adverse reactions reported are polyuria, polydipsia, depression/lethargy, inappropriate urination, alopecia, decreased appetite/anorexia, panting, vomiting, diarrhea, shaking/trembling, polyphagia, urinary tract infection, urinary tract incontinence and restlessness. Reports of anaphylaxis and anemia have been associated with a different desoxycorticosterone pivalate injectable suspension product.

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Owners of brachycephalic dogs in denial, study suggests

New research explores paradoxes owners face when choosing breeds that are popular but experience higher rates of conformational medical problems. By Brendan Howard



30 mg/mL

BRIEF SUMMARY: Before using this product, please consult the full product insert for more information.

For oral use in dogs only Appetite Stimulant

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

Description: ENTYCE® (capromorelin oral solution) is a selective ghrelin receptor agonist that binds to receptors and affects signaling in the hypothalamus to cause appetite stimulation and binds to the growth hormone secretagogue receptor in the pituitary gland to increase growth hormone secretion.

Indication: ENTYCE (capromorelin oral solution) is indicated for appetite stimulation in dogs.

Contraindications: ENTYCE should not be used in dogs that have a hypersensitivity to capromorelin.

Warnings: Not for use in humans. Keep this and all medications out of reach of children and pets. Consult a physician in case of accidental ingestion by humans. For use in dogs only

Precautions: Use with caution in dogs with hepatic dysfunction. ENIYCE is metabolized by CYP3A4 and CYP3A5 enzymes (See Clinical Pharmacology). Use with caution in dogs with renal insufficiency, ENIYCE is excreted approximately 37% in urine and 62% in feces (See Adverse Reactions and Clinical Pharmacology).

The safe use of ENTYCE has not been evaluated in dogs used for breeding or pregnant or lactating bitches.

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

To report suspected adverse drug events and/or obtain a copy of the Safety Data Sheet (SDS) or for technical assistance, call Aratana Therapeutics at 1-844-640-5500.

For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or online at http://www.fda.gov/Animal Veterinary/SafetyHealth

NADA 141-457, Approved by FDA

US Patent: 6,673,929

Made in Canada



Aratana Therapeutics, Inc. Leawood, KS 66211 ENTYCE is a trademark of Aratana Therapeutics, Inc. © Aratana Therapeutics, Inc. n recent years many in the veterinary community have decried the increasing popularity of brachycephalic breeds, which are adored for the "cute" traits that actually make these dogs extremely unhealthy. The truth is that the snub noses, "smiling" mouths and bulging eyes of these breeds make them look friendly and happy, when in fact these dogs are often straining to breathe.

In a recent study in *PLoS One*, researchers tried to quantify exactly how owners of these dogs may be deluding themselves about their pets' health. Their conclusion? These owners likely do not understand or appreciate the seriousness of their dog breed's conformational problems and necessary surgeries.

With 2,168 responses from the U.K., the United States and Canada—789 pug owners, 741 French bulldog owners and 638 bulldog owners—researchers asked dog owners about veterinary diagnoses, conformation-related surgeries performed, veterinary costs and emotional bonding. Here's what they found.

'My dog has ...'

The most common diagnoses that respondents shared from veterinarians were allergies (27% of dogs), corneal ulcers (15%), skin fold infections (15%) and brachycephalic obstructive airway syndrome (BOAS) (12%). In addition, 20% of dog owners reported that their dogs had undergone one or more conformation-related surgeries. The most frequently reported surgeries were nostril widening (8%) and eyelid surgery (8%). Finally, with all bitches having had at least one litter to date, more than one-third of those required medical or surgical intervention to give birth.

How much did these problems cost dog owners? Survey respondents, whose dogs had a median age of 2.17 years, reported a median

veterinary cost of 222 British pounds (\$270) per year of dog ownership. Given the young age of the dogs, researchers hypothesized that "the alarmingly high disease prevalence values reported in the current study may still be an underestimate of the true age-standardized disease prevalence that will be shown by the study dogs over time."

"... but that's not so bad, right?"

Respondents' perception of their dogs' health tells a different story than the medical issues they shared. A full 71% said their dog was in "very good health" or "the best health possible," and just 7% said their dog was less healthy than average for its breed.

For example, replies to clinical questions indicated that nearly 40% of the dogs could be experiencing airway obstruction problems, but only 18% of owners of those dogs considered their pet to have a breathing issue.

"These contrasting and paradoxical results support the influence here of the 'normalization' phenomenon," explain the researchers in the study, "whereby owners of brachycephalic dogs may be consciously aware that the dog is struggling to breathe but not consciously accept that this is a specific problem, instead considering it a 'normal' and therefore somehow acceptable feature of the breed."

The owners seemed even less aware of their dogs' potential sleeping problems. While a different study of brachycephalic dogs referred for surgical treatment of BOAS found 50% of those owners reporting sleep problems in their dogs, just 3% of the respondents here did.

"It is ... likely that many owners do not recognize sleep problems as a welfare issue and may instead interpret signs of sleeprelated airway impairment as benign 'normal' phenomena," the researchers wrote. "For example, sleeping with a toy in their mouth or in a sitting position (strategies to avoid upper airway obstruction) may be considered as just cute quirks of their dog rather than indicators of true pathology."

Thoughts for client communication

While explaining that more research needs to be done in the area of brachycephalic pet ownership and breeding, the authors also shared a few suggestions for veterinary practitioners:

> Don't ask if there's a general problem—dig into specifics.

"Specific closed questioning elicits very different responses than simply asking owners whether their dog has a problem or not, which may elicit wishful responses that 'normalize' away unpleasant thoughts of ill health in their dog," the researchers write.

> Provide guidance about how much it can cost to own these dogs.

"The full financial implications of owning a brachycephalic dog should be thoroughly discussed with, and considered by, prospective ... owners. This may result in potential owners either deciding against purchasing these breeds that carry high risk of major costs or may encourage appropriate financial planning (for example, pet insurance) for those who remain committed to purchasing these breeds."

> Don't forget about obesity.

Owners of these breeds may have preconceived notions that these dogs have low exercise requirements, when the reality is that they have medical issues that make it harder to exercise. "These breeds should not be marketed as having low exercise requirement as an inherent, and often appealing, breed attribute," write the researchers. "Encouraging safe levels of exercise in brachycephalic dogs is important to promote fitness levels and avoid obesity, a risk factor for BOAS."



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¹ Zollers B, Huebner M, Armintrout G, Rausch-Derra LC, Rhodes L. Evaluation of the safety in dogs of long-term, daily oral administration of capromorelin, a novel drug for stimulation of appetite. *J Vet Pharmacol Ther.* 2017 Jun;40(3):248-255. doi: 10.1111/jvp.12358. Epub 2016 Sep 25.

VCA Animal Hospitals launches cancer network

The 35 veterinary oncology centers are located in 13 states across the U.S. with an aim to open more in Canada.

CA Animal Hospitals recently announced the launch of its network of 35 VCA Pet CancerCare Centers to offer veterinary patients focused and individualized oncology treatment.

VCA Pet CancerCare Centers have multidisciplinary veterinary oncology teams available to create treatment plans for pets using the most advanced and effective therapies available, a release from the company states. These new approaches are targeted to be less invasive and leave pets more comfortable with fewer side effects.

The first goals of the VCA Pet CancerCare Centers are to enable greater access to treatment and to improve patients' quality of life.

In a video on the CancerCare Centers' website, Arathi Vinayak, DVM, DACVS-SA, ACVS fellow (surgical oncology), at West Coast Specialty and Emergency Animal Hospital in Fountain Valley, California, says having medical oncology, radiation oncology and surgical oncology all in one place helps the team determine the best path forward.

"Having all three of us receiving appointments at the same time under one roof in one space is probably the best thing," Dr. Vinayak says. "The nurses and the doctors, we're all



Lola, a patient at the newly launched VCA Pet CancerCare Centers, features in a video on the contars' website

connected to that patient, so it makes treatment and the way we interact with each other fairly seamless. We're all here to be one team for that patient."

The centers' second goal is to open lines of communication between veterinary oncologists, general practice veterinarians and pet owners, the release states. By increasing collaboration, pet owners will better understand the management and treatment that accompany a cancer diagnosis.

"In a world where there are thousands of treatment options, it can

be overwhelming for pet owners to navigate through that," says Brendan Boostrom, DVM, DACVIM, a medical oncologist at VCA SouthPaws Veterinary Specialists & Emergency Center in Fairfax, Virginia. "I see my job as being an advocate for that pet but also for that family as 'what is the best fit?""

There are currently CancerCare Centers in 13 states across the United States, including California, Florida and New York, with plans to open more centers in Canada.

How a new regulation could force changes to U.S. veterinary facilities

USP 800 affects handling of dangerous compounded drugs.

So, about alternative cancer therapy ...
Curious about where veterinary oncologists come down on these? Dive in at dvm360.com/altcancer.

SP 800 may sound like an overly ambitious sunscreen— or a cool new jet airliner— joked Vicki Pollard, CVT, AIA, during the 2019 HospitalDesign360 conference in Kansas City in August. It's a regulation created by the United States Pharmacopeia, and it's very important to the veterinary industry, because it deals with compounding

of hazardous drugs specifically in veterinary facilities.

This new rule involves the safety of your veterinary team as well as your patients, Pollard says. "If compounded drugs are contaminated in that process, from a biologic standpoint they can harm your patients, but if they're not handled properly, they can be dangerous for your team," she says.

USP 800 was created to keep everyone safer in the veterinary environment. It involves facility changes, like adding additional rooms, but it also involves a change in operations and how you deal with drugs in your facility, Pollard says.

Want to know the specifics? See Pollard explain more in the video at dvm360.com/USP800.

JORVET SPECIALTY PRODUCTS

Texas veterinarian, technician infected with murine typhus

A San Antonio practitioner warns others after she contracts a flea-transmitted disease. By Erica Tricarico

hat started as a fever and flulike symptoms quickly escalated to a frightening six-day hospital stay for San Antonio, Texas, veterinarian Olga Jaimez, DVM, who was diagnosed with murine typhus around the same time as one of her technicians, according to KSAT TV.

Dr. Jaimez, who owns 4 Paws Animal Hospital, told the news outlet she had a fever that spiked to 103 °F, red spots all over body and difficulty breathing. "I thought I was going to die," she said.

Transmission details

Murine typhus, which is caused by the bacterium Rickettsia *typhi*, is transmitted primarily by rodents, according to the Centers for Disease Control and Prevention (CDC). Fleas become infected when they bite an infected animal, such as a rat, cat or opossum. When an infected flea then bites another animal or person and the flea dirt (feces) is rubbed into the tiny wound, infection can occur. Infected flea dirt can also be inhaled or rubbed into the eyes. Typhus is not spread from person to person.

Most cases of murine typhus in the U.S. occur in Texas, Hawaii and southern California, according to the CDC. Last year, 101 cases were reported in Bexar County, where San Antonio is located, and 152 cases were reported in Hidalgo County, located in far southern Texas, according to Texas Department of State Health Services press officer Lara M.

Anton. "As of August 28, 2019," Anton told *dvm360*, "308 cases had been reported in the state.

Roadblocks to diagnosis

Because signs and symptoms of murine typhus mirror those of other diseases, it can be challenging to diagnose. Symptoms can include fever and chills, body aches and muscle pain, loss of appetite, nausea, vomiting, stomach pain, cough and rash (rash typically occurs around day five of illness), according to the CDC. If a veterinary professional or client

"I thought I was going to die." —Olga Jaimez, DVM

experiences any of these symptoms and tests negative for the flu, Dr. Jaimez told KSAT News that she recommends they get tested for murine typhus.

Laboratory testing for this disease and reporting results can take several weeks, according to the CDC. In fact, Dr. Jaimez told *San Antonio Express-News* that she started exhibiting symptoms in June and didn't receive an official diagnosis until late July.

A promising prognosis

Dr. Jaimez, who had a more serious case of the flea-borne illness that caused her to lose a month of work, was treated with a 19-day course of doxycycline, according to the *San-Antonio Express-News*. Most

people fully recover with (and sometimes without) treatment.

Murine typhus typically doesn't cause serious illness. In rare cases, however, untreated disease can cause damage to one or more major organs (e.g. liver, kidneys, heart, lungs, brain). That's why Dr. Jaimez is urging her clients to practice flea control for their pets as a form of prevention.

Jennifer A. Johnson, DVM, medical director at VCA Health Associates Animal Hospital in San Antonio, agrees. "Our clinic is a very strong proponent of flea and tick products in general. We discuss it as a safety measure for pets," Dr. Johnson told *dvm360*, adding that they now discuss parasite control as a preventive safety measure for their clients and their families as well.

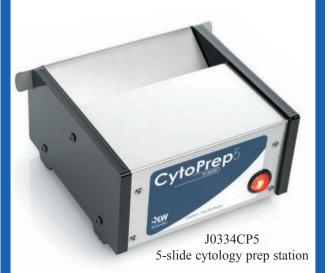
Although Dr. Johnson has yet to see any patients or clients with murine typhus, her daughter was tested for the disease when she presented with a high fever, rash and headaches. Her daughter tested negative for the illness, but the very fact that her daughter was tested for such a rare disease was still highly concerning.

Dr. Johnson said she uses her personal story to raise awareness about murine typhus with clients so they can be on alert.

"I will sometimes share with clients how scary it was to have a sick child tested for a disease that I didn't even realize was possible to catch here in San Antonio," Dr. Johnson said.

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Human surgeons operating on dogs: When good intentions aren't enough

His heart may have been in the right place, but an Atlanta orthopedic surgeon has shut down his nonprofit organization after backlash from veterinarians. By Maureen McKinney

nonprofit organization providing free orthopedic surgeries for injured stray animals—performed by doctors with "MD" rather than "DVM" after their name—has shut down abruptly amid vehement objections from the veterinary community.

Officially founded in 2016 by Atlanta surgeon John Keating, MD, Surgeons for Strays was a group of all-volunteer, all-MD surgeons who performed orthopedic procedures on injured stray and shelter animals that otherwise faced almost certain euthanasia.

According to a June 2019 article in *AAOS Now*, a publication of the American Academy of Orthopaedic Surgeons, Surgeons for Strays comprised "residents; local animal shelters; and orthopaedic surgeons and veterinarians who donate their time, operating space and expertise to help animals who would otherwise be euthanized. After surgery, the animals are returned to a shelter or organization for adoption."

The group performed nearly 90 small animal surgeries over the years.

In mid-September Atlanta's WBS-TV reported that the Georgia Board of Veterinary Medicine was "investigating complaints" about the organization. Around the same time, Dr. Keating shut down the nonprofit's website, promised to cease operations immediately and dissolved the organization.

Already noticing the fact that a medical doctor would not have an accurate understanding of the anatomic nuances of small animals, veterinarians who viewed clinical photos on the now-defunct Surgeons for Strays website believed that the procedures themselves were being done incorrectly and in a nonsterile environment.

"People who were not appropriately trained in veterinary medicine were caring for the animals, and we were concerned for their well-being," Alan Cross, DVM, a Sandy Springs, Georgia, veterinarian who filed a complaint against Dr. Keating, told WBS-TV. "Our concern was that these patients weren't being handled in the best way because of lack of training."

From the state's perspective, it is

not illegal for a medical doctor to perform surgery on an animal as long as a veterinarian is present to oversee the procedure. That veterinarian was Michael Good, DVM, a practice owner in Marietta, Georgia. Dr. Good, who is not an orthopedic surgeon, told WBS-TV that he had been supervising the surgeon and residents during procedures for the past 13 years—despite the fact that no publicity photos on the group's website showed Dr. Good in the operating room.

"I may not be in there when someone is shooting a camera," he said, "but I'm in and out of there."

The best of intentions

For his part, Dr. Keating told *AAOS Now* that the only animals his group ever operated on were those that were at high risk for euthanasia. "These are dogs that are doomed. … They can't get adopted," Dr. Keating said, adding that "we're not pretending to be veterinarians."

In addition to Dr. Good's supervision of the procedures, Dr. Keating told *AAOS Now*, his team

also commonly consulted with James Cook, DVM, PhD, DACVS, DACVSMR, OTSC, who holds multiple positions at the University of Missouri School of Medicine, in advance of a veterinary procedure.

Veterinarians in Georgia are now looking to lawmakers to clarify state laws to define exactly who can perform surgery on animals.

Also in mid-September, the Georgia Veterinary Medical Association released this statement: "The GVMA (not to be confused with the Georgia State Board of Veterinary Medicine, which has legal authority over Georgia veterinarians) has received numerous inquiries from our membership regarding human physicians performing orthopedic surgeries on shelter animals. The organization in question has agreed to suspend their program as of today. We will continue to discuss ways to ensure that the animals in need receive appropriate medical care—if you are a licensed veterinarian & willing to aid in this endeavor, please contact the GVMA at gvma@gvma.net."

Calif. veterinary staff protest 'unfair labor practices'

Protesters (not including veterinarians) at VCA San Francisco Veterinary Specialists say they're fighting for better pay, health and work conditions. *By Erica Tricarico*

rotesting working conditions they say are "deplorable," some 30 veterinary team members—including veterinary technicians, assistants, coordinators and facilities staff—at a San Francisco veterinary hospital walked off the job during an hour-long protest in early September, according to local media reports. This was the second walkout to occur at VCA San Francisco Veterinary Specialists in three months.

Among protesters' top complaints were insufficient equipment, poor healthcare benefits and low pay. "Everybody here lives paycheck to paycheck," veterinary assistant Katie Bradley told ABC7 News.

"Our health benefits here are deplorable, and you know we get injured a lot on this job," Bradley said in the interview. "A patient is struggling or jumps off a table, and we have to catch them." She added that some injury cases have been so severe that employees were unable to return to work.

According to KQED News, in August, the National Labor Relations Board issued a complaint against VCA San Francisco Veterinary Specialists, stating that the hospital had violated labor laws by not engaging in good-faith bargaining. The agency also called for a federal hearing at the end of September.

In 2017, Mars Inc. purchased VCA, which owns San Francisco Veterinary

Specialists and another estimated 750 animal hospitals nationwide. Since then hospital staff voted to unionize and join the International Longshore and Warehouse Union (ILWU). Now some staffers say Mars is stalling employee contract negotiations. City official Hillary Ronen said a delay is illegal.

"We've got to fight against this corporation that is eroding care not just here but all across the country," Ronen told KQED. "They are doing every sneaky tactic to stall the negotiation of the first contract. It's disgusting, it's illegal, and it needs to stop."

Not only have contract negotiations dragged out, employees also say management is assigning union work to non-union staff. "A lot of us really love what we do and they're drowning us out," said Bradley.

Mars, which also owns the Banfield and BluePearl practice groups, responded to critics with the following statement to ABC7: "VCA has been in contract negotiations for over a year with the International Longshore and Warehouse Union, which represents certain staff at VCA San Francisco Veterinary Specialists (SFVS). We remain committed to reaching a contract that treats employees fairly and enables the hospital to provide the highest levels of specialty patient care and emergency services for patients and clients in San Francisco."





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- ♣ A low interest refinancing option with supplementary interest rate reduction of .25% from a third-party financial institution
- A monthly student loan contribution of \$150 paid by Banfield directly to qualifying student loans
- ♣ A \$2,500 payment for each qualifying Banfield student program in which the doctor participates prior to graduating, up to a maximum of \$10,000



CBD use requires legal caution

> Continued from page 1

with a delta-9 tetrahydrocannabinol (THC) concentration of not more than 0.3% on a dry weight basis."

This means there are now two legally defined cultivars of *Cannabis sativa*: marijuana, defined by the Controlled Substances Act, and industrial hemp, defined by the 2014 Farm Bill. They are genetically and chemically distinct. Industrial hemp

is now a potential for a broad expansion of commercially available CBD products, all CBD is not "legal." Only CBD that has been demonstrated to be derived from IH will be legal.

This leads to the second major caveat: States that allow the growth of IH must regulate its cultivation through programs that must be approved in advance and subse-

chemically distinct

Although there is now a potential for a broad expansion of commercially available CBD products, all CBD is not "legal." Only CBD that has been demonstrated to be derived from industrial hemp will be legal.

(IH) products will be largely void of psychoactive cannabinoids—that is, THC. The 2014 Farm Bill allowed for legalization of IH only in limited circumstances, specifically, at institutions of higher education and only if the state in which the crop was being grown approved IH crops. It also allowed limited research with IH.

Because the legal definition is for industrial hemp, the use of the term "hemp" may be confusing since the term has been used to refer to marijuana.

The 2018 Farm Bill changed several things. Notably, it extended the legalization of IH, as previously defined, to any state interested in it as a product. Further, and perhaps most importantly, IH and any of its derivative products, including CBD, are no longer subject to the DEA Controlled Substances Act.

However, this does not mean that CBD is legal. Here's what's raining on your parade.

Several caveats exist in making CBD legal. To start, the 2018 Farm Bill does not change the fact that the federal government still considers all state programs that have legalized marijuana (not IH) cannabis products to be illegal. Although verified derived products have been removed from schedule 1 status, and although there

quently overseen by the secretary of the USDA. This includes verification that the seeds and the resulting plants being grown meet the definition of IH (thus avoiding the growth of marijuana). As such, although any person can grow IH, a license will be required and approved state regulations must be followed.

If a state does not promulgate protocols or regulatory plans for USDA approval, the individual can work through the USDA, but a process must still be in place. The USDA has not yet put a process for approval in place and, as such, this means none of the currently marketed products derived from an approved IH crop have gone through this "regulatory" or "approval" process.

The process will likely include methods to assure that the product being sold is derived from IH and that marijuana cannot infiltrate the system. Until such time that the USDA has put these protocols in place, no CBD has been derived from IH and thus no CBD product is legal. The USDA anticipates that these protocols will be in place by the end of 2019 and until that time, all CBD falls under the current DEA Controlled Substances Act and thus is considered a schedule 1 substance.

There are two exceptions to this, however. The first regards products that have already been approved as a result of the 2014 bill. However, the lack of USDA written regulations suggests that even these products are not legal. The second exception to CBD as a federally regulated schedule 1 product is Epidiolex. This approved drug is CBD and it has been designated a schedule 5 drug. However, the schedule 5 status agreed upon by the DEA and FDA applies only to this drug product, not CBD in general.

A related concern is the impact of pharmaceutical-grade CBD in an approved drug vs. CBD in IH sold as supplements. The FDA may perceive such products to be adulterated drugs, particularly if the product label includes treatment or prevention indications. It is for this reason that the labels may refer to "[industrial] hemp oil" rather than CBD, as the active ingredient. This may confound the ability of veterinarians to make dosing recommendations in the absence of a known amount of CBD per unit dose.

Finally, just because Congress has legalized IH and its products and removed these from DEA oversight does not mean that states' controlled substances acts will be modified to reflect this. Many states do not recognize "industrial hemp" and thus still consider CBD, irrespective of source, to be a controlled substance.

Indeed, selected individual state boards of veterinary medical examiners have either explicitly precluded or restricted what veterinarians can prescribe, dispense or even recommend in terms of CBD products. State boards of pharmacy may also weigh in on how these products are to be handled and thus, may also impact veterinarians in that state. As such, practitioners in each state are encouraged to review the relevant boards that are weighing in on the use of CBD until these caveats change.

Dr. Dawn M. Boothe is a professor of physiology and pharmacology at Auburn University College of Veterinary Medicine. She also serves as the director of the Clinical Pharmacology Laboratory, which offers therapeutic drug monitoring services to veterinary practices throughout the country and across the globe.

End of Life best practices By: Drs. Dani McVety-Leinen and Kathleen Cooney

The two most important appointments are the first and the last.

Clients aren't likely to return to your practice after a bad euthanasia experience, which makes this last appointment a high-risk one for veterinary professionals. Instead of focusing on the risk potential, make euthanasia appointments as positive as they possibly can be by incorporating some practices developed by leaders in veterinary end of life care.

The reverse side of this insert features a "Best Practices" poster which can be hung in your back office for quick reference. It provides tips on the 4 key parts of the euthanasia process and will help elevate the end of life care your staff provides.

Communication

Communication is a vital step in making a pet's euthanasia a positive end of life experience. Aim to give your clients peace of mind.

Specific verbal priming suggestions are on the reverse poster. Practice your communication skills and role play euthanasia appointments with your staff. The more you practice, the more comfortable you'll be with both your clients and your patients.

Dr. Dani McVety (left), Founder of Lap of Love Veterinary Hospice, listens to her clients tell stories about their pet before beginning sedation.

Sedation

Sedation is another crucial part of the euthanasia process. We recommend intramuscular or SQ sedation, so the pet has a few minutes to slowly relax. Many times, family members haven't seen their pet comfortable in a long time. Proper sedation will show the family—as well as your team—that the pet is relaxed and feeling no pain.

Euthanasia

Let the owner know before you proceed with the euthanasia solution. Allow the owner to hold their pet and tell them to "keep talking to her; she can hear you." After administration, listen to the patient's heart and remain silent unless the client speaks. This is an important moment and must be

honored. A statement we like to use when confirming death is, "She has her wings."

After Care & Mementos

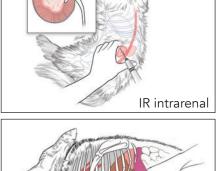
After care of a pet's body is something that often goes under the radar. Having the animal placed into a professional and specifically designed pet body bag such as a EuthaBAG, as opposed to a plastic bag, can really show your staff how much you care. Mementos are an incredibly important part of the experience for pet owners. It's a way to memorialize their time together. Our favorites are paw prints, hair clippings, and perhaps even jewelry for the pet parent. Read on for more ideas of mementos you can offer.

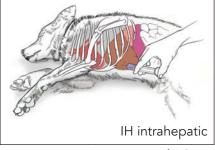


End of Life B

Euthanasia Techniques & Options

Technique	Dose (per 10 lb)	Helpful Tips	
IV intravenous	1ml	Shave when possible, save hair for the family	
IC intracardiac*	1ml	Use a larger syringe for drawing back blood, use an extension for more room	
IH intrahepatic*	2 mls	Inject 1ml per second, redirect as needed until change of breathing noted	
IR intrarenal*	3mls	Maintain hold of kidney at all times, kidney swelling indicates proper placement	
IP intraperitoneal	3mls	Draw back for negative pressure before injecting, avoid fat and free fluid	





Images courtesy of K. Cooney

All doses based on 390 mg/ml euthanasia solution. It's always OK to give more solution via any technique.

*All intraorgan techniques require patient unconsciousness

What to Say from Lap of Love

Instead of	Try compassionate phrasing		
You will know when it's time.	We will work together to know when it's the best time.		
You're doing the right thing.	We're doing the best thing.		
Don't worry about him.	He's in good hands.		
There's nothing more you can do.	You've done an amazing job.		
He's gone.	He has his wings now.		
This is the worst part of my job.	It's an honor to be here with you. I wouldn't be here if I didn't think we were making the best decision.		

Comfort Tips

Comfort Room Tips - place a large, fluffy bath rug with a rubber sole on the ground or table; wrap the pet in soft, pretty blankets; provide soothing background noise, like a water feature or soft instrumental music; have tissues on hand; use low lighting, if possible.

Aftercare Essentials - place the animal in a suitable pet body bag, specifically designed for pets; follow up call the next day; personalize the sympathy card; offer grief support information (counselor specializing in pet loss or local pet loss support groups).

Memorialization Ideas - paw prints in clay or with ink; fur clipping in pretty container; literature; sympathy card; donation in pet's honor; memorial posting; pretty cloth bag for pet's collar and/or leash.

est Practices

Drug Recommendations

Commonly Used Drugs

Anesthetic agent: ketamine, tiletamine/zolazepam, alfaxalone

Sedatives and analgesics: midazolam, dexmedetomidine, acepromazine, butorphanol

Protocols

Drug Concentration	Species	Drug Combinations (drugs are drawn up into one syringe and given as a single injection)	Route
ketamine (100 mg/mL) xylazine (100 mg/mL) acepromazine (10 mg/mL) butorphanol (10 mg/mL)	Dogs	(mL of drug per 10 lbs) 0.1 ketamine 0.05 xylazine 0.1 acepromazine 0.05 butorphanol	SC or IM
tiletamine/zolazepam (100 mg/mL)	Dogs	(mL per 10 lbs) 0.1 tiletamine/zolazepam 0.1 acepromazine 0.025 dexmedetomidine	SC or IM
dexmedetomidine (0.5 mg/mL) butorphanol (10 mg/mL) acepromazine (10 mg/mL)	Dogs	(mL per 10 lbs) 0.1 dexmedetomidine 0.1 butorphanol 0.05 acepromazine	SC
ketamine (100 mg/mL) xylazine (100 mg/mL) acepromazine (10 mg/mL) butorphanol (10 mg/mL)	Cats	0.1 (mL of tiletamine/zolazepam/acepromazine/ketamine mixture# per CAT or per 10 lbs) #Reconstitute the tiletamine/zolazepam powder with 2.5 mL ketamine and 2.5 mL of acepromazine.	SC or IM
tiletamine/zolazepam (100 mg/mL)	Cats	Volumes given per CAT as a range for small to large cats: 0.1 - 0.3 tiletamine/zolazepam 0.1 acepromazine 0.1 butorphanol	SC or IM
alfaxalone (10 mg/mL)	Cats	(mL per CAT) 1.3 alfaxalone for most cats (IM only) 0.2 butorphanol for all body weights 0.1 acepromazine for all body weights	IM

Note: Butorphanol may be substituted with nalbuphine at the same dose. To reduce stinging, add B12 (ratio 50:50 by volume) to the syringe.

To learn more about protocols, visit CAETA and Lap of Love.com/Resources (pw - dvmsupport)

When in doubt, ask yourself, "What's the most loving thing I can do right now?"

CAETA's 14 Essential Components of Companion Animal Euthanasia

Created by Dr. Kathleen Cooney, founder of the Companion Animal Euthanasia Training Academy, ©2017

This acronym holds the phrase Good Euthanasia. Each letter represents one of the 14 essential components of the ideal companion animal euthanasia appointment. This list is to be used as a point of reference for veterinary teams working with caregivers and their pets during this important time. Another key consideration, not included in the list of procedural components, is the emotional health of the veterinary team. All involved personnel are encouraged to practice self-care before, during, and after every appointment.

- G = Grief support materials provided
- O = Outline caregiver and pet preferences
- O = Offer privacy before and after death
- D = Deliver proper technique
- E = Establish rapport
- U = Use pre-euthanasia sedation or anesthesia
- T = Thorough, complete consent
- H = Helpful and compassionate personnel
- A = Adequate time
- N = Narrate the process
- A = Avoid pain and anxiety
- S = Safe space to gather
- I = Inclusion of loved ones
- A = Assistance with body care

Memorialization Ideas



Helpful Resources



Lap of Love Veterinary HospiceLapofLove.com



The Companion Animal Euthanasia Training Academy

CAETAinternational.com



Vortech

vortechpharm.com · sales@vortechpharm.com 313-584-4088 or 800-521-4686

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10 vet tech superstars to follow

> Continued from page 1



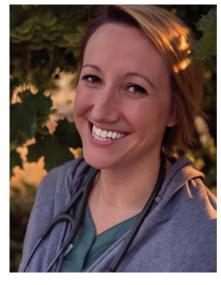
Kelsey Beth Carpenter

You've probably heard of Kelsey Beth Carpenter, RVT, or at least her catchy song "Your Dog Ate Weed." Carpenter works in the intensive care unit and emergency room at a large 24-hour practice in the San Francisco Bay Area. She also runs several social media series, such as "Things Heard at an Animal Hospital," "Bad Stock Photos of Vet Med," and "The Fecal Files." She is currently branching out into speaking and performing and spends the remainder of her time being a neurotic dog mom to her Chihuahua, Birdie. Follow Carpenter @VetTechKelsey.



Stephen Cital

Stephen Cital, RVT, SRA, VTS (Lab Animal), is the man when it comes to discussing new analgesic modalities such as cannabis in veterinary medicine. He is cofounder of the Veterinary Cannabis Academy, an organization that works to educate the industry on the science behind this fascinating new frontier of veterinary medicine. Cital is also an administrator of the Veterinary Anesthesia Nerds website, an accomplished author, an international speaker and a salsa dancer. Follow Cital @animalguy.



April Bays

April Bays, CVT, VTS (ECC), has a passion for putting knowledge into action. For her, that means shifting the paradigm from "that's the way we've always done it" to validating and empowering the powerhouse of the clinic. She has lectured for her local veterinary technician program, mentors hopeful VTS applicants and is an ambassador for the Veterinary Emergency and Critical Care Society. She loves sharing her enthusiasm with technicians by writing journal articles, blogs and book chapters. Follow Bays @aprilbays.



Sarah Stowman

Sarah Stowman, CVT, is passionate about working with other veterinary professionals to help spread awareness of the mental health issues that plague the field. Through in-hospital lectures, social media and wellness initiatives, Stowman is excited about the positive changes that are a direct result of her work in helping others. She knows that by educating her colleagues and spreading awareness through multiple platforms, the veterinary profession as a whole will be able to decrease burnout and cultivate a stronger culture. Follow Stowman @slstowman.



Jenny Fisher

As the director of education for industry service provider PractiVet, Jenny Fisher, RVT, VTS (oncology), provides product and clinical support to hospital staff. One of the main areas of her clinical education focus is hazardous drug handling safety and USP 800 compliance. Throughout the past year, Fisher has also worked as a consultant with the National Institute for Occupational Safety and Health to develop a resource guide for veterinary medicine on safe handling of chemotherapy drugs that includes an app that can be accessed from any computer or mobile device. Follow Fisher @jecrvt.



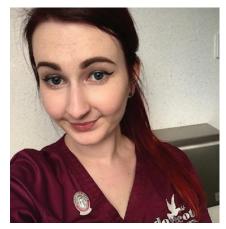
Courtney Scales

Courtney Scales, RVN, is a registered veterinary nurse working in a U.K. university referral hospital, teaching and supporting both veterinary and veterinary nursing students through their anesthesia rotations. Outside of the teaching hospital, she shares her passion for anesthesia through social media; "Veterinary Anursethesia" offers easy-to-read knowledge bites with tips that can be implemented in general practice. Follow Scales @ veterinaryanursethesia.



Tabitha Kucera

Tabitha Kucera, CVT, is the vet tech you contact when you have a cat that is driving you bananas. As a certified cat behavior consultant and an experienced speaker and writer, Kucera offers pet owners and industry leaders practical advice on common feline behavior concerns. She is committed to seeing cats thrive in their home environment with proper enrichment and owner education. Follow Kucera @ chirrupsandchatter.



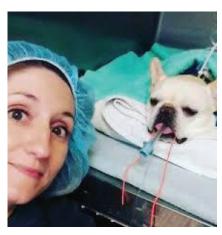
Elle Payne

Elle Payne, RVN, who also works in a U.K. veterinary practice, created "The Positive Vet Nurse" blog and Instagram feed in March 2018 when she was suffering from mental illness after losing a friend to suicide. Since then she has interacted with veterinary professionals around the world, spreading mental health awareness and positivity. "I feel my Instagram page has really helped people, and I pride myself on inspiring others to reach out for help when they need it the most and to stay positive," Payne says. Follow her @ thepositivevetnurse.



Mark Romanoski

Mark Romanoski, CVT, RVT, spent the first several years of his career in specialty surgery/anesthesia. Four years ago he discovered his passion for wildlife and conservation medicine and never looked back. He currently works at the Oklahoma City Zoo and Botanical Garden in Oklahoma. Considered the technician when it comes to zoo mammal anesthesia, Romanoski will be presenting a case study on a gorilla procedure at the 2019 Association of Zoo Veterinary Technicians Annual Conference later this month. Follow Romanoski @zoomedrvt.



Tasha McNerney

Tasha McNerney, CVT, CVPP, VTS (anesthesia and analgesia), is the creator of Veterinary Anesthesia Nerds, which strives to increase awareness and education of best practices and elevate the standard of care for veterinary anesthesia. She is also a certified veterinary pain practitioner and works with the International Veterinary Academy of Pain Management to promote animal pain awareness. McNerney is an international lecturer on all things anesthesia and pain management. We also hear she likes pugs! Follow me @vetanesthesianerds.

■ We celebrate ► superhero techs!



NATIONAL VETERINARY TECHNICIAN WEEK 2019

dvm360 is proud to partner with brands and companies that support our celebration of veterinary technicians everywhere. Thanks to Banfield for their support of our 2019 coverage of National Veterinary Technician Week! Find more #vettechweek coverage at dvm360.com, on Facebook (@dvm360) and on Instagram (@dvm360mag). Three cheers for superhero techs everywhere!





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Veterinary products now and for future wow

Autoinjectors, injectables and iodine-laced water are just a few products veterinarians might be interested in, courtesy of the Kansas City Animal Health Corridor Investment Forum. By Brendan Howard and Kristi Reimer Fender

ach year in Kansas City,
Missouri—in the land of food
animal science and, thus, a
big segment of the animal health
industry—startup CEOs and entrepreneurs hungry for investment dollars
show up to pitch a panel of judges and
company representatives in attendance.
In addition to whatever deals start at
the forum, Kansas City Animal Health
Corridor organizers also give a \$10,000
Innovation Award to the big winner.

Many of the products aren't relevant to many veterinarians, but there are always gems that catch the eye of the *dvm360* team in attendance.

A solution to trypanophobia

That's fear of needles, and Koglo CEO Yotam Kaufman pitched the audience on an alternative to traditional needles for subcutaneous fluid treatment in pet owners' homes.

"No one likes needles, that's obvious, but sometimes people need to inject their pets alone on a regular basis," Kaufman says. And why shouldn't veterinary medicine get fancy devices like those for human patients with diabetes for regular insulin shots?

The EZXS device replaces a hand-driven needle with a clip for a scruff that's attached to a cartridge system that pet owners (or veterinary team members) turn to insert, then turn back to remove and empty. Attached to the device could be fluids or injectable drugs or vaccines.

The prototype is being tested with cats now in veterinary hospitals and is not yet available for purchase.

Monoclonal antibody built in a mouse

Monoclonal antibody products are a healthy and growing part of human medicine (Humira is one blockbuster), and PetMedix founder and CEO Tom Weaver sees the same future growth in veterinary medicine. Right now, the



Swine Tech co-founder and CEO Matthew Rooda (middle)—with technology to save piglets from accidental crushing by sows—received a check for the \$10,000 Innovation Award from Kansas City Animal Health Corridor advisory board members Karthik Ramachandran (left) and Chris Ragland.

only veterinary monoclonal antibody product is Zoetis' Cytopoint for canine allergic dermatitis.

These products come in two flavors: 1) phage therapy, using bacteriophages to treat bacterial infections, and 2) species-specific therapy, using transgenic mice, as in the case of PetMedix.

"We're putting a dog's immune system into a mouse," Weaver says.
"We have literally replaced the mouse's genes, so we can immunize with a dog-targeted protein from that mouse. With our method, you let the mouse be the protein engineer, and it's far better than those of us in the lab [with phagederived therapy] could do."

Injectables in the practice

Companies like Cornerstone Animal Health are looking for unique ways to make injectables—administered in the hospital—better and longer-lasting.

With a pain product on the way, the company's injectables use a patented "depot" technology from human medicine to create a subcutaneous pocket for sustained, long-term delivery in optimal therapeutic ranges. The depot is removable after the drug has run its course.

"We held a focus group with veterinarians, and they shared with us that this product or a line of products like this gives them the ability to put the syringe back in their hand to get customer compliance and make sure the treatment goes as planned," says partner Vince Palasota.

The company is looking for partners who want to use BEPO for drug delivery to veterinary patients.

Putting software to work

Everyone's practice software keeps and collects information, but how many practice owners actually put all that information to work for the business?

Steve Kornfeld, DVM, CPCC, with Vmartec, talked up the company's Practice Builder, which seeks to make better use of current clients and wake up dormant clients to appointments again. The system includes direct marketing campaigns for 18 of the most commonly seen conditions and uses software to put clients into specific groups based on their interests and their pets' conditions. A client list puts people in a campaign in descending order for calls and communication.

Training modules share tips for phone and exam room communication during the campaigns. There's also a dashboard that shows off up to 26 graphs about the campaign timing and numbers daily.

Pricing starts at \$595 per month and depends on the number of clients in individual campaigns.

lodine to beat dog breath?

President and chairman of Assure Pet Health James Richards understands one thing every veterinary professional knows: The human-animal bond is harmed by bad breath.

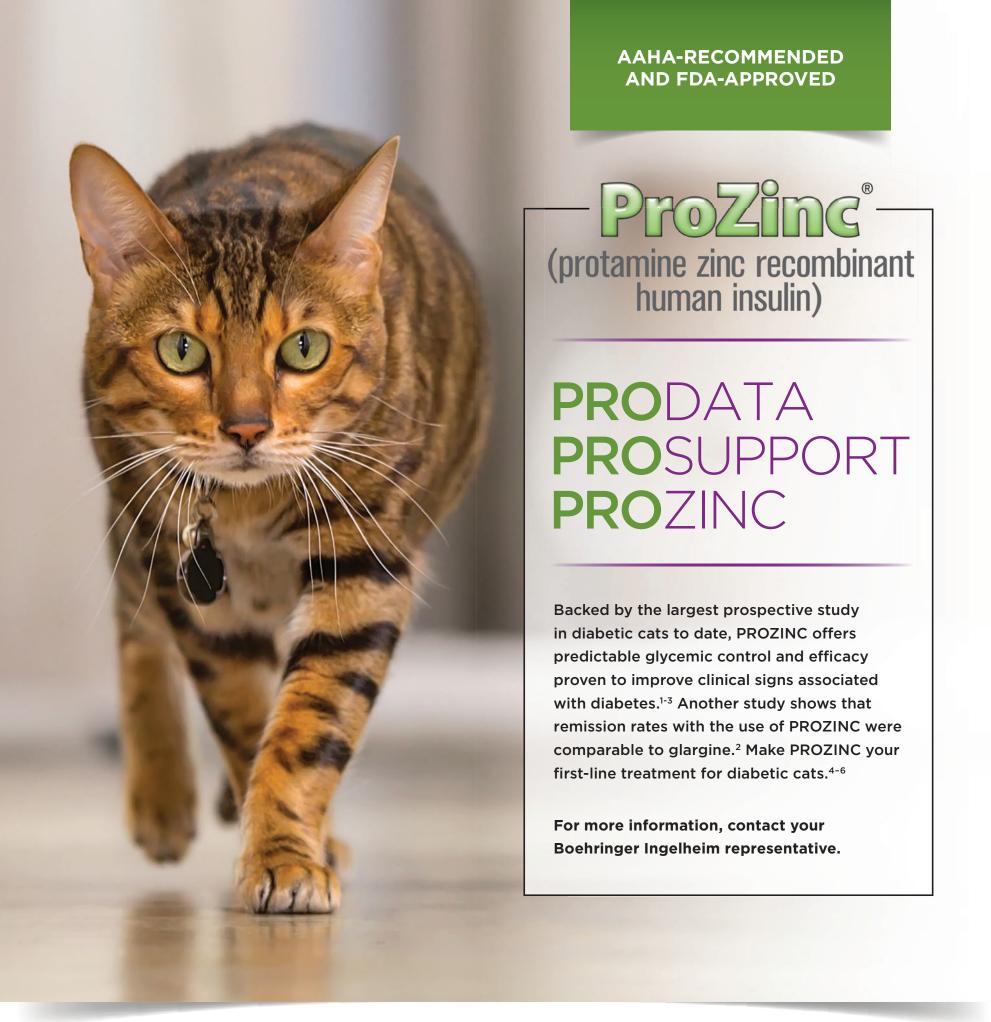
Richards pitched his Pet Plaque Prevention System (P3S), an automated water bowl that delivers molecular iodine into a water tank with an antiseptic cartridge and an RFID-enabled dog collar to signal it's time to drop into the water. After a dog drinks, a charcoal filter removes leftover iodine.

"A tiny amount of our iodine added to water has no taste or smell, but removes bacteria responsible for halitosis," says Richards, whose device has the Veterinary Oral Health Council seal of approval.

Richards estimates retail pricing at \$100 for the unit (which comes in different sizes for different dogs) and \$18 a month for cartridges.

Yeah, but who won?

The winner of this year's KC Animal Health Corridor 2019 Innovation Award, SwineTech, has a device that monitors the sounds piglets make when housed with sows. If a piglet makes a repeated, distressed squeal that indicates a sow has rolled onto the piglet, a patch on the sow sends an electrostimulation signal that gets mom to stand up again. Co-founder and CEO Michael Rooda, who grew up with his swine-farming dad, says initial tests are seeing success. Turns out, saving the lives of cute piglets tugs at audience heartstrings and makes good financial sense.



Important Safety Information for Cats: For use in cats and dogs only. Animals presenting with severe ketoacidosis, anorexia, lethargy, and/or vomiting should be stabilized with short-acting insulin and appropriate supportive therapy until their condition is stabilized. As with all insulin products, careful patient monitoring for hypoglycemia and hyperglycemia is essential to attain and maintain adequate glycemic control and to prevent associated complications. Overdosage can result in profound hypoglycemia and death. Progestogen and glucocorticoid use should be avoided. PROZINC insulin is contraindicated in cats during episodes of hypoglycemia and in cats sensitive to protamine zinc recombinant human insulin or any other ingredients in the PROZINC product.

For more information, please see full prescribing information for cats on page 24.

References: 1. Data on file. Boehringer Ingelheim Animal Health USA Inc. 2. Gostelow R, Scudder C, Hazuchova K, et al. One-year prospective randomized trial comparing efficacy of glargine and protamine zinc insulin in diabetic cats. In: Proceedings from the American College of Veterinary Internal Medicine Forum; June 8-10, 2017; National Harbor, MD. Abstract EN10. 3. ProZinc* (protamine zinc recombinant human insulin) [Freedom of Information Summary]. St. Joseph, MO: Boehringer Ingelheim Vetmedica, Inc.; 2009. 4. Rucinsky R, Cook A, Haley S, et al. AAHA diabetes management guidelines for dogs and cats. J Am Anim Hosp Assoc. 2010;46(3):215-224. 5. American Association of Feline Practitioners. AAFP practice guidelines. Accessed September 19, 2018. 6. Sparkes AH, Cannon M, Church D, et al. ISFM consensus guidelines on the practical management of diabetes mellitus in cats. J Feline Med Surg. 2015;17(3):235-250.



Transport of homeless pets: Weighing the rights and wrongs

The veterinary community should look closer at the legal, financial and health effects of interstate and international animal transportation. By Amanda Dykstra, DVM, DABVP (shelter medicine)

NADA 141-297, Approved by FDA

ProZinc®

(protamine zinc recombinant human insulin)

Caution: Federal law restricts this drug to use by or on the order of a

Description: ProZinc* insulin is a sterile aqueous protamine zinc suspension of recombinant human insulin.

Each mL contains:

recombinant human insulin	40 International Units (IU)
protamine sulfate	0.466 mg
zinc oxide	0.088 mg
glycerin	16.00 mg
dibasic sodium phosphate, heptahydrate	3.78 mg
phenol (added as preservative)	2.50 mg
hydrochloric acid	1.63 mg
water for injection (maximum)	1005 mg
pH is adjusted with hydrochloric acid and/or sodiu	ım hydroxide.

Indication: ProZinc (protamine zinc recombinant human insulin) is indicated for the reduction of hyperglycemia and hyperglycemia-associated clinical signs in cats with diabetes mellitus.

Dosage and Administration: USE OF A SYRINGE OTHER THAN A U-40 SYRINGE WILL RESULT IN INCORRECT DOSING.

FOR SUBCUTANEOUS INJECTION IN CATS ONLY.

DO NOT SHAKE OR AGITATE THE VIAL.

ProZinc insulin should be mixed by gently rolling the vial prior to withdrawing each dose from the vial. One mixed, ProZinc suspension has a white, cloudy appearance. Clumps or visible white particles can form in insulin suspensions: do not use the product if clumps or visible white particles persist after gently rolling the vial. Using a U-40 insulin syringe, the injection should be administered subcutaneously on the back of the neck or on the side of the cat.

Always provide the Cat Owner Information Sheet with each prescription

Aways provide the Cat Owner Information Sheet with each prescription. In initial recommended ProZinc dose is 0.1 - 0.3 IU insulin/pound of body weight (0.2 - 0.7 IU/kg) every 12 hours. The dose should be given concurrently with or right after a meal. The veterinarian should re-evaluate the cat at appropriate intervals and adjust the dose based on both clinical signs and glucose nadirs until adequate glycemic control has been attained. In the effectiveness field study, glycemic control was considered adequate if the glucose nadir from a 9-hour blood glucose curve was between 80 and 150 mg/dL and clinical signs of hyperglycemia such as polyuria, polydipsia, and weight loss were improved.

Further adjustments in the dosage may be necessary with changes in the cat's diet, body weight, or concomitant medication, or if the cat develops concurrent infection. inflammation, neoplasia, or an additional endocrine or other medical disorder.

Contraindications: ProZinc insulin is contraindicated in cats sensitive to protami zinc recombinant human insulin or any other ingredients in the ProZinc product. ProZinc insulin is contraindicated during episodes of hypoglycemia.

Warnings: User Safety: For use in cats only. Keep out of the reach of children. Avoid contact with eyes. In case of contact, immediately flush eyes with running water for at least 15 minutes. Accidental injection may cause hypoglycemia. In case of accidental injection, seek medical attention immediately. Exposure to product may induce a local or systemic allergic reaction in sensitized individuals.

Animal Safety: Owners should be advised to observe for signs of hypoglycemia (see Cat Owner Information Sheet). Use of this product, even at established doses, has been associated with hypoglycemia. An animal with signs of hypoglycemia should be treated immediately. Glucose should be given orally or intravenously as dictated by clinical signs. Insulin should be temporarily withheld and, if indicated, the dosage adjusted.

Any change in insulin should be made cautiously and only under a veterinarian's supervision. Changes in insulin strength, manufacturer, type, species (human, animal) or method of manufacture (rDNA versus animal-source insulin) may result in the need for a change in dosage.

Appropriate diagnostic tests should be performed to rule out other endocrinopathies in diabetic cats that are difficult to regulate.

Precautions: Animals presenting with severe ketoacidosis, anorexia, lethargy, and/or vomiting should be stabilized with short-acting insulin and appropriate supportive therapy until their condition is stabilized. As with all insulin products, careful patient monitoring for hypoglycemia and hyperglycemia are essential to attain and maintain adequate glycemic control and to prevent associated complications. Overdosage can result in profound hypoglycemia and death. Progestogens, certain endocrinopathies and glucocorticoids can have an antagonistic effect on insulin activity. Progestogen and glucocorticoid use should be avoided.

Reproductive Safety: The safety and effectiveness of ProZinc insulin in breeding, pregnant, and lactating cats has not been evaluated.

Use in Kittens: The safety and effectiveness of ProZinc insulin in kittens has not

been evaluated.

Adverse Reactions: Effectiveness Field Study
In a 45-day effectiveness field study, 176 cats received ProZinc insulin. Hypoglycemia (defined as a blood glucose value of < 50 mg/dL) occurred in 71 of the cats at various times throughout the study. Clinical signs of hypoglycemia were generally mild in nature (described as lethargic, sluggish, weak, trembling, uncoordinated, groggy, glassy-eyed or dazed). In 17 cases, the veterinarian provided oral glucose supplementation or food as treatment. Most cases were not associated with clinical signs and received no treatment. One cat had a serious hypoglycemic event associated with stupor, lateral recumbency, hypothermia and seizures.

All cases of hypoglycemia resolved with appropriate therapy and if needed,

Three cats had injection site reactions which were described as either small punctate, red lesions; lesions on neck; or palpable subcutane injection site reactions resolved without cessation of therapy.

Four cats developed diabetic neuropathy during the study as evidenced by plantigrade stance. Three cats entered the study with plantigrade stance, one of which resolved by Day 45. Four cats were diagnosed with diabetic ketoacidosis during the study. Two were euthanized due to poor response to treatment. Five other cats were euthanized during the study, one of which had hypoglycemia. Four cats had received ProZinc insulin for less than a week and were euthanized due to worsening concurrent medical conditions.

The following additional clinical observations or diagnoses were reported in cats during the effectiveness field study: vomiting, lethargy, diarrhea, cystitis/hematuria, upper respiratory infection, dry coat, hair loss, ocular discharge, abn vocalization, black stool, and rapid breathing.

vocalization, black stool, and rapid breathing.

Extended Use Field Study
Cats that completed the effectiveness study were enrolled into an extended use field study. In this study, 145 cats received ProZinc insulin for up to an additional 136 days. Adverse reactions were similar to those reported during the 45-day effectiveness study and are listed in order of decreasing frequency: vomiting, hypoglycemia, anorexia/poor appetite, diarrhea, lethargy, cystitis/hematuria, and weakness. Twenty cats had signs consistent with hypoglycemia described as: sluggish, lethargic, unsteady, wobbly, seizures, trembling, or dazed. Most of these were treated by the owner or veterinarian with oral glucose supplementation or food; others received intravenous glucose. One cat had a serious hypoglycemic event associated with seizures and blindness. The cat fully recovered after supportive therapy and finished the study. All cases of hypoglycemia resolved with appropriate therapy and finished the study. All cases of hypoglycemia resolved with appropriate therapy and if needed, a dose reduction.

Fourteen cats died or were euthanized during the extended use study. In two cases, continued use of insulin despite anorexia and signs of hypoglycemia contributed to the deaths. In one case, the owner decided not to continue therapy after a presumed episode of hypoglycemia. The rest were due to concurrent medical conditions or vorsening of the diabetes mellitus.

To report suspected adverse reactions, or to obtain a copy of the Material Safety Data Sheet (MSDS), call 1-866-638-2226.

Sheet (MSDS), call 1-866-638-2226.

Information for Cat Owners: Please refer to the Cat Owner Information Sheet for more information about ProZinc insulin. ProZinc insulin, like other insulin products, is not free from adverse reactions. Owners should be advised of the potential for adverse reactions and be informed of the associated clinical signs. Potential adverse reactions include: hypoglycemia, insulin antagonism/resistance, rapid insulin metabolism, insulin-induced hyperglycemia (Somogyi Effect), and local or systemic reactions. The most common adverse reaction observed is hypoglycemia. Signs may include: weakness, depression, behavioral changes, muscle twitching, and anxiety. In severe cases of hypoglycemia, seizures and coma can occur. Hypoglycemia can be fatal if an affected cat does not receive prompt treatment. Appropriate veterinary monitoring of blood glucose, adjustment of insulin dose and regimen as needed, and stabilization of diet and activity help minimize the risk of hypoglycemic episodes. The attending veterinarian should evaluate other adverse reactions on a case-by-case basis to determine if an adjustment in therapy is appropriate, or if alternative therapy should be considered.

Effectiveness: A total of 187 client-owned cats were enrolled in a 45-dav field study.

Effectiveness: A total of 187 client-owned cats were enrolled in a 45-day field study Effectiveness: A total of 187 client-owned cats were enrolled in a 45-day field study, with 176 receiving ProZinc insulin. One hundred and fifty-one cats were included in the effectiveness analysis. The patients included various purebred and mixed breed cats ranging in age from 3 to 19 years and in weight from 4.6 to 20.8 pounds. Of the cats included in the effectiveness analysis, 101 were castrated males, 49 were spaye females, and 1 was an intact female.

Cats were started on ProZinc insulin at a dose of 0.1-0.3 IU/lb (0.2-0.7 IU/kg) twice daily. Cats were evaluated at 7, 14, 30, and 45 days after initiation of therapy and the dose was adjusted based on clinical signs and results of 9-hour blood glucose curves on Days 7, 14, and 30.

Effectiveness was based on successful control of diabetes which was defined as Effectiveness was based on successful control of diabetes which was defined as improvement in at least one blood glucose variable (glucose curve mean, nadir, or fructosamine) and at least one clinical sign (polyuria, polydipsia, or body weight). Based on this definition, 115 of 151 cases (76.2%) were considered successful. Blood glucose curve means decreased from 415.3 mg/dL on Day 0 to 203.2 mg/dL by Day 45 and the mean blood glucose nadir decreased from 407.9 mg/dL on Day 0 to 142.4 mg/dL on Day 45. Mean fructosamine values decreased from 505.9 μmol/L on Day 0 to 380.7 μmol/L on Day 45.

Cats that completed the effectiveness study were enrolled in an extended use field study. The mean fructosamine value was 342.0 $\mu mol/L$ after a total of 181 days of ProZinc therapy.

How Supplied: ProZinc insulin is supplied as a sterile injectable suspension in 10 mL multidose vials. Each mL of ProZinc product contains 40 IU recombinant

Storage Conditions: Store in an upright position under refrigeration at 36-46°F (2-8°C). Do not freeze. Protect from light. Use within 60 days of first puncture. Manufactured for:

Boehringer Ingelheim Vetmedica, Inc. St. Joseph, MO 64506 U.S.A.

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> Boehringer Ingelheim

ast month, I was helping a friend at her veterinary practice when a new client came in with a sphinx cat. He was underweight, with a distended abdomen, and looked in general illthrift. The client said she'd bought him two days earlier from a "single household breeder" and reported that he was up to date on vaccines. She just needed an exam so her health guarantee would be good.

When I pointed out that the vaccine records were in Arabic so I couldn't verify his status, she was confused how her cat from Georgia had vaccine records from another country. She was also pretty distraught when I mentioned that her supposedly 3-monthold kitten had full adult dentition and was likely about 8 months old and significantly underweight. Unfortunately, my friend ended up euthanizing the \$2,500 cat two days later, and the woman was unable to contact the "breeder" to get any further information or a refund. This is one of many examples of how animal transports and the often unethical practices involved are becoming a common problem in veterinary medicine.

Some break rules for emotional reasons, others for monetary gain

Companion animals are transported across state and federal borders primarily by 1) pet owners relocating with their pets, 2) organizations trying to improve animal welfare, 3) breeders and other individuals trying for commercial gain and 4) those assisting with disaster response efforts. From a superficial view, many would see transport as an overall positive venture that helps even out the oversupply and undersupply of adoptable pets and improve animal welfare, but there are issues. The Centers for Disease Control and Prevention suspended dogs entering the U.S. from Egypt in May 2019

due to three rabid dogs being imported from that country, and a recent article described illegal puppy imports at JFK Airport, shedding light once again on the dangers of animal transport.^{1,2}

Some veterinarians are concerned that transport may be good for individual animals but detrimental for "dogkind." Regulations and guidance for animal movement exist, including a USDA requirement that dogs entering the country from areas with a high rabies risk must be over 4 months old and vaccinated for rabies. Dogs entering the country for sale are supposed to be 6 months old.^{1,3} Unfortunately, transport guidelines are generally considered recommendations, and enforcement of regulatory measures is not a priority.

Importers have used many tactics to illegally get animals into the country.1 Some break rules for emotional reasons, others for monetary gain. "Flight parent" is a term used for people who think they're doing a good deed by transporting a rescue dog when they're actually providing a means for commercial breeders to get dogs into the U.S. In 2017, a flight parent was bit by a rabid chihuahua with a fake rabies certificate. Importers also claim dogs are rescues without a monetary value, transport pregnant bitches so puppies will be born in the U.S. and then sell the animals on social media, with partners in the U.S. acting as individual breeders. Those involved with animal welfare have also been accused of falsifying paperwork or using other means to get animals into the country where they can be adopted.

International transport has introduced a new strain of canine distemper virus to North America.4 The canine influenza outbreak that started in the Chicago area in 2015 has also been linked directly to dogs rescued from Asia.4 The University of Wisconsin Shelter Medicine Program recently assisted with the response to dogs transported from Korea that were diagnosed with brucellosis.5 There are also concerns about pathogens being introduced that we haven't yet directly linked to transport, including antibiotic-resistant bacteria.4 The dangers go beyond companion animals. Public health officials are concerned about the potential introduction of zoonotic agents and the impact



on wildlife populations that are naïve to foreign disease.

There are similar concerns about interstate transport. Vector-borne diseases like Lyme⁶ and heartworm disease spreading to nonendemic areas has many root causes, but some veterinarians are concerned that transporting animals from endemic to nonendemic areas is one cause.

State-to-state also isn't great

Interstate transport, in many cases, is well-intentioned. It can increase live release rates and decrease overcrowding in shelters. It may decrease the number of people turning to commercial breeders when shelters don't have adoptable puppies. On a personal level, it gives people a feeling that they're doing something to help animals. During natural disasters, transporting shelter animals to other locations can save lives.

Risks of interstate transport include the misdiagnosis of transported animals due to veterinarians not realizing their patients came to the area from regions where locally rare diseases are more common. The spread of infectious disease—including introducing new strains to naïve populations and the spread of vectors—is possible. There is also concern that transport may lead to an increased resistance to antiparasiticides. Sporadic transfer also makes it more difficult to find lost animals, espe-

cially following natural disasters. Also, moving animals that aren't behaviorally sound may put them and the humans involved at risk for injury.

Transporting the right way

There are ways to decrease the risks, including protocols at the source and destination shelters that set standards for vaccine requirements, testing for vector-borne disease, administration of antiparasitics prior to movement and quarantine periods at the destination shelter. General care requirements, such as proper identification, behavior evaluation and thorough physical exams at both the source and destination also help decrease risk. Veterinarians who are accustomed to educating those looking for a new pet about how to avoid puppy mills and catteries could consider discussing how and why to avoid buying animals transported from other countries. And many Americans are calling for tougher regulations for importing dogs and cats into the U.S. from abroad.

Transporting companion animals across state and federal borders has become a controversial issue in veterinary medicine. Many see it as a life-saving measure that's worth the risks, while others have grave concerns about the impacts from a One Health perspective. These concerns have been quietly discussed in the veterinary community for many years. As those

discussions become louder and make their way into news headlines, we veterinary professionals will be called upon to work with public health officials to find solutions that allow for life-saving transports but decrease the risks to the community.

Dr. Amanda Dykstra worked in municipal and private animal shelters and taught shelter medicine at the University of Tennessee before starting her own consulting firm in 2018.

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DOT addresses emotional support animals on flights

New guidance on what it will and won't enforce when it comes to dogs (or cats, or horses, or snakes) traveling with airline passengers. By Brendan Howard

hen it comes to emotional support animals on airplanes, there has been confusion, strong emotion and much suspicion that passengers are taking advantage of government policies in the last few years. In response, the U.S. Department of Transportation (DOT) has provided guidance on how it will enforce existing regulations concerning air travel, disabilities and animals in airplane cabins.

Here are some basic takeaways from the DOT's document, "Guidance on Nondiscrimination on the Basis of Disability in Air Travel," which reflects the agency's thinking after reading roughly 4,500 public comments and considering current policies. This information could be helpful for your veterinary clients as they contemplate flying with emotional support animals. This is what the DOT has told airlines it will and will not enforce:

Exotic species can be acceptable emotional support animals. Airlines can deny transport only to "certain unusual species" of service animals snakes, other reptiles, ferrets, rodents and spiders. The DOT may take "enforcement action" on a case-by-case basis against airlines that fail to transport other species as service animals but will primarily focus on ensuring that dogs, cats and miniature horsesthe most common ones—are accepted.

Passengers can be required to take extra steps. The DOT says airlines can require passengers with psychiatric service animals (PSAs) or emotional support animals (ESAs)—but not traditional service animals—to do the following: 1) provide the airline advance notice of intention to travel with the animal, 2) appear in person in the airport lobby to verify that an animal can be transported safely, and 3) check in one hour earlier than the general public. Airlines cannot force passengers to use airline-specific forms or require medical professionals to fill them out; any valid form or letter will do.

GALLIPRANT® (grapiprant tablets)

For oral use in dogs only

20 mg, 60 mg and 100 mg flavored tablets
A prostaglandin E₂ (PGE₂) EP4 receptor antagonist; a non-cyclooxygenase inhibiting, non-steroidal anti-inflammatory drug
Caution: Federal (USA) law restricts this drug to use by or on the order of a licensed

Before using Galliprant, please consult the product insert, a summary of which follows:

Indication: GALLIPRANT (grapiprant tablets) is indicated for the control of pain and inflammation associated with osteoarthritis in dogs.

Dosage and Administration: Always provide "Information for Dog Owners" Sheet with prescription. Use the lowest effective dose for the shortest duration consistent with individual response.

individual response.

The dose of GALLIPRANT (grapiprant tablets) is 0.9 mg/lb (2 mg/kg) once daily. Only the 20 mg and 60 mg tablets of GALLIPRANT are scored. The dosage should be calculated in half tablet increments. Dose less than 8 lbs. (3.6 kgs) cannot be accurately dosed. The 100 mg tablet is not scored and should not be broken in half. See product insert for complete

Contraindications: GALLIPRANT should not be used in dogs that have a hypersensitivity

to grapiprant.

Warnings: Not for use in humans. Keep this and all medications out of reach of children and pets. Consult a physician in case of accidental ingestion by humans. For use in dogs only. Store GALLIPRANT out of reach of dogs and other pets in a secured location in order to prevent accidental ingestion or overdose.

Precautions: The safe use of GALLIPRANT has not been evaluated in dogs younger than 9 months of age and less than 8 lbs (3.6 kg), dogs used for breeding, or in pregnant or lactating dogs.

Adverse reactions in dogs receiving GALLIPRANT may include vomiting, diarrhea, decreased appetite, mucoid, watery or bloody stools, and decreases in serum albumin and total protein. If GALLIPRANT is used long term appropriet monitoring is recommended.

Concurrent use with other anti-inflammatory drugs has not been studied. Concomitant use of GALLIPRANT with other anti-inflammatory drugs has not been studied. Concomitant use of GALLIPRANT with other anti-inflammatory drugs, such as COX-inhibiting NSAIDs or corticosteroids, should be avoided. If additional pain medication is needed after a daily dose of GALLIPRANT, a non-NSAID/ non-corticosteroid class of analgesic may be necessary. The concomitant use of protein-bound drugs with GALLIPRANT has not been studied. Commonly used protein-bound drugs include cardiac, anticonvulsant and behavioral medications.

medications.

Drug compatibility should be monitored in patients requiring adjunctive therapy. Consider appropriate washout times when switching from one anti-inflammatory to another or when switching from corticosteroids or COX-inhibiting NSAIDs to GALLIPRANT use.

The use of GALLIPRANT in dogs with cardiac disease has not been studied. It is not known whether dogs with a history of hypersensitivity to sulfonamide drugs will exhibit hypersensitivity to GALLIPRANT. GALLIPRANT is a methylbenzenesulfonamide.

Adverse Reactions: In a controlled field study, 285 dogs were evaluated for safety when given either GALLIPRANT or a vehicle control (tablet minus grapiprant) at a dose of 2 mg/kg (0.9 mg/lb) once daily for 28 days. GALLIPRANT-treated dogs ranged in age from 2 yrs to 16.75 years. The following adverse reactions were observed:

Table 1. Adverse reactions reported in the field study.

Table 1. Adverse reactions reported in the field study

Table II Mareree Teachers Tope	nable in hardree reactions reported in the note of aug.			
Adverse reaction*	GALLIPRANT (grapiprant tablets) N = 141	Vehicle control (tablets minus grapiprant) N = 144		
Vomiting	24	9		
Diarrhea, soft stool	17	13		
Anorexia, inappetence	9	7		
Lethargy	6	2		
Buccal ulcer	1	0		
Immune mediated hemolytic anemia	1	0		

*Dogs may have experienced more than one type or occurrence during the study. GALLIPRANT was used safely during the field studies with other concurrent therapies including antibiotics, parasiticides and vaccinations.

To report suspected adverse drug events and/or to obtain a copy of the Safety Data Sheet (SDS) or for technical assistance, call 1-888-545-5973.

lo report suspected adverse drug events and/or to obtain a copy of the Safety Data Sheet (SDS) or for technical assistance, call 1-888-545-5973.

For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or online at http://www.fda.gov/AnimalVeterinarry/SafetyHealth Information for Dog Owners: Owners should be advised of the potential for adverse reactions and be informed of the clinical signs associated with drug intolerance. Adverse reactions may include vomitting, diarrhea, decreased appetite, and decreasing albumin and total protein. Appetite and stools should be monitored and owners should be advised to consult with their veterinarian if appetite decreases or stools become abnormal.

Effectiveness: Two hundred and eighty five (285) client-owned dogs were enrolled in the study and evaluated for field safety. GALLIPRANT-treated dogs ranging in age from 2 to 16.75 years and weighing between 4.1 and 59.6 kgs (9 –131 lbs) with radiographic and clinical signs of osteoarthritis were enrolled in a placebo-controlled, masked field study. Dogs had a 7-day washout from NSAID or other current OA therapy. Two hundred and sixty two (262) of the 285 dogs were included in the effectiveness evaluation. Dogs were assessed for improvements in pain and function by the owners using the Canine Brief Pain Inventory (CBPI) scoring system. A statistically significant difference in the proportion of treatment successes in the GALLIPRANT group (63/131 or 48.1%) was observed compared to the vehicle control group (41/131 or 31.3%). GALLIPRANT demonstrated statistically significant differences in owner assessed pain and function. The results of the field study demonstrate that GALLIPRANT, administered at 2 mg/kg (0.9 mg/pound) once daily for 28 days, was effective for the control of pain and inflammation associated with osteoarthritis.

uays, was enecuve for the control of pain and inflammation associated with osteoarthm **Storage Conditions:** Store at or below 86° F (30° C) **How Supplied:** 20 mg, 60 mg and 100 mg flavored tablets in 7, 30 and 90 count bottles NADA 141-455, Approved by FDA Manufactured for:

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XARATANA Elanco





Important Safety Information

Not for use in humans. For use in dogs only. Keep this and all medications out of reach of children and pets. Store out of reach of dogs and other pets in a secured location in order to prevent accidental ingestion or overdose. Do in order to prevent accidental ingestion or overdose. Do not use in dogs that have a hypersensitivity to grapiprant. If Galliprant is used long term, appropriate monitoring is recommended. Concomitant use of Galliprant with other anti-inflammatory drugs, such as COX-inhibiting NSAIDs or corticosteroids, should be avoided. Concurrent use with other anti-inflammatory drugs or protein-bound drugs has not been studied. The safe use of Galliprant has not been evaluated in dogs younger than 9 months of age and less than 8 lbs (3.6 kg), dogs used for breeding, pregnant or lactating dogs, or dogs with cardiac disease. The most common adverse reactions were vomiting, diarrhea, decreased appetite, and lethargy. Please see brief summary to the left for prescribing information.

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Health and safety must be documented—within reason. To verify that an animal is safe to fly, the DOT says airlines can require passengers with ESAs and PSAs to present documentation 48 hours before a flight showing proof of vaccinations, training or behavior. A number of forms created by airlines, however, are unacceptable—for example, one requiring

a veterinarian to guarantee that an animal will behave. The DOT says certain airlines' bans of "pit bull type dogs" are also prohibited, but "airlines are permitted to find that any specific animal, regardless of breed, poses a direct threat based on behavior."

Containment of an animal must be reasonable. The DOT says it will consider appropriate ways to leash,

restrain, tether and carry service animals on a case-by-case basis, with a focus on "reasonableness." Factors include size and species of animal, other passengers' foot space and the ability of an animal to provide emotional support to the passenger.

Three's the magic number. The DOT says it will focus on ensuring that airlines allow passengers to travel with

one emotional support animal and as many as three service animals total. Airlines have complained about the number of allowed animals, but the DOT counters that "if 10 qualified individuals with a disability each need to bring an ESA, then ... the airline must accept all 10 ESAs, so long as the ESAs are sufficiently trained to behave."

The DOT also considered other, newer policies by airlines, and found these to be enforceable:

- > Animals must be older than 4 months (younger animals are unlikely to be properly trained).
- > Animals may not be uniformly restricted by weight (they should be judged on a case-by-case basis).
- > Animals may be allowed on flights longer than eight hours (as long as they won't need to relieve themselves or can do so in a sanitary way).

These guidelines, the DOT says, explain how the agency will or will not enforce current laws and policies and does not constitute a guarantee that its guidance won't change in the future.

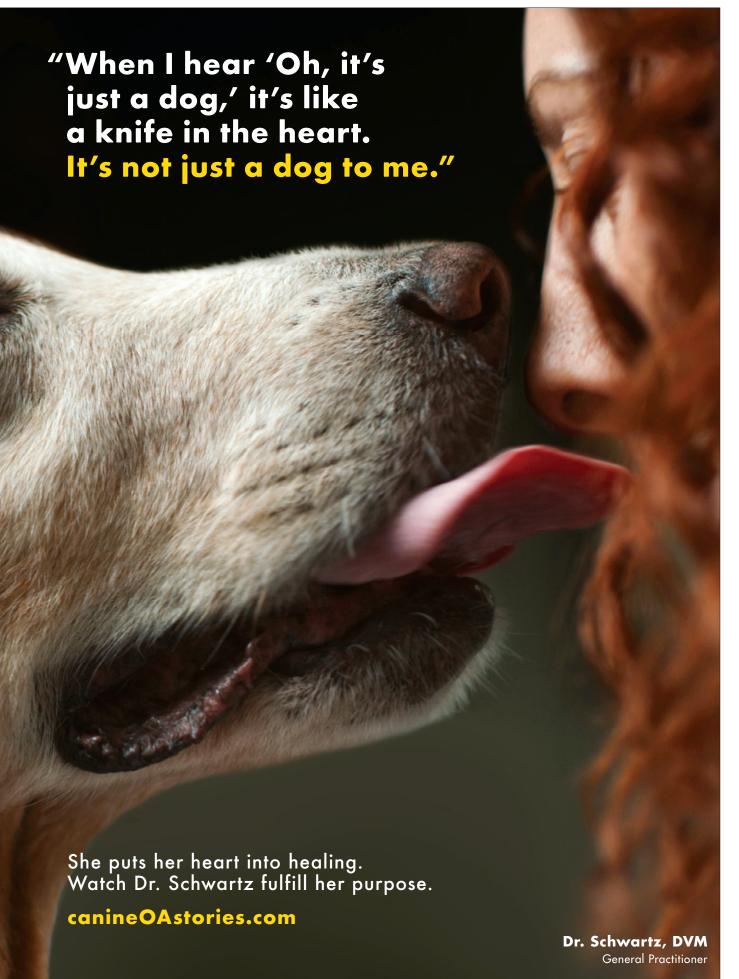


Emotional wellbeing is an international issue in the veterinary profession, according to survey findings from the World Small Animal Veterinary Association's (WSAVA) Professional Wellness Group.

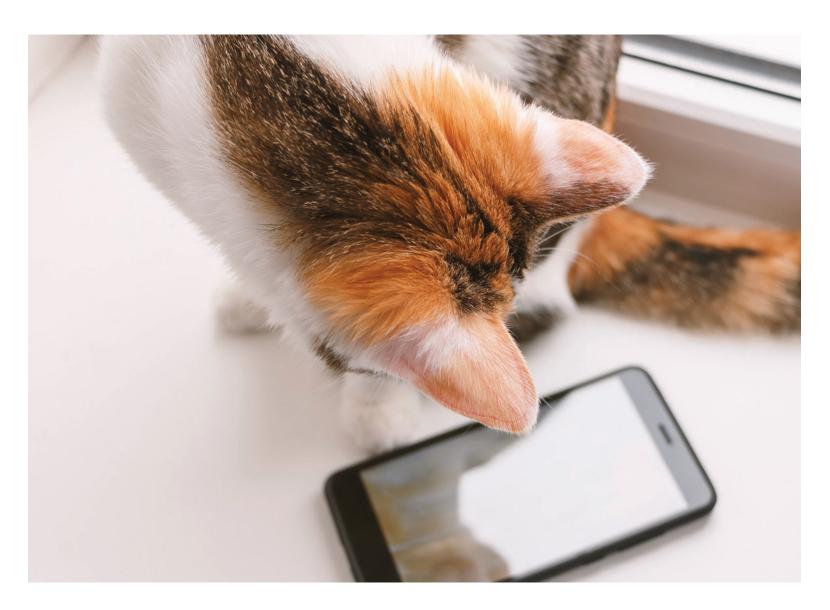
Initial responses from 4,258 veterinary professionals presented by Nienke Endenburg, PhD, showed that the wellbeing of younger and female members of the profession is particularly at risk, with technicians experiencing a significantly higher volume of wellbeing issues.

'Our research ... confirms a probable correlation between a career in veterinary medicine and elevated risk of mental health issues," said Dr. Endenburg in a WSAVA release.

The survey consisted of questions on demographics and satisfaction with life and career as well as questions from the Kessler Psychological Distress scale, a validated tool to measure anxiety and depression. The survey found no significant difference in mental wellbeing between regions of the world.







Telemedicine: A safari through a confusing jungle

Are you covered by state law and your malpractice insurance when it comes to asking for or giving pet health advice electronically?



hen I started my research for this month's column, I expected that useful, comprehensive information on veterinary telemedicine would be fairly simple and straightforward. Instead, it actually turned out to be something of a safari through a confusing jungle of legal fact, opinion and outright speculation.

Nonetheless, the rapid emergence of veterinary telemedicine and its related jurisprudence is an important story. The technology expands the availability and reach of veterinary specialists and will constitute an increasingly vital tool for generalist

and critical care practitioners indefinitely into the future. So, let's take a look at telemedicine in our profession and the numerous legal questions it brings with it.

Isn't it better to talk to the experts?

To the casual observer, the benefits of using the internet for the best possible veterinary medical outcomes may seem obvious. That view essentially amounts to the fairly simple notion that "the more educated input available in the treatment of the patient, the better." As clinicians, we use books and journal articles to help

Christopher J. Allen, DVM, JD | LETTER OF THE LAW

guide the way we handle medical and surgical cases. Is it any different getting the chance to speak or teleconference with the expert who wrote the article or edited the textbook we used to look for guidance?

But as with so many apparent panaceas, veterinary telemedicine is more complex and raises more questions than we might think. The reality is that remote human interaction in handling a veterinary medical case is not the same as reading an expert's opinion in a book or journal. It isn't the same with respect to its impact on the patient's treatment, and it's certainly not the same in the eyes of the courts and regulatory authorities.

The mercurial definition of 'practicing telemedicine'

The internet's appearance in human and animal medicine has outpaced the ability of regulators, legislators and the insurance industry to adjust and adapt. Web-enabled veterinary care has such exciting potential, but at the same time presents a number of difficult-to-answer questions. One of the biggest is, "What, legally, is the telemedicine consultant or clinician actually doing?"

Today, practitioners of veterinary telemedicine fall into two general groups. First, there's the practicing veterinarian who connects via the internet directly with a client (pet owner) to provide medical advice and possibly prescriptions, and to give treatment suggestions directly to that client—for a fee. The second type of telemedicine veterinarian is the clinician's consultant, who uses the web to provide diagnostic and therapeutic input to the on-site veterinary caregiver—again, for a fee.

Each of these groups of "teledoctors" has its own set of legal concerns spanning a number of key issues. Broadly, these concerns fall into three general categories: 1) malpractice liability, 2) licensing and 3) criminal culpability.

Let's look at the remote teledoctors.

Do you need to be face to face to establish a VCPR?

According to AVMA guidelines, veterinarians who treat patients are expected to have a veterinarian-client-patient relationship (VCPR) to practice veterinary

medicine on an owned animal. Traditional veterinary office appointments make this very simple, as the client seeking help meets the practitioner and presents the pet for examination and treatment. By logical extension, we might assume that teledoctors would also be required to establish a VCPR. But does this require at least an initial face-to-face meeting with the doctor, the patient

The internet's appearance in human and animal medicine has outpaced the ability of regulators, legislators and the insurance industry to adjust and adapt.

and the client to legally set the stage for subsequent cybervisits?

Some might argue that a 30-minute telemedicine evaluation could actually be more thorough and complete than a quick in-person visit that presumably establishes a legal VCPR. If that's true, the next question is whether a legal requirement for an on-site meeting is old-fashioned. Government regulators and veterinary boards, with advice from veterinary professional organizations, will be responsible for deciding this.

A clear decision in each state on this point is vital to the veterinary malpractice bar. Under current law, lack of a traditional VCPR with an in-person relationship amounts to potential evidence that a veterinarian fell below the minimum standard of care. Consequently, the absence of legal guidance on when and how the internet may be used by clinicians is virtually certain to have a chilling effect on the use of telemedicine and other web-based veterinary modalities in private practice.

What about long-distance specialists?

For many years, stretching back to the days when CardioPet started interpreting ECGs over a telephone handset link, off-site veterinary experts have earned a living by connecting with on-site veterinarians to help with cases. So, does the law require these teledoctors to establish a VCPR? The law in many jurisdictions is far from clear. From my perspective, I think it might be better for this type of telemedicine veterinarian not to have such a relationship.

Just consider this: Veterinary telemedicine consultants frequently ply their craft across state lines. A highly acclaimed expert might be evaluating a computer image in College Station, Texas, and, based on that, provide case input to a practicing veterinarian in Huntington Station, New York. If that specialist isn't licensed in New York (even with amazing credentials and experience), does her input and advice—for a fee—constitute "unlicensed practice" in the eyes of regulatory authorities in the Empire State?

In the event of a bad outcome and resulting malpractice lawsuit, the primary care veterinarian certainly will be brought in as a defendant. But how will the out-of-state telemedicine consultant figure? Can the teledoctor be brought in as a defendant under the theory that his advice was the proximal cause of the pet's injury at the hands of the on-site doctor? Or would the law see the web consultant's input more as a "living textbook" and the full burden for use

of the remote doctoring fall on the on-site practitioner?

A litigator representing the teledoctor might consider any VCPR between his client and the family who owned the unlucky patient to be a liability. For once a VCPR is established, the teledoctor's influence arguably becomes greater or even equal to the one existing with the primary doctor.

I counsel caution

While regulators gear up to handle the complex questions raised by veterinary telemedicine, I counsel caution on the part of veterinarians. The providers and users of veterinary telemedicine need to discuss with both their legislative liaisons and insurance carriers what boundaries they need to observe. This advice is particularly useful in jurisdictions where unlicensed practice penalties can be severe.

In my state, teledoctors need to know, legally, where they stand: In New York, practicing veterinary medicine without a license is a felony.

Dr. Christopher J. Allen is president of Associates in Veterinary Law P.C., which provides legal and consulting services exclusively to veterinarians. He can be reached at info@veterinarylaw.com.



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Sounding off on a pet insurance dilemma

dvm360 readers respond to a scenario involving DCM diagnostics.

NexGard® (afoxolaner) Chewables

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

Description:

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

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

Dosage and Administration: NexGard is given orally once a

d is given orally once a month, at the minimum dosage of 1.14 mg/lb (2.5 mg/kg).

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

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

Flea Treatment and Prevention:

Treatment with NexGard may begin at any time of the year. In areas where fleas are common year-round, monthly treatment with NexGard should continue the entire year without interruption. To minimize the likelihood of flea reinfestation, it is important to treat all animals within a household with an approved flea control product.

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

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

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

Afoxolaner is a member of the isoxazoline class. This class has been associated with neurologic Advancer is a limited of the isoacconnections. This class has been associated with reducing adverse reactions including tremors, ataxia, and seizures. Seizures have been reported in dogs receiving isoxazoline class drugs, even in dogs without a history of seizures. Use with caution in dogs with a history of seizures or neurologic disorders (see **Adverse Reactions** and **Post**-Approval Experience

The safe use of NexGard in breeding, pregnant or lactating dogs has not been evaluated

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

Over the 90-day study period, all observations of potential adverse reactions were recorded. The most frequent reactions reported at an incidence of > 1% within any of the three months of observations are presented in the following table. The most frequently reported adverse reaction was vomiting. The occurrence of vomiting was generally self-limiting and of short duration and tended to decrease with subsequent doses in both groups. Five treated dogs experienced anorexia during the study, and two of those dogs experienced anorexia with the first dose but

Table 1: Dogs With Adverse Reactions

	Treatment Group			
	Afoxolaner Oral active cont		ve control	
	N¹	% (n=415)	N ²	% (n=200)
Vomiting (with and without blood)	17	4.1	25	12.5
Dry/Flaky Skin	13	3.1	2	1.0
Diarrhea (with and without blood)	13	3.1	7	3.5
Lethargy	7	1.7	4	2.0
Angravia	-	1.2	0	A.E.

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

In the US field study, one dog with a history of seizures experienced a seizure on the same day after receiving the first dose and on the same day after receiving the second dose of NexGard. This dog experienced a third seizure one week after receiving the third dose. The dog remained enrolled and completed the study. Another dog with a history of seizures had a seizure 19 days

after the third dose of NexGard. The dog remained enrolled and completed the study. A third dog with a history of seizures received NexGard and experienced no seizures throughout the study.

Post-Approval Experience (July 2018):

Post-Approval Experience (July 2016):
The following adverse events are based on post-approval adverse drug experience reporting. Not all adverse events are reported to FDA/CVM. It is not always possible to reliably estimate the adverse event frequency or establish a causal relationship to product exposure using these data. The following adverse events reported for dogs are listed in decreasing order of reporting

Vomiting, pruritus, lethargy, diarrhea (with and without blood), anorexia, seizure, hyperactivity/ restlessness, panting, erythema, ataxia, dermatitis (including rash, papules), allergic reactions (including hives, swelling), and tremors.

Contact Information:

Contact information:
For a copy of the Safety Data Sheet (SDS) or to report suspected adverse drug events, contact
Merial at 1-888-637-4251 or www.nexgardfordogs.com.

For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or online at http://www.fda.gov/AnimalVeterinary/SafetyHealth

Mode of Action:

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

Effectiveness:

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

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

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

In well-controlled laboratory studies, NexGard demonstrated >97% effectiveness against Demacentor variabilis, >94% effectiveness against Ixodes scapularis, and >93% effectiveness against Bhipicephalus sanguineus, 48 hours post-infestation for 30 days. At 72 hours post-infestation, NexGard demonstrated >97% effectiveness against Amblyomma americanum for 30 days. In two separate, well-controlled laboratory studies, NexGard was effective at preventing Borrelia burgdorfer infections after dogs were infested with Ixodes scapularis vector ticks 28 days not treatment.

Animal Safety:
In a margin of safety study, NexGard was administered orally to 8 to 9-week-old Beagle place 16.3 mor/knl for three treatments every 2 In a margin of safety study, NexGard was administered orally to 8 to 9-week-old Beagle puppir at 1, 3, and 5 times the maximum exposure dose (6.3 mg/kg) for three treatments every 28 day, for a total of six treatments. Dogs in the control group were sham-dosed. There were no clinically-relevant effects related to treatment on physical examination, body weight, food consumption, clinical pathology (hematology, clinical chemistries, or coagulation tests), gross pathology, histopathology or organ weights. Vomiting occurred throughout the study, with a similar incidence in the treated and control groups, including and the study of the study of the study of the study of the study. including one dog in the 5x group that vomited four hours after treatment

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

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

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

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FRONTLINE VET LABS

Ethics columnist Marc Rosenberg, VMD, argued in a recent column that pet insurance companies should have paid for the ultrasound in the case of an asymptomatic dog eating a grain-free diet at risk of dilated cardiomyopathy (DCM). Read it at dvm360.com/ DCMdilemma.

nsurance companies should cover any and every reasonable test if the doctor suspects any ailment. A transition to mimicking human insurance has started with pet insurance disapprovals and nonpayment of claims. Some insurance companies don't even allow the veterinarian or staff to discuss issues concerning treatment and procedures on behalf of their clients.

> —Adel Hamdan, BVMS Totowa, New Jersey

respectfully disagree with Dr. Rosenberg's opinion that pet insurance should cover the screening ultrasound for DCM in a dog on a grain-free diet. There is already tremendous pressure on premium increases in the pet insurance industry just from actuarial losses from covering actual accidents and illnesses. And the consumer is feeling it when they get their renewal notices.

The question is, where do you draw the line? Do you cover Tonopen exams in asymptomatic patients that are predisposed to glaucoma? Do you cover screening ECGs, ultrasounds or Holter monitor evaluations in breeds predisposed to cardiomyopathy unrelated to diet? I could imagine a screening ultrasound like this being added to a pet insurance company's wellness coverage in the way some companies have added University of Pennsylvania's PennHIP to evaluate for early evidence of hip dysplasia. Many companies also include annual wellness lab testing for early detection. Of course, wellness coverage in most cases is optional as a rider to a policyholder's primary accident and illness coverage."

—Doug Kenney, DVM, in Tennessee

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

medicine (



MEDICINE | Behavior

The deets on 'doggie dementia'

Here's a closer look at cognitive decline in aging canines, including diagnostic difficulties and treatment options. By Don Vaughan

udson, a mixed-breed dog belonging to Cynthia Nickerson and her brother, Gabriel Gavrin-Savits began showing signs of cognitive decline around age 12. He behaved normally during the day, Nickerson says, but became disoriented and confused at night.

"He would pace around the house, going from room to room waking each of us up," reports Nickerson, an accountant in Wilmington, North Carolina. "At first, we were able to reassure him and get him to sleep. But after a while, nothing we did could help."

That's when Nickerson and Gavrin-Savrits reached out to their veterinarian, who, based on Hudson's behavior and other factors, diagnosed canine cognitive dysfunction (CCD).

What is CCD?

Commonly known as "doggie dementia" among pet owners, CCD is a neuro-degenerative disorder characterized by behavioral changes and cognitive deficits. The most common signs include disorientation, loss of social interaction, sleep disturbances, urinary and fecal incontinence, decreased activity and loss of acquired memories. In this regard, CCD closely resembles Alzheimer's in humans, and this association has become a focus in ongoing research into the syndrome in dogs.

Cognitive decline received little attention in veterinary circles until the 1990s, notes Elizabeth Head, MA, PhD, associate director for education at the University of Kentucky's Sanders Brown Center on Aging in Lexington. Among

the first to write about it was William Ruehl, VMD, PhD, DACVP, who coauthored an early paper exploring the use of L-deprenyl (selegiline) to improve cognition in aging dogs.¹

"It turned out that just as in people, about a third of the dogs we tested were severely impaired—they couldn't remember information past a few seconds," Dr. Head says. "That data [showed] this is a real physiologic degenerative process in the brain that can be distinguished from other health concerns in the older dog."

Prevalence and risk factors

The prevalence of CCD is difficult to determine for a number of reasons. The literature suggests that around 15% of dogs over age 10 show signs of cognitive





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dysfunction, with the figure rising to 40% to 50% of dogs 14 years and older, according to Leontine Benedicenti, DVM, DACVIM, assistant professor of clinical neurology and neurosurgery at the University of Pennsylvania School of Veterinary Medicine in Philadelphia.² Among cats, she says, signs of cognitive dysfunction are seen in about half of those 15 years or older.³

CCD was once believed to occur equally in all dog breeds, but recent research suggests that the syndrome may be more common among dogs that have been spayed or neutered.^{2,3} "These were small studies, so I don't know what kind of impact they will have," Dr. Benedicenti says, "but they do suggest that certain hormones may have a protective effect against cognitive decline as dogs get older."

There also is evidence that CCD may be more common among smaller, longer-lived dog breeds than in larger breeds, reports Natasha Olby, VetMB, PhD, MRCVS, DACVIM, professor of neurology and neurosurgery in the Department of Clinical Sciences at the North Carolina State University College of Veterinary Medicine in Raleigh.4

Diagnostic difficulties

The pathology of CCD is similar to that of its counterpart in humans, Dr. Olby says. "There is gradual neuronal loss in the same areas of the brain that are affected in people with Alzheimer's, so you start to see the prefrontal and frontal cortex effects," she notes. "We also see amyloid accumulation, but we do not see the same tau protein tangles that are seen in people."

On magnetic resonance imaging, the brains of dogs with CCD appear smaller and atrophied, Dr. Olby adds. "[Japanese researchers] have measured the different areas of the brain in dogs as they age," she says. "The interthalamic adhesion—the region of the brain where the two hemispheres stick together—gets smaller and smaller as CCD worsens, reflecting the neuronal loss in the cortex."

CCD can be difficult to diagnose because many other conditions found in aging dogs mimic its most common characteristics. "Disorientation, for example, may be due to a lot of things, such as low blood sugar or vision problems," explains Rod Bagley, DVM, DACVIM, professor and chair of

veterinary clinical sciences at Iowa State University College of Veterinary Medicine in Ames. "It doesn't have to be that the brain isn't processing."

Changes in a dog's sleep cycle, another common characteristic of CCD, may also have other causes, Dr. Bagley continues. For example, some animals sleep at different time periods at different points in their life, so changes are not necessarily pathognomonic. Pain from a chronic condition such as osteoarthritis also may cause sleep disruptions because the animal can't get comfortable. Another common sign is diminishing interaction with family and other pets. Is the issue cognitive decline or hearing loss that prevents the animal from responding when its name is called? Similarly, incontinence may be the result of cognitive decline or a simple urinary tract infection.

In most cases, CCD requires a differential diagnosis to eliminate other potential causes until only CCD remains. "It's a lot harder to come to that diagnosis because right now it's a process of elimination," says Dr. Head. It's easier in the human world because doctors can look at brain imaging, at cerebrospinal fluid, she adds. "In combination, those findings can narrow the diagnosis without having to exclude a lot of other things. I don't know if it will be possible to get there in veterinary medicine unless we can find some blood marker in the future."

CCD can adversely affect quality of life for both the pet and the client, although what the pet experiences is more difficult to understand, says Dr. Benedicenti. "Every owner is a little bit different in terms of how much they can tolerate regarding [what their pet is going through]," she says. Nonetheless, advanced CCD can adversely affect almost every aspect of a dog's daily routine: sleeping, eating, hygiene, exercise and more.

Bailey, a bichon frise mix belonging to Jo Shiplett of Harrisonberg, Virginia, developed CCD as he aged, a situation made more challenging by other health issues that included vision and hearing loss. According to Shiplett's daughter, Sandy Garber, Bailey would pace constantly, get stuck behind furniture, snap when touched and forget to go to the bathroom when let outside; instead, he would walk around for a while, come back inside and urinate on the floor. "With his dementia, he probably didn't

realize he was outside," Garber says.

Shiplett was on a fixed income and unable to afford the tests required to diagnose CCD definitively, so it was never known which of Bailey's issues were caused by cognitive decline.

Treatment options

The treatment of CCD is predicated on a variety of factors, including the presence of concurrent conditions. In most cases, treatment includes addressing any concurrent issues while simultaneously focusing on problems associated with cognitive decline.

Short-acting benzodiazapines may be prescribed for dogs with anxiety or sleep difficulties, although over-the-counter antihistamines such as diphenhydramine may also be beneficial. "When I have a dog with seizures and trouble sleeping, I might use an antiseizure medication that also has a sedative effect, such as phenobarbital," Dr. Benedicenti says. "For general anxiety we have medications such as fluoxetine."

A variety of so-called "brain health" diets are also available to delay the onset of cognitive decline and slow its progression once it develops. "Diets can help, but they are something we suggest be started early, not when the signs have already become severe," Dr. Benedicenti says. "That's when medications come into the picture."

It appears that diets developed to improve brain health can have some positive benefits. Dr. Head participated in one of the first such studies in 1996, in partnership with Hill's Pet Nutrition, and reports that older dogs fed kibble enriched with antioxidants experienced improved memory and learning ability. Best of all, the results were fairly longlasting, Dr. Head says.

The veterinarian's role in diagnosing and managing CCD is vital and should begin early in the process with a conversation about the condition, its likely progress and how it will affect both the patient and the client. The practitioner may start the conversation after noticing indicators, but more commonly the client broaches the issue.

Quality of life concerns

"Personally, I believe that when I hear from an owner more than once a week about [CCD-related issues], it's time to talk about quality of life," Dr. Benedicenti says. "When they reach out to you with a lot of questions and it happens every week rather than every couple of months, that is when you know they are dealing with an issue that is affecting their life on a daily basis."

It's the practitioner's responsibility to guide both client and patient through the continuum of CCD, with advice on drug management, dealing with behavioral issues and other challenges. If it's evident that the situation is taking a significant emotional or physical toll on the client, the practitioner may want to address that as well.

Like Alzheimer's disease, CCD is incurable. As a result, palliative care may be needed in the later stages. "This should be an ongoing conversation with owners to understand their needs," Dr. Bagley advises. "If the animal is unable to move, is soiling itself, is maybe getting pressure sores or infections, then it is probably time to talk about humane euthanasia. If the pet is moving more slowly but still interacting with its environment, it's a tougher call."

When clients approach her about euthanasia, Dr. Olby looks at it from two perspectives—pet and client. Is the pet still happy, active and enjoying life, or has its quality of life become severely diminished? And what kind of toll have the pet's health issues taken on the owner? "I don't see CCD as different from other reasons to have that conversation," Dr. Olby says. "Veterinarians are skilled at helping owners through these difficult decisions."

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Don Vaughan is a freelance writer based in Raleigh, North Carolina.





Unblock that cat, STAT!

The ins and outs of treating urinary obstruction—and saving the lives of your feline veterinary patients. By Laurie Anne Walden, DVM, ELS

rethral obstruction is a common emergency in feline veterinary patients. Cats with blocked urine outflow quickly develop metabolic disturbances that can be fatal. At the 2018 meeting of the American Association of Feline Practitioners, held in September in Charlotte, North Carolina, Elke Rudloff, DVM, DACVECC, of Lakeshore Veterinary Specialists in Milwaukee, Wisconsin, discussed emergency treatment of blocked cats and the importance of addressing cardiovascular instability before attempting to remove the obstruction.

Causes of urethral obstruction

Urethral plugs are made of either crystalline or cellular matrix. The

most common crystal type in cats is struvite, Dr. Rudloff says, but other types of crystals also occur. Cellular-matrix plugs are collections of sloughed tissue, inflammatory cells or red blood cells.

Not all urethral obstructions are caused by plugs. Urethral inflammation, muscle spasms, stricture, neoplasia and reflex dyssynergia (incoordination of the bladder detrusor and urethral sphincter muscles) can also block outflow.

Male animals are much more likely than females to develop urethral obstruction due to their longer, narrower urethra, but obstruction is possible in females. Other risk factors are younger age, increased weight and a diet of only dry food, Dr. Rudloff says.

Clinical signs

Cat owners may report crying, restlessness, bloody urine, frequent trips to the litter box, attempts to urinate outside the litter box, frequent licking of the genitals or vomiting in their pets. Owners sometimes mistake straining to urinate for constipation.

Physical examination may reveal pale mucous membranes and hypothermia. The patient's heart rate could be increased, decreased or normal. Dr. Rudloff reminds veterinarians that cats in hypovolemic shock tend to have bradycardia, not tachycardia. Severe biochemical changes can result in altered mentation. Abdominal palpation must be gentle to minimize pain and avoid rupturing the bladder, which is large and firm in blocked cats.



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Stabilizing the patient

Dr. Rudloff stresses that cats in critical condition must be stabilized before bladder decompression is attempted. For a cat with circulatory compromise, "putting a urinary catheter in ... is not going to save his life," she points out. "It's not worthwhile to decompress his bladder until you've addressed the circulatory problems," she adds.

Intravenous catheterization and the laboratory database. Dr. Rudloff recommends placing a peripheral intravenous (IV) catheter immediately. IV fluid treatment (with an isotonic crystalloid such as lactated Ringer's solution) can begin if the urinary obstruction will be removed soon. If urethral catheterization will be delayed, IV fluid therapy can wait.

Initial blood tests should include packed cell volume, total protein, electrolyte levels, glucose level and venous blood gases. Dr. Rudloff notes, however, that treatment should not be delayed if blood tests cannot be obtained right away. Some biochemical abnormalities can be inferred from the patient's condition, and an electrocardiogram (ECG) can show evidence of hyperkalemia without a blood test.

Managing hyperkalemia and dysrhythmias. Dysrhythmias caused by hyperkalemia require

emergency treatment, Dr. Rudloff says. Electrocardiographic changes that indicate hyperkalemia include bradycardia, tall T waves, prolonged P-R interval, sinoventricular rhythm and asystole. "There is no set potassium level that predicts a dysrhythmia," so treatment of hyperkalemia depends on ECG findings, she emphasizes.

Hyperkalemia in cats with adequate perfusion and a normal heart rhythm usually can be corrected with IV fluids alone, Dr. Rudloff says. Cats with dysrhythmias, poor perfusion, or altered mentation caused by hyperkalemia should receive an IV bolus of regular insulin to drive potassium into cells. The insulin bolus should be followed by a continuous IV infusion of dextrose. Calcium gluconate can be administered intravenously to protect the heart from the effects of hyperkalemia.

Relieving the obstruction

Once you've stabilized your patient, it's time to address the obstruction, Dr. Rudloff says.

Analgesia and sedation. Cats with urethral obstruction need immediate pain relief, possibly even before IV catheterization, Dr. Rudloff says. She recommends sedating cats for urethral catheterization with a combination of a narcotic and a tranquilizer

(such as ketamine plus midazolam or propofol plus midazolam). She suggested that a combination of midazolam and either etomidate or alfaxalone could be safest in cats with cardiovascular instability.

To unblock cats, Dr. Rudloff usually does not use inhalation anesthesia or sedate cats to a level requiring intubation. She notes that isoflurane and sevoflurane cause vasodilation. An epidural or coccygeal anesthetic block can be helpful, she says. She also recommends applying lidocaine gel to the urinary catheter.

Unblocking the urethra. The unblocking procedure is done with sterile technique, including clipping the hair and placing a sterile drape. The initial catheterization should be done with a 3.5-F, open-ended polypropylene (tomcat) catheter. Warm saline mixed with water-soluble lubricant can be flushed through the catheter to retropulse the obstruction into the bladder. Dr. Rudloff recommends using a 1-ml tuberculin syringe to flush the catheter because it can generate higher pressures than a 3- or 6-ml syringe.

After the bladder has been decompressed and lavaged, the polypropylene catheter is replaced with a soft, 3.5-F red rubber tube, which is sutured into place. Another option is a multipurpose polypropylene urinary catheter that is suitable both for unblocking and for leaving in place. The indwelling urinary catheter should be connected to a closed collection system, Dr. Rudloff said. If the obstruction cannot be removed with a urinary catheter, the bladder can be decompressed with cystocentesis.

Patient monitoring

Here's what to keep an eye on while the patient is undergoing the procedure.

Fluid replacement. The IV fluid rate should account for maintenance needs and rehydration. Some cats become polyuric because of postobstructive diuresis, Dr. Rudloff says. She recommends measuring urine output every four hours and adjusting the fluid rate accordingly.

If urine output appears to decline despite adequate IV fluid replacement, check the collection system for kinks or clogs, she suggests. Bladder rupture, bladder atony and acute renal failure can also cause urine output to drop.

Expected complications. Cats with urethral blockage should be monitored for dehydration, azotemia, postobstructive diuresis, hyperkalemia or hypokalemia, urethral damage, hemorrhage, uroperitoneum and hypothermia. Cats need ongoing pain relief after bladder decompression.

Further diagnostic tests

Because inflammation affects urinalysis results, Dr. Rudloff suggests repeating urinalysis after the cat has recovered. Urinary tract infection is uncommon in male cats with first-time urethral obstruction, she says, so urine culture is not necessarily indicated in these cats. She recommends culturing the urine of blocked female cats and cats with repeat obstructions. Calculi flushed from the bladder should be submitted for laboratory analysis.

Diagnostic imaging can be performed after the patient is stable and the obstruction has been relieved. Partially inflating the bladder with sterile saline can make calculi and masses in the bladder easier to see on radiographs. Gently compressing the bladder with a wooden spoon (with the cat in lateral recumbency) improves the visibility of calculi on radiographs, Dr. Rudloff says. Ultrasound may reveal abdominal fluid and radiolucent or small calculi.

Prevention

Reported recurrence rates range from 14% to 57%, Dr. Rudloff says. Various medications (e.g. prazosin) have been used to prevent recurrence, but none have been shown to decrease the reobstruction rate. Dietary modification, increasing the amount of water ingested, and environmental enrichment are the best options for preventing reobstruction, she said.

Dr. Laurie Anne Walden received her doctorate in veterinary medicine from North Carolina State University. She is a practicing companion animal veterinarian and a certified editor in the life sciences (ELS). She owns Walden Medical Writing and writes and edits materials for healthcare professionals and the general public.





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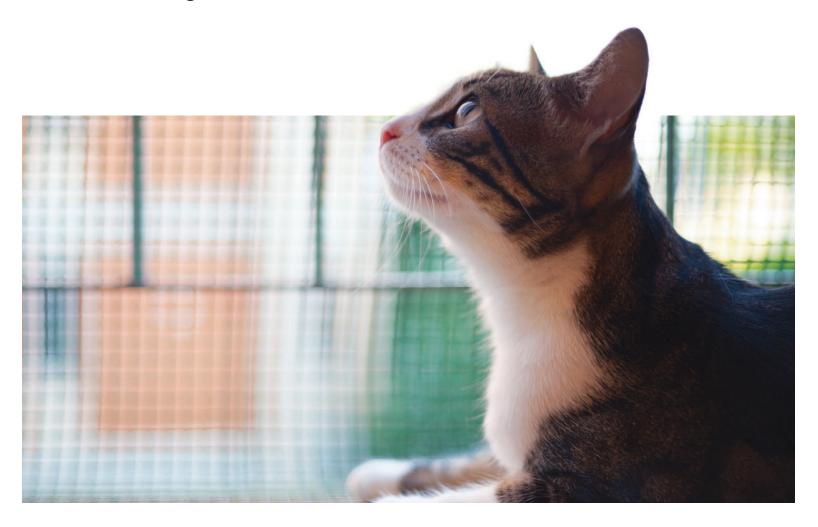
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Cast a wider net with tools to ease feline pain

Veterinary pain management expert Dr. Jennifer Johnson offers reasons to consider pulsed electromagnetic field therapy, especially in your painful feline patients. *By Adrienne Wagner*

he veterinary industry has been touting laser therapy for years. According to Jennifer Johnson, VMD, CVPP, current president of the International Veterinary Academy of Pain Management (IVAPM), there is one main drawback: treatment requires a skilled applicator, usually in the veterinary hospital.

At a recent Fetch dvm360 session on tools for managing feline pain, Dr. Johnson recognizes the love for laser therapy. While the vast majority of patients tolerate and even appear to love and appreciate their therapy laser session, she notes, it can be difficult for clients to comply with follow-up treatments.

And in the case of cats? As you know, even with follow-up appointments in general veterinary practice—many cat-owning clients will opt out of repeated visits to your veterinary hospital.

Here's where another option comes in. According to Dr. Johnson, pulsed

electromagnetic field (PEMF) therapy may provide a pain-relief modality that can work synergistically with laser therapy, providing pain relief to your patients at home, in a portable and safe fashion.

PEMF is a noninvasive treatment that applies pulsed, non-thermal electromagnetic fields to tissue in order to promote healing. These devices are approved by the FDA to treat fractures, post-operative pain and edema, osteo-arthritis and plantar fasciitis. The mechanism of action shows that targeted PEMF results in increased concentrations of nitric oxide, which increases vasodilation and decreases inflammation.^{1,2}

Dr. Johnson also places emphasis on the cat-friendly application of PEMF. The device can be prescribed to the veterinary client for use on the patient at home, where treatment applications can be performed, without stress, multiple times daily as prescribed. She pointed to the Assisi Loop system, which comes in two sizes with a unique loop construction, allowing it to be fastened to a bandage or wrap (Loop-Aid) to stay in place over the treatment area, even if the patient is moving about.

The therapy can penetrate through bedding, bandages and wraps, allowing various manipulations for successful application. Most successful feline applications can be accomplished using a bed or carrier with the loop, so that the dose can be applied to the target tissue as effectively as possible.

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More veterinary technicians = higher practice efficiency

A recent analysis by the AVMA reveals that veterinary hospitals with more technicians and other non-DVM staff are likely to operate more efficiently.

aving highly skilled veterinary technicians on our hospital teams is vital to business success. With National Veterinary Technician Week upon us (October 13-19), there's no better time to honor these valuable team members and celebrate all they do for the profession. It's also a perfect opportunity to better understand and commit to fully utilizing their diverse skills in practice. Proper technician utilization can boost team morale, reduce turnover and free up more of our veterinarians' time for work that only they can do.

Getting the mix right

Research over the years has shown clear links between increased use of credentialed technicians and

higher practice revenue. Each year, the AVMA surveys practice owners across the country to identify patterns in staffing, revenue, animals seen and other operational matters. Drawing from 2017 survey data, we compared characteristics among companion animal practices and identified those practices that were operating most efficiently. We measured efficiency by comparing resources used, including staffing and other variables, against total practice revenue and number of patients seen.

From this economic research, we have identified benchmarks you can use to assess staffing levels in your own practice. Specifically, the combination of staff members has a bearing on how efficiently your practice runs because your veterinarians,

technicians and other staff work together to form a unified team.

The optimal mix of non-DVM and DVM staff depends on several factors, including practice type and size, the demand for veterinary services in your area and the availability of qualified veterinary professionals. In general, our analysis showed that the higher the ratio of non-DVM to DVM staff, the more efficient a practice is. In other words, the more technicians and other non-DVM staff you have supporting each veterinarian, the more likely your hospital is to operate efficiently. In fact, the most efficient practices identified in our analysis had more than six non-DVMs on staff for every DVM.

We also evaluated the balance between veterinary technicians and



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AVMA EYE ON ECONOMICS | Matthew Salois, PhD

veterinarians in efficient practices. Here, we found that the most efficient practices tend to have at least one more technician than veterinarian on the team—although, again, there were variations by practice type and size.

Tying talent to tasks

As you evaluate staffing levels in your practice, you might identify opportunities to shift tasks in ways that use more of your technicians' advanced skills. Well-trained technicians are capable of a wide range of clinical tasks. In addition to typical roles such as taking patient histories and collecting specimens, they can perform simple medical procedures, assist in surgery and provide specialized nursing care. Many have specialty training in areas ranging from dental care to anesthesia to behavior.

The 2016 demographic survey conducted by the National Association of Veterinary Technicians in America (NAVTA) identified underutilization of skills as one of the top problems facing credentialed veterinary technicians. To learn more, the AVMA has been collecting data on how the most efficient practices utilize their technicians. We'll begin sharing the findings at our Annual Economic Summit this month.

So, how can you determine whether you're using your technicians to their full potential? A simple way to start is by asking them. Give them an opportunity to tell you about clinical skills they aren't using and which of their current duties don't require their technician training. These conversations should be open and candid, discussing the strengths and passions of each individual team member. You also might ask your associate veterinarians whether any of their own tasks could be performed by technicians. This could shed light on some quick opportunities to shift work from veterinarians to technicians or from technicians to other team members.

Once you've assessed staff capabilities and the division of labor at your practice, look for ways to close any skill gaps through training, mentoring or hiring. If you're looking to have your current technicians take on new tasks, encourage them to focus on relevant areas of continuing education.

Tools to help you

The AVMA is committed to helping practices use all team members as efficiently as possible. That's why we recently formed the AVMA Task Force on Veterinary Technician Utilization. This task force is developing a comprehensive plan to improve technician utilization by examining issues that impact

technicians, teams and practices. These include financial and career sustainability, task delegation and the wellbeing of both technicians and the practices in which they work.

We will provide updates about the task force's progress on our AVMA@Work blog (atwork.avma. org). In the meantime, you can take a deeper dive into our analysis of highly efficient veterinary practices in the 2019 Economic State of the Veterinary Profession report, which is available for free download by AVMA members. See avma.org/ EconomicReports.

Matthew Salois, PhD, is chief economist and Veterinary Economics Division director at the AVMA.





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*Repeat administration every 4 to 8 weeks as needed in individual patients.

References: 1. Data on file, Study Report No. C863R-US-12-018, Zoetis Inc. 2. Gonzales AJ, Humphrey WR, Messamore JE, et al. Interleukin-31: its role in canine pruritus and naturally occurring canine atopic dermatitis. Vet Dermatol. 2013;24(1):48-53. doi:10.1111/j.1365-3164.2012.01098.x. 3. Data on file, Study No. 16SORDER0101, Zoetis Inc.

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ZOETIS PETCARE





Euthanasia: The last act of love

When it comes to ending a pet's life, many people wonder, 'How do vets do it?' I consider ending an animal's suffering to be one of the greatest responsibilities—and one of the most special gifts—entrusted to the veterinary profession.

uthanasia is a difficult discussion topic for both pet owners and pet care providers. The concept of proactively ending a pet's life, regardless of the reason, brings up complex emotions and challenging ethical issues, especially as euthanasia for people is increasingly explored and legalized. After all, where is the line to be drawn when we discuss end-of-life issues? While animal euthanasia is almost universally accepted as humane and necessary when quality of life fades, very similar scenarios are far less straightforward in human healthcare.

Physician-assisted death, or "aid in dying," is currently legal in a number of countries, including Canada, Belgium, the Netherlands, Luxembourg, Colombia, Switzerland, and parts of Australia and the United States (California, Colorado, District of Columbia, Hawaii, Montana, Maine [bill signed by the governor June 12, 2019], New Jersey [as of Aug. 1, 2019], Oregon, Vermont and Washington). There is little question that as medical science advances and people are living longer, the progress of disease will change. People will become more involved in decisions about their own right to die, and a greater number of states, countries and societies will create a space for physician-facilitated death owing to physical and emotional pain as well as dignity and quality-of-life issues.

I cannot imagine the difficulty of making this ultimate decision for myself, nor can I imagine actively participating in the death of another human being even if they choose to end their life. And yet all practicing veterinarians have participated in ending the suffering of an animal.

Of all my professional interactions with patients, caregivers and family members, by far the most emotional have revolved around issues of euthanasia. I have always viewed euthanasia as one of the greatest responsibilities entrusted to our profession and at the same time one of the gifts many veterinarians take for granted. Clearly, we all value the lives and welfare of our



There is often one more thing that can be done in an effort to forestall a pet's pain and death—but to what end?

patients, but at times our abilities have been exhausted and we must consider the remaining options. After all, our professional oath dictates that our ultimate goal is to relieve suffering for those under our care.

A friend recently said goodbye to his very special dog. Now, I know all pets are special to their caregivers, but even I cried at this pet's passing. As his pet parent (not a term I use often or take lightly) and I shared a tear, he raised the question: "How do you vets do it?"

It never gets easier, I started to explain, and as I spoke I recalled countless euthanasias I had performed over the course of my career. My own philosophy about ending a patient's life is this: "Not a day too soon but not

a moment too delayed." The growing movement in the direction of pet hospice is based on that perspective. Saying goodbye to a beloved pet carries so many emotions and psychological steps that we sometimes gloss over them—until it's our pet.

For veterinarians, humane euthanasia is a way of ending pointless suffering in animals when all else has failed. It is often a difficult therapeutic option in the best interest of the animal and the family. In fact, we are obligated to consider euthanasia as an option to relieve suffering. There is often one more thing that can be done in an effort to forestall pain and death—but to what end? Sometimes rather than extending life we wind up prolonging the death process.

While animals are not thought to be self-aware or able to reflect on their own condition, and they cannot balance their suffering against time or pleasure or memories of better days, they are certainly sentient creatures capable of feeling physical and psychological pain. Yet they are not in a position to make decisions about their own medical care. That responsibility falls on their owners.

For many pet owners, however, even the thought of losing a beloved pet can be too much to process. When a pet's quality of life declines so much that the owner is faced with having to make the decision to actively end that pet's life, it can seem impossibly overwhelming. How many times has an owner told me they just want their pet to "die peacefully in its sleep"? Yet very few animals die quietly in their sleep, and even those pets too often have suffered needlessly. A peaceful death is often possible only with the intervention of euthanasia.

As veterinarians, we are expected to be more objective and should work with owners to decide when euthanasia might be the kindest option, providing permission and support when the time arrives. Euthanasia is sometimes the last arrow in our quiver—the last act of love we can perform.

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

Anti-soring bill passes U.S. House

assage of the U.S. Senator
Joseph D. Tydings Memorial
Prevent All Soring Tactics
(PAST) Act in the U.S. House of
Representatives, passed by a vote of
333-96, is intended to end the practice
of horse soring.

Named in honor of the late Maryland senator who spearheaded the 1970 Horse Protection Act (HPA) through Congress, the bill (H.R. 693) was first introduced in 2013 by Reps. Kurt Schrader (D-Oregon) and Ted Yoho (R-Florida), both of whom are veterinarians. It now awaits approval from the Senate.

Soring is the intentional infliction of pain on a horse's front legs and hooves in an effort to amplify the horse's naturally high-stepping gait, known as the "big lick," in the show ring. The practice may involve applying caustic substances (e.g., diesel fuel, kerosene), grinding down hooves to expose sensitive tissues, placing sharp or abrasive foreign objects into the hooves or placing heavy chains around the pastern. Tennessee walking horses, spotted saddle horses and racking horses are most affected by this practice, which causes significant discomfort and can lead to lameness. Most veterinarians, veterinary organizations and horse trainers consider the practice inhumane.

"Horse soring still runs rampant even though laws have been on the books for decades," Rep. Schrader said in a statement released the day of the House vote, July 25. "The bill that was passed today will strengthen and improve current regulations by improving USDA enforcement, increasing civil and criminal penalties, and banning incentives to sore horses. This is a historic day and I am grateful for my colleagues who worked tirelessly to get this legislation across the finish line and for the beautiful horses that we love so much."

The HPA already bans sored horses from competing in shows, exhibitions or sales, but the legislation has been largely unenforced for years. In addition to making it illegal to engage in—or instruct others to engage in—soring, the PAST Act would strengthen the HPA in several ways:

 ${\color{red} >}$ Engage the USDA to train, license

and assign inspectors to horse shows instead of having horse industry organizations choose their own inspectors. Show managers would still have the option of whether to hire inspectors, but those who opt out

- would risk greater liability.
- > Ban the use of devices implicated in the practice of soring, such as stacked shoes and ankle chains.
- > Strengthen penalties for those who engage in soring. Maximum prison

time would increase from one to three years, and maximum fines would increase from \$3,000 to \$5,000. A third violation could result in permanent disqualification from any horse show, exhibition, sale or auction.

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A day in the life: State public health veterinarians at work

Ever wonder what your state public health veterinarian does? Quite a lot, it turns out, including manning the front lines of zoonotic disease control. By Don Vaughan

typical day for Danielle
Stanek, DVM, is never typical.
On a single day last
October, Dr. Stanek—the state public
health veterinarian (SPHV) for
Florida—responded to several rabiesrelated calls, participated in a state
agricultural call related to Hurricane
Michael response in the Florida
panhandle, consulted with state agricultural pest control experts on vector
control for a hurricane-related vector
issue, assisted hurricane-impacted
counties with animal bite follow-up

and consulted with county health departments on possible human orf (contagious ecthyma) and brucellosis cases.

Dr. Stanek has been Florida's SPHV for a little over a year. For 10 years prior, she was the program manager for the Florida Department of Health's Zoonotic and Vectorborne Disease Program. "It's wonderful to have a job that allows you to help both people and animals," Dr. Stanek says of her current position. "Public health professionals in general are some

of the most caring professionals I have had the pleasure to work with. There is always some new question to address, so the job never gets boring."

According to the National Association of State Public Health Veterinarians (NASPHV), SPHVs shouldn't be confused with state veterinarians. Though the two positions may intersect, SPHVs work primarily for the state health department, whereas the state veterinarian traditionally works for the state agricultural department.



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² Data on file

³ Data on file







According to the NASPHV's website, "SPHVs generally work in zoonotic disease control and prevention, while state veterinarians primarily target livestock diseases (some of which can be zoonotic) and their activities may sometimes be considered to concentrate on benefits and protection to livestock and the livestock industry."

Almost every state has a public health veterinarian. Certain job responsibilities extend across all states, but there may be additional responsibilities specific to a particular state. "There are some standard sorts of things that are part of the rubric of [being an SPHV], such as rabies control," observes Curtis Fritz, DVM, PhD, MPVM, DACVPM, the SPHV with the California Department of Public Health. "But beyond that, it can be very diverse. Some [SPHVs] may also serve as their agricultural state veterinarian. They may be in departments other than public health."

Dr. Fritz's office oversees three statutory programs: rabies surveillance and control; wild animal importation, permitting and quarantine; and psittacosis prevention and control. "Those are the traditional, obligatory responsibilities for the section," he said. "But our duties and actions are much broader than that, and essentially cover just about any zoonotic disease that presents itself."

Indeed, the issues that an SPHV may have to address can be quite broad. "We collect a lot of information about reportable diseases, more than 10,000 cases a year," says Connie Austin, DVM, MPH, PhD, the SPHV for Illinois. "Everything from rabies to *Brucella*, *Salmonella* and *E. coli*. We've also had some weird outbreaks like monkeypox. We study the case reports and try to prevent outbreaks or mitigate what is happening."

Not everything an SPHV deals with is directly animal related. In March 2018, Dr. Austin's office was enlisted when several people developed severe coagulopathy after smoking a synthetic form of marijuana known as K2 that had been contaminated with a rodenticide. "The users were very sick," Dr. Austin recalls. "Our group is the only one that does acute epidemiology, so we ended up taking it on.

It was interesting trying to figure out all the ways to get people treated and get the word out so law enforcement could get K2 off the market."

In another incident, Dr. Austin's office was called in to deal with an outbreak of cyclosporiasis, a parasitic infection that can cause severe diarrhea. "We had over 1,000 cases, whereas we usually get 10 to 30 a year," she says.

While SPHVs usually don't treat pets, their work occasionally does bring them into contact with community veterinarians. "SPHVs often provide consultation to veterinarians about zoonotic disease issues, such as rabies or Q fever, and often provide zoonotic/public health education at meetings and conferences that practicing veterinarians attend," says Ann Garvey, DVM, MPH, MA, the president of NASPHV and the SPHV and deputy state epidemiologist for Iowa.

SPHVs also work closely with their state animal health officials, Dr. Garvey notes. "During zoonotic disease issues, outbreaks and emergencies, SPHVs coordinate closely with these positions to ensure a cohesive and comprehensive response," she explains.

Because of the diversity of health issues SPHVs deal with, and the number of different state agencies with which they interact, the One Health concept is prominent.

"Two of my mentors, Drs. Lisa Conti and Carina Blackmore, take every opportunity to highlight that the strongest public health and veterinary medicine practices are based on One Health," says Dr. Stanek. "Although we may not always recognize this consciously, it is a concept that is at the heart of what we do on a daily basis, whether it's investigating antibiotic-resistant campylobacteriosis in puppies and their owners or working toward rabies prevention and control. Human and animal health are closely intertwined, and the health of our environment affects us all."

Don Vaughan is a freelance writer based in Raleigh, North Carolina. His work has appeared in Military Officer, Boys' Life, Writer's Digest, Mad and other publications.

Researchers aim for universal flu vaccine

This One Health approach to the flu would offer protection against the flu across the board and be safer for higher-risk populations than the traditional flu vaccine.

hile the current seasonal flu shot aims to protect against the most prominent strains of flu for the year, researchers at the Virginia-Maryland College of Veterinary Medicine are attempting to do the vaccine better. The aim: a universal flu vaccine.

Recently, the Department of Veterinary Medicine at the college received a \$3.1 million grant to continue work on just this issue, according to a release from the University of Maryland. The grant was awarded by the National Institute of Allergy and Infectious Diseases with the National Institutes of Health.

Led by Xiaoping Zhu, PhD, associate dean and chair of the Department of Veterinary Medicine at the University of Maryland, the team has been working on a universal flu vaccine for more than a decade. Their work isn't simply

targeting people, but instead keeps the One Health approach in mind, as the flu can affect both animals and people and travel across species (think of the H1N1 swine flu outbreak in 2009).

This new approach, if successful, would prove more effective than the seasonal vaccine delivered every year. The seasonal vaccine doesn't provide complete protection against all strains of the flu, but rather what the World Health Organization predicts will be the most prominent strains for the next season, according to the release. How effective the shot is depends on how effective the predictions are.

"The current vaccine for seasonal flu provides only about 20 to 30% protection in recent years, which is low. Many people complain that they get the vaccine, but still get infected," said Dr. Zhu. From the time predictions are established, seven to nine months pass

The current vaccine for seasonal flu provides only about 20 to 30% protection in recent years, which is low. Many people complain that they get the vaccine, but still get infected."

—Xiaoping Zhu, PhD

to produce the vaccine, and during that time flu strains may change, according to the release.

"The seasonal flu vaccine is always behind the flu season," said Dr. Zhu in the release. "But if we can focus on conserved regions of antigens with our vaccine that are common in all flu viruses, the strain won't matter. That is the goal of a universal flu vaccine."

His team is working on technology for an intranasal vaccine that would be delivered through the nose cavity and directly into the lungs rather than the typical injection into muscle tissue associated with flu shots. This method of delivery can provide local immunity, providing further protection to recipients, according to the release. It would benefit higher-risk populations, such as the young and elderly, who are more likely to react negatively to a traditional flu vaccine, according to the release.

In addition, the team is dedicated to making sure the vaccine is safe. "I've told my team that I will be the first," Zhu said in the release. "When it's ready, I'll be the first to use it on myself."

Diggo aims to close gap between veterinarians and pet owners

Launched at Fetch dvm360 conference in Kansas City, this new digital resource from Trone claims to provide an 'unbiased, unfiltered view' from veterinary clients.

iggo, a new digital publication from Trone Research + Consulting, aims to close the communication gap between pet owners and veterinarians by providing an "unbiased and unfiltered view from pet owners," according to a release from the company.

The Diggo publication covers topics that veterinarians say are important to their businesses. In addition to pet owner insights, the report provides "solution-oriented assessment" so veterinarians and practice owners can make solid decisions that help keep current veterinary clients

and grow their practices overall.

Diggo was born out of years of marketing research involving both veterinarians and pet owners on shared topics, the release states. This research consistently found that what veterinarians believe pet owners think is drastically different from what pet owners actually say, creating a knowledge and communication gap.

"We share a common belief with veterinarians: the health of pets comes first and foremost," says Doug Barton, founder of Diggo and president of Trone Brand Energy, "and we believe pet owners need a voice. These reports are created specifically for veterinarians with no manufacturer bias. We aim to close the knowledge gap by providing a valuable, actionable resource to support veterinarians' businesses in these changing times."

According to the release, the first Diggo report features data that questions recent industry statistics claiming veterinary visits are declining. The report states that this simply isn't true. Rather, there are more alternatives to traditional veterinary care than ever before, and many pet owners are taking advantage of these alternatives. Pet

owners' desires and needs are vastly changing when it comes to accessibility, trust and loyalty.

"I pride our practice in understanding our clients' needs," says Brian Barnett, DVM, owner of Randolph Animal Hospital in Asheboro, North Carolina. "After reading the Diggo summer report, my eyes were opened to customer issues and information we were missing. I love the report, especially the action items. Information is great, but what to do with it is key."

More information about Diggo, as well are reports available for purchase, are available at Dig-go.com.



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BabelBark

Two-way pet journaling

BabelBark, a digital platform that enables communication between pet parents and veterinarians, has launched a new feature for its BabelVet, BizBark and BabelBark apps: two-way journaling. This feature connects pet owners to veterinarians, groomers, trainers and shelters with messaging, medical status photographs, nutritional requirements, medication compliance and much more. Pet owners can document what's happening with their pet through both written notes and photographs in a journal format, which is automatically uploaded to their veterinarian. The veterinarian can review the journal entries at a convenient time without disrupting their current schedule. The journaling platform is secure for the transfer of confidential information. For fastest response visit babelvet.com



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The Guarded Luer Connectors from Medidose are specifically designed to facilitate the transfer (or mixing) of fluids between syringes and connecting various IV sets. The connectors can be used to join two Luer lock syringes or other Luer lock devices. Available in either female-tofemale Luer lock or female-to-male Luer lock configurations, they're designed with large finger grips to provide secure manipulation and help protect against touch contamination. The connectors' bright coloring allows for quick identification, and they are individually packaged to facilitate aseptic technique. For fastest response visit medidose.com



Boehringer Ingelheim

Toolkit to host an equine gastric health event

Research shows that more than 60% of performance horses, 30% of pleasure horses, and between 25% and 51% percent of foals suffer from gastric ulcers. To help veterinarians provide a "gut check" for horse owners focusing on the risk of equine stomach ulcers and how to treat and prevent them, Boehringer Ingelheim is providing downloadable educational-event toolkits at gastrogard .com/vetresources. The kits include a comprehensive set of materials for hosting an educational event for horse owners focused on equine gastric ulcer syndrome, from invitations and social posts to posters and handouts. Two versions of the kit are available: one for veterinarians who offer gastroscopy exams and one for those unable to do so.

For fastest response visit gastrogard.com/vetresources





Summus Medical Laser

New identity, branding for K-Laser

K-Laser USA has announced a new company name, Summus Medical Laser. The move comes as company representatives say that its worldwide medical laser sales continue to rise and it offers new technology options, improved user interfaces and more advances in laser products. Summus' flagship class 4 therapy lasers—the Platinum Series—deliver specific red and near-infrared wavelengths of laser light to induce a photochemical reaction and therapeutic effect. Physiological effects include increased circulation, reduced inflammation, pain reduction and enhanced tissue healing, the company says. Also described as "photobiomodulation," high-intensity lasers are being increasingly used by veterinarians and other healthcare professionals with a growing application for musculoskeletal therapy as well as cancer radiation and chemotherapy relief. For fastest response visit summuslaser.com



iVET360

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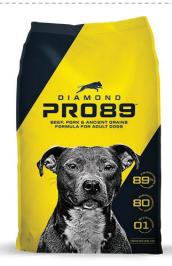
With the passage of new laws, California now requires that all staff at businesses with more than five employees participate in harassment prevention training. As part of the LearningVet.com learning system, iVET360 is offering a veterinary-specific training program that meets the state requirements for both support staff and practice leaders. This training is led by Heather Romano, a certified human resources professional. iVET360's training is offered on demand so it can be accessed at an employee's convenience, making compliance much easier. Participants will obtain a certificate of completion after finishing the course that can be printed and placed in their personnel file. For fastest response visit learningvet.com



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Anchorage, AK
akvma.org
October 4-6
2019 New York Sta
Veterinary Confere
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Ithaca, NY cvent.me/xaxKa

October 5-6 **Breed-Specific** Medicine: Using Genetics to Elevate Quality of Care San Antonio, TX lonestarvet academy.com

October 10-13 ABVP Symposium Denver, CO (352) 244-3715 abvp.com

October 12-13

Colorado VMA CE Southwest Durango, CO (303) 318-0447 colovma.org

October 14-17 The Atlantic Coast **Veterinary Conference** Atlantic City, NJ (609) 325-4915

acvc.org

October 17-19 2019 ACVS Surgery Summit Las Veaas, NV (301) 916-0200 acvssurgery summit.org

October 17-19 Updates in Endocrinology and Cardiology Asheville, NC (888) 488-3882 vetvacationce.com

November 3 2019 AAFP 5th World Feline Veterinary Conference San Francisco, CA (908) 359-9351 catvets.com/ education

October 31-

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November 16-17 The Gift of Presence San Antonio, TX Ionestarvet academy.com

November 16-17 Orlando Wet Lab Fall 2019 Orlando, FL (941) 276-9141

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December 12-15 Fetch dvm360 conference in San Diego San Diego, CA (800) 255-6864, ext. 6 fetchdvm360 .com/sd

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A horse vet goes to the airport ...

When Dr. Bo Brock leaves the clinic (or the field, as it happens) and journeys through the real world, you never know what might unfold.

hen I travel, I usually leave from the airports in Lubbock or Midland, Texas. Both are relatively dinky. The security line takes less then 10 minutes to get through. I almost always have to catch a connection in Dallas or Denver, but seldom have to go through big-city airport security lines.

But on one particular trip, I was catching a flight early one morning at an airport I'd never been to before. I always try to arrive two hours early. And boy, was I glad I got there early for this episode.

There were four of us flying together: my wife, Kerri, my youngest daughter, Kimmi, and her husband, Aaron.

Check-in was quick and I was beginning to wish I had slept another hour instead of hustling across town to the airport at 4 a.m. The friendly counter staff pointed us toward the security line and told us to leave our checked bags to be inspected.

We all got in line and dutifully waited as it trudged along. Then I noticed something I'd never seen before: a 15-yard-long, widened section of the security line, with a dog sniffing people as they went through two by two. I was still a ways back in line, which gave me some time to ponder what the dog might think of me—or, for that matter, Aaron, who's a pharmacist.

Aaron and I got to discussing it, and I told him I thought the dog would be more likely to single him out than me. He argued that he wasn't wearing any of his work clothes and didn't think the dog would pay him a bit of attention.

I looked myself over. I was definitely wearing work clothes. I was even wearing work shoes. But still, I thought, these dogs were surely taught to key on drugs and not horse smells.

Our moment arrived. The dog politely sniffed us both, and as far as I could tell, he

just moved on. We walked about 10 yards when a tall fella in a blue uniform caught me by the arm and informed me that the dog had alerted security staff about me. I needed to come with him.

I was taken back to an enclosed area, away from the general public. Once there, the tall man called a young lady over. She took my carry-on, watch, cap, jacket, belt, shoes and shirt. This left me standing there in my undershirt, sagging pants and a pair of socks that weren't even the same color.

The tall fella put on a pair of black latex gloves. (I wasn't liking the way he popped them into place.) I thought, surely getting singled out by a dog doesn't warrant a body cavity search!

But the way he was looking at me—I began to worry. He asked me questions. I said I was a veterinarian and I was sure the dog had honed in on some scent from the clinic. He asked if I could prove I was a veterinarian.

I'd never really considered that I might have to prove my profession. Who carries their diploma around? It definitely wasn't in my carry-on, which was currently being emptied out by the female officer.

I told the man I had no proof that I was a veterinarian but I could say some fancy things like "tensor fascia lata" or "navicular disease," if that would help. He did not find that funny and called the lady over.

She approached and began rubbing my hands and arms down with a cloth, which she then put under a magic machine that must have been able to tell if I was a veterinarian.

When no buzzers went off, she came back with another little cloth and rubbed my neck and the side of my face with it. Once again, no buzzer went off at the magic machine. This seemed to disappoint them.

I was getting a little anxious because of the time. I told the male officer that our plane

would be boarding soon and I was sure the dog had picked me out because he liked the smell of horse poop. Once again, he did not think that was funny.

He said he was going to give me a thorough pat-down. He laced his fingers together and explained that when he got to my private parts, he would use the back of his hands to conduct the search.

Private parts? Well, I could think of a whole bunch of my parts that I consider private. He went up and down both of my legs using the palms of his hands to search for anything abnormal. He did the same thing with my arm and torso. He then told me to lean against the wall with my hands up and my legs spread.

I had a feeling the laced-finger technique was about to come into play. Sure enough, he went to work.

Without my belt, I was afraid my pants were gonna fall down and he would continue the exam through my baggy Duluth Trading Company boxers.

Finally, satisfied that I was not a criminal, the officers handed me back my stuff in a gray airport tray and told me I was free to go. I came back into the general population with one hand holding up my pants and my stuff smashed into a tray. I must have looked pretty dejected, because when my family spotted me, they started laughing and pointing.

The moral of the story is this: Veterinarians, if you go on a trip through an airport you haven't been to before, get there two hours early, and don't wear your work clothes or shoes unless you want some guy to backhand your business.

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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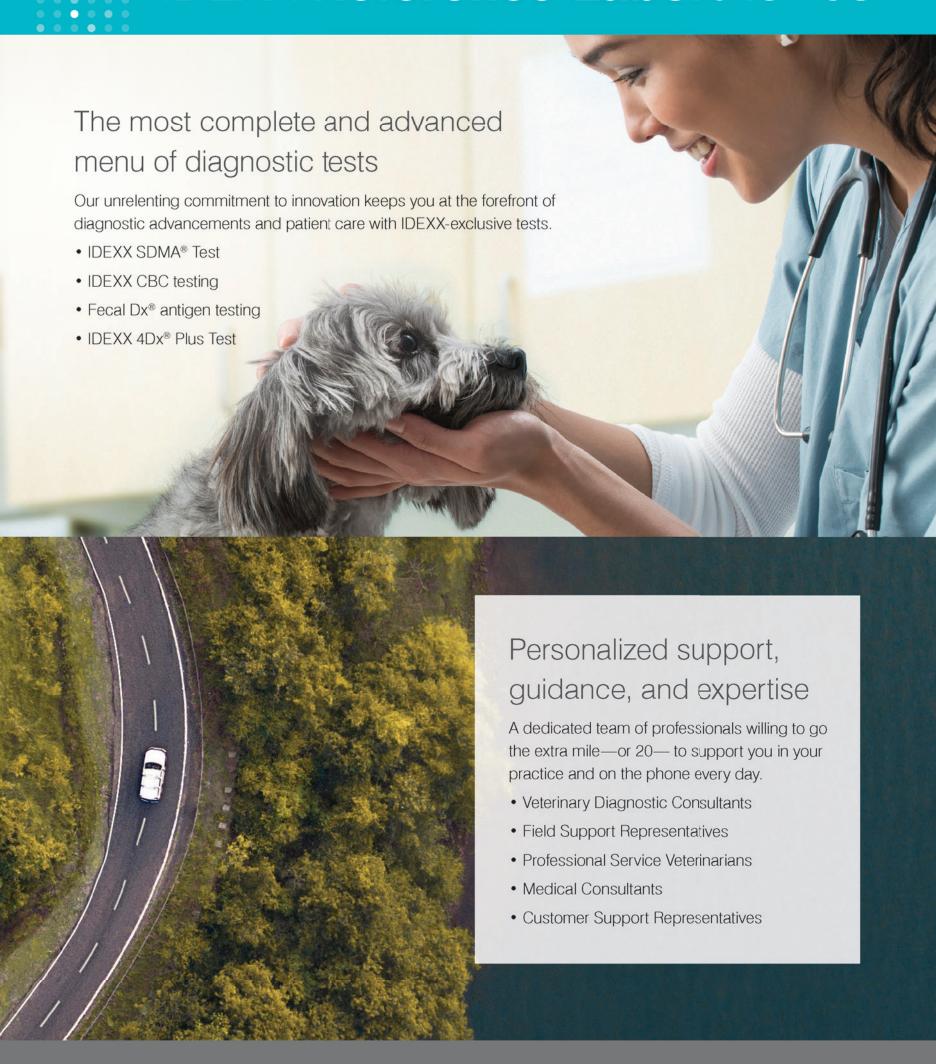
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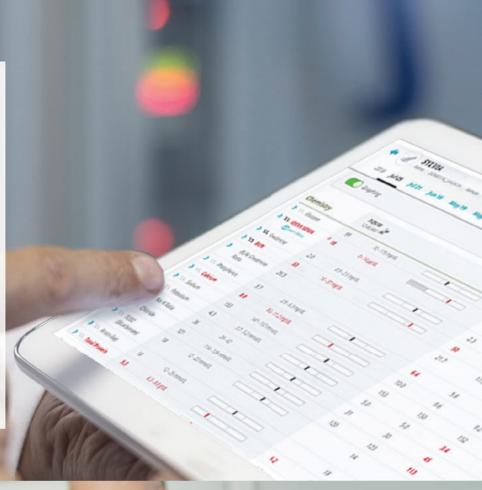
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