

Veterinarians aid in flood relief

Texas A&M emergency team cares for search and rescue dogs, pets displaced by disaster.

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Veterinary app for pet owners generates concern

Telemedicine consultations may fall into legal 'gray zone'; proponents argue they're a lot better than the Internet. *By Rachael Zimlich*

A little more than a year after Ron Hines lost his Texas veterinary license for offering veterinary advice over the Internet, a new Tennessee startup has launched a nationwide mobile app called VetOnDemand, which boasts "comprehensive advice from a licensed, certified veterinarian."

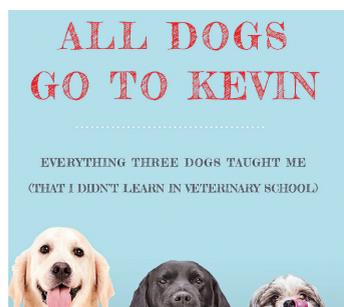
Although VetOnDemand's entrepreneur ownership team denies that diagnoses are being made through the service, the company's website advertises that clients can consult remotely with a veterinarian for peace of mind, health advice or a second opinion on their veterinarian's diagnosis, treatment or surgical recommendation.

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The midlevel veterinary professional: Has the time come?

One veterinarian believes so—and she states her case in this issue of *dvm360*. Her fellow practitioners in the state of Colorado aren't so sure. **>> See the full story by Dr. Sarah Wooten on page 24**



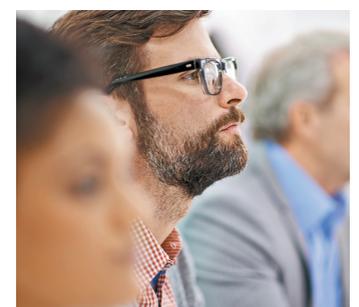
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What gives state veterinary boards the right, anyway? **page 40**

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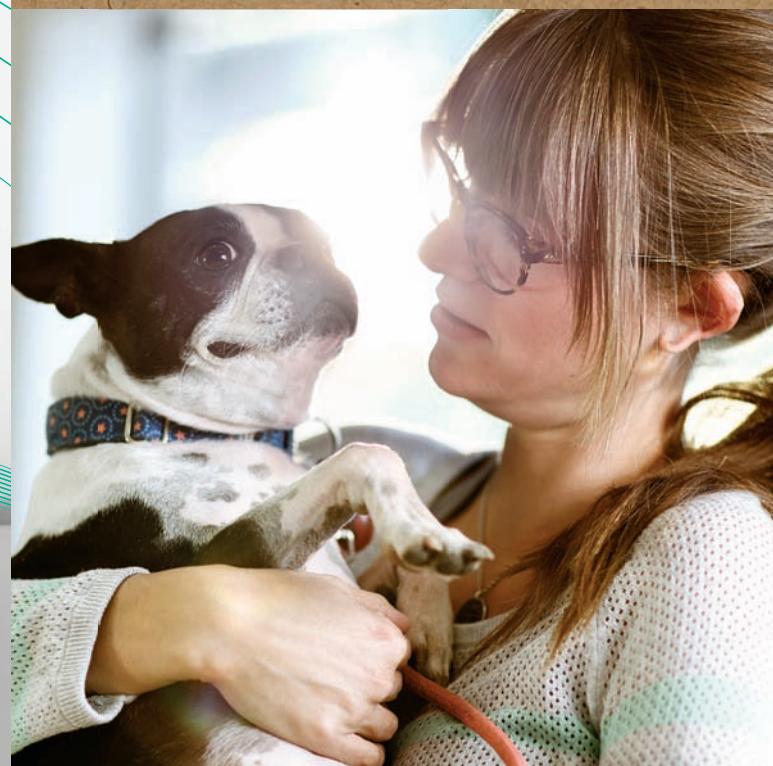
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FTC finally issues report on pet medications market

Believes pet owners would benefit from prescription portability.

Almost three years ago, in October 2012, the Federal Trade Commission (FTC) generated a whole lot of noise when it convened a workshop on the pet medications market. Lots of folks opined about whether pet owners were truly able to get their pets' prescriptions filled where they wanted and if they were getting the best prices possible on these drugs in a free market economy.

Well, after all the bluster, what followed was a very long period of deafening silence. I personally thought the FTC had decided not to issue a report at all (thanks in no small part to veterinarians' eloquence during the workshop). But in late May the commission proved me wrong and released a 115-page tome. The report found that the pet medications industry could become more competitive if:

- > Pet owners had greater access to "portable" prescriptions—or prescriptions that can be filled by someone other than their veterinarian.
- > Nonveterinary retailers (Walmart and its ilk) had greater access to supplies of pet medications, which are currently restricted by exclusive distribution arrangements put in place by manufacturers.
- > Pet owners had more low-priced generic animal drug options to choose from.

That first bullet point is where much of the conversation has focused in recent years, notably in relation to the Fairness to Pet Owners Act, a bill that keeps getting introduced in Congress, session after session, requiring veterinarians to hand over a script every time they prescribe a medication. Despite the fact that Congress as a whole has shown little interest in debating the bill, the FTC report seems to imply that such a law would be in pet owners' best interests.

The FTC says it's heard numerous reports of veterinarians who are "reluctant" to give out prescriptions on request, regardless of the fact that they are bound by ethics and, in many cases, their state practice act to do so. Now, I'm sure there are some veterinarians who act this way out of financial self-interest, but I believe there's a different reason for any reluctance veterinarians may feel as a whole to hand out prescriptions, and that's this: *Human pharmacies are screwing up.*

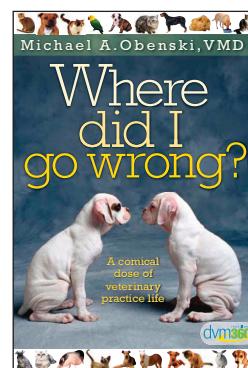
Thinking they know better, pharmacists change the prescription or question the veterinarian's judgment in the presence of the pet owner, putting the pet's health or even life at risk. The FTC report acknowledges that these accounts exist but indicates that state pharmacy

boards are not seeing complaints. So here's what I think: If this FTC report has enough clout to convince consumers and Congress that a law is necessary—which will most likely result in more Walmarts and Costcos filling more pet prescriptions—veterinarians are going to have to bring the thunder. If a pharmacist changes a veterinary prescription without consulting the prescribing doctor (as the pharmacist is legally bound to do), that veterinarian needs to file a complaint with the state board of pharmacy. Over and over, as many times as it takes.

Politics, practice profitability and special interests aside, veterinarians are the experts in pet health. And if dispensing medications leaves their clinics, they need to do what it takes to ensure patient safety. **dvm360**



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Dr. Pol accuses fellow veterinarian of libel

Eden Myers, DVM, who filed complaint with Michigan board, receives warning letter from lawyers, death threats from Pol fans. *By Katie James*

The lawyer for Jan Pol, DVM, star of Nat Geo Wild's *The Incredible Dr. Pol*, has sent a letter alleging that Eden Myers, DVM, made libelous statements on change.org, a site where Myers posted a petition calling for the cancellation of Pol's show and summarizing the most recent disciplinary action against him.

The Michigan Board of Veterinary Medicine ruled against Pol in March on charges of negligence and incompetence after Myers filed a complaint based on Pol's treatment of a hit-by-car Boston terrier on an episode of the show. The board fined Pol, ordered him take CE classes and placed him on probation for one year.

On April 5, Myers posted the news of the Michigan veterinary board's finding on the change.org site and linked to the opinion of the administrative law judge in the case. "NatGeo is now knowingly showcasing obvious and legally determined medical incompetence and negligence," she wrote. "This company is knowingly selling recordings of illegal acts, and positioning its show to teach people that these acts are desirable—when in fact they have been found in a court of law to harm animals, defraud clients and endanger employees."

Christopher S. Patterson, JD, legal counsel for Pol, wrote to Myers in a letter dated April 23 that her statement was "utterly false and without merit. ... Nowhere in all twelve pages of [his] decision does the administrative law judge find that Dr. Pol harmed any animal, defrauded any client, or endangered any employee. Your post is clearly false and misleading, and your post unfairly damages a great man's reputation and livelihood."

The letter requests that Myers remove the defamatory remarks from change.org, cease and desist publishing defamatory remarks, post a retraction and notify any potential viewers that

"Is this the general tenor of the attitude of people toward veterinary medicine that's being cultivated by this show?"

—Eden Myers, DVM

the post was false. Myers has consulted with a lawyer and is considering a wording change to her petition update. She has also sent a letter dated June 9 back to Pol's attorneys defending her statements and her assessment of the judge's opinion but apologizing for using the word "defraud," which is defined by specific state criminal statutes.

Christopher J. Allen, DVM, JD, a veterinarian and attorney who writes a legal column for *dvm360* magazine, agrees that the fraud accusation could be problematic. "If Dr. Myers were to ask for my advice, I would suggest that she make that word go away," he told *dvm360*. But he believes her other remarks most likely fall under the category of opinion, which is not actionable as libelous speech, especially considering that Pol is a public figure.

Under Michigan law, libel and slander damages are not awarded in court unless the plaintiff gives notice to the defendant before filing suit and gives the defendant time to publish a retraction. Myers believes that the letter she received could indicate that Pol will seek damages, if only to make an example out of her for filing a complaint against him with the state board.

Web-based worries

The implied threat of legal action is not the only blowback Myers has experienced since the board's ruling. Supporters of Pol have come out in full force. In the weeks since the ruling,

Myers has received hundreds of negative Facebook comments and phone calls. Plus, her email was hacked and she's even received threats of violence toward herself and her family.

"I started having to call the FBI about receiving death threats on the Facebook page," Myers told *dvm360*. She now curates her Facebook page much more vigilantly than she did before. "I can't understand how someone can be so rabidly attached to a television show that they are irrational, violent and self-centered, and yet that's overwhelmingly the tone of his supporters. It was really shocking," she says.

As threats started coming in, Myers looked online for guidance on how to protect herself (see "Online safety: What you need to know," on page 9). "Anything involving death threats goes to the FBI," she says. "Anything made over the Internet goes to the federal cybercrimes site. Any threat involving violence or harassment should be reported to your local sheriff or police—and if your state has one, to the state-level cybercrimes division as well."

Threats on Facebook are handled by Facebook, Myers continues, while Twitter has its own tools and protocol. Anything emailed gets reported to the Internet service provider and email provider. "Hate speech—anything about religion, sexuality or gender—goes to a whole different bevy of agencies," Myers says.

One of the difficult parts of moderating the online activity is determining which threats are credible and sending that information to the appropriate agency based on the content, Myers says. She has learned that a threat is deemed credible if it contains anything indicating the person actually knows her physical routine or expresses specific intent to harm her family. "I have to read all the posts on the Facebook page, listen to all the voicemail mes-



Want more details?

The online version of this article contains live links to the documents relating to this case. Visit dvm360.com/PolLibel for additional information.



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Reference: 1. Bravecto [prescribing Information]. Summit, NJ: Merck Animal Health; 2014.

Available by veterinary prescription only.

Please see Brief Summary on following page.

www.BravectoVets.com

NADA 141-426, Approved by FDA



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

Caution:

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Indications:

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

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

Contraindications:

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

Warnings:

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

Precautions:

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

Adverse Reactions:

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

Percentage of Dogs with Adverse Reactions in the Field Study

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

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

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Online safety: What you need to know

The time to think about cyberharassment is before it starts.

Having an online presence is an important part of running a business. More often than not your clients and potential clients will find you online rather than in a phonebook. Your website and social media presence offer a peek into your practice—and that personal connection is important. But what happens when something goes wrong and you find yourself flooded by negative Facebook comments, tweets, emails or even threats of violence?

The time to think about cyberharassment is before it starts, says Parry Aftab, JD, Internet security lawyer and founder of wiredsafety.org. Review the privacy and security settings as you setup your account up so your security is strong from the start. “Facebook, Google and Bing search your name and your practice name—see what people are saying about you,” Aftab says. “You can also set up alerts for your name on these services, and you’ll get an email when that search term is triggered. It’s an early alert if people do start using your name online.”

Any business has to think about what could happen when an employee is terminated or leaves

under unhappy circumstances, and then they need to change social media passwords, but veterinarians are in a special situation. People get very emotional about their pets, even more so than their families sometimes, Aftab says. “What starts as one post from someone whose pet had a bad surgery outcome can grow much larger quickly when the animal rights activists join in and they aren’t clients of that particular clinic,” she says.

Aftab, who is based in New York and is familiar with the story of the late Shirley Koshi, DVM, has founded and will launch, with a target date of November 2015, cyberwellness.com, a site and resource specifically for those in the human health and veterinary fields.

“There’s a gap in what medical professionals are taught about communication online. This will teach digital hygiene and what veterinarians should be doing to protect online tools from being used against them, and teach them how to handle it if an animal rights group gets involved. How to safely respond and to take it offline and protect themselves, the practice and staff,” she says.

Digital breadcrumbs

One of the common things people think they need to do when addressing cyberharrasment is to print everything out. While that does keep a record of the interaction, the more important step is to keep the digital trail in place, Aftab says.

“Most social media networks collect device information. If you log into Facebook from your cellphone, Facebook knows which phone you used. You can ask the law enforcement agency you’re working with to send the social network a ‘preservation letter.’ It will keep things from being deleted for 30 days and they can find out who is behind the harassing messages,” she says.

Making a note of the local time the message was posted is helpful as well, or you can even have an information technology person mirror your hard drive if you want to submit it as part of the investigation.

Stop, block and tell

Aftab teaches clients to use the “Stop, block and tell” method to address online safety concerns.

Stop: Don’t react or respond online. If it’s a client with a legitimate

concern, pick up the phone and address it directly.

Block: Block the user. Ban him or her from everything you control—your practice’s social media and website. This won’t stop the person from shouting hateful messages on other sites, but it will prevent the bully from using your site as a platform.

Tell: Tell your lawyers and local law enforcement about threats of harm. Take everything seriously. You never know when something that seems like a crackpot rant could turn much more grave.

Check your network

Another thing to keep an eye on is your network security. Make sure you haven’t been the target of a malware or Trojan attack. Get a really good virus-scanning program and make sure there’s not a “backdoor” in your online security that someone could use against you. “Don’t change network connections, install new software on your computer or change your password until after you’ve run the scan and checked for threats,” Aftab says. “Otherwise the cyberharasser will be able to get right back in.”

sages, read all the emails, check for tweets, scroll through the comments on change.org,” she says.

In addition to obvious concerns surrounding her family’s safety and the time and energy required to monitor the situation, Myers is concerned about the reputation of veterinary medicine. “Is this the general tenor of the attitude of people toward veterinary medicine that’s being cultivated by this show?” she asks. “Not that they’re being vulgar and vindictive and violent toward me as a person, because they don’t know me any more than I know Dr. Pol. My complaint has nothing to do with him as a person. The danger that I sense there is not toward me personally, but to the profession as whole.”

Additional actions

Pol filed an appeal through his lawyer in the Michigan Court of Appeals in

mid-May seeking to reverse the disciplinary subcommittee meeting’s ruling in which he was ordered to pay a \$500 fine, placed on probation for one year, and ordered to take CE courses on intravenous fluids, anesthesia and emergency and critical care. Pol can also have no other violations of the health code while on probation, says Michael Loepp, communications representative with the Michigan Department of Licensing and Regulatory Affairs.

Pol’s publicist, Nancy McCarty Iannios, told dvm360 that the appeal had been filed to “correct the injustice exhibited by the Board of Veterinary Medicine’s decision,” and that a libel lawsuit had not yet been filed against Myers. “Dr. Myers has only been notified about our concerns regarding her statements, and we are hopeful she will contact Dr. Pol’s legal counsel to resolve our concerns,” she says. dvm360

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Texas A&M Veterinary Emergency Team aids search and rescue efforts after floods

Team grateful for community support as it cares for animals in need.

The Veterinary Emergency Team at Texas A&M University was deployed in late May to aid search and rescue efforts after flooding in Texas. At the request of the National Urban Search and Rescue Team, Texas

Texas Task Force 2 (TX-TF2) was called to mobilize and also requested the Veterinary Emergency Team to deploy with them to nearby San Marcos, Texas. Although a few members of the emergency team have rotated out, the core group has been in the flood-ravaged region for nearly two weeks.

Angela Clendenin, director of communications for the Texas A&M College of Veterinary Medicine, says it rained in Wimberly almost every day of the deployment. The conditions were rough for search and rescue teams and the dogs. “There was debris and mud—water that’s not exactly clean,” she says. The emergency team made sure to hydrate the dogs and perform regular exams to keep them in operation.

The team has also been presented with animals in need of care by local animal control officers and citizens—including a screech owl and a rabbit. Clendenin says the most touching rescue was finding the McComb family’s dog, which was caught in a tree in Wimberly. Laura McComb, 34, and her son Andrew, 6, were killed when Blanco River floodwaters washed away their house on Memorial Day. Leighton McComb, 4, remains missing. Jonathan McComb, Laura’s husband and Andrew and Leighton’s father, survived but suffered a collapsed lung, broken rib and shattered sternum. “Right now he’s very much in shock, but he expressed his gratitude to the team for finding his dog,” Clendenin says.

The team was also able to save a cat brought to them by a woman who had lost everything in the flood. When the cat arrived, Clendenin says, it was on “death’s door.” After 24 hours of treatment, the cat was doing well and the owner cried tears of joy, saying, “You saved my baby.”

“In addition to caring for these highly trained dogs, at the same time

we’ve been able to touch the lives of the animals here,” Clendenin says. Plus, she continues, the team has made strong connections with local veterinarians and the community. “The amazing generosity and concern for us is overwhelming,” she says.

People have been bringing food and donating items the team needs, Clendenin says. “They’re asking, ‘What can we do for you?’ and we’re here to help them on the worst day of their lives,” she says. “It’s been an incredible, humbling experience.”

The environmental conditions and length of service have made this deployment different from others, Clendenin says. For one thing, most past deployments have been no more than two days. Plus, “the environment these search dogs are working in—they’ve absolutely needed us,” Clendenin says. “We’ve had some minor injuries.”

In fact, the Texas Task Force, coordinated by the Federal Emergency Management Agency (FEMA), believes its dogs are able to stay in operation 50 percent longer with the onsite veterinary care provided by the Veterinary Emergency Team. “What that means is that they can save lives faster,” Clendenin says. “It’s hard, it’s tough, but Aggies have always been devoted to selfless service. We’re committed to staying here until they tell us they’re done.”

The 12- to 17-member team, the majority made up of Texas A&M veterinarians and technicians, plus three to five veterinary students, has families and coworkers pulling double duty in their absence. “Our college and our dean are 110 percent behind what we’re doing,” Clendenin says. “We couldn’t do this if it wasn’t for the support of the dean and our families.”

To learn more about VET, go to its website, vetmed.tamu.edu/vet, and keep track of the deployment on the team’s Facebook page, [facebook.com/TAMUVET](https://www.facebook.com/TAMUVET). **dvm360**



>>> During operations in Wimberly, Texas, Phreedom, a search and rescue canine belonging to Texas Task Force 1 member Ronnie Perry, made a visit to the Veterinary Emergency Team to have a minor injury evaluated.



>>> After a long day of search and rescue in flood-ravaged San Marco, Texas, Lexi, a German shepherd, gets the dirt and debris rinsed off of her before getting an end-of-day exam. C.J. Mabry of the VET designed the decontamination unit that the team takes on deployment to ensure that search and rescue dogs and rescued animals are contaminant-free prior to going to a shelter, home or back with their handlers.

Task Force 1 (TX-TF1), which deployed May 24 to Wimberly, Texas, the veterinary emergency team deployed to care for TX-TF1’s search and rescue dogs.

TX-TF1 demobilized May 29, but

A photograph of an operating room. In the center, a surgical table is covered with a blue drape. Above the table, a large, circular overhead light fixture is visible, with many small lights inside. To the left, there are medical monitors and equipment. To the right, there are more medical devices and a window showing trees outside. The text "WHAT COULD MAKE YOUR OPERATING ROOM EVEN BETTER?" is overlaid in the center of the image.

**WHAT COULD MAKE YOUR
OPERATING ROOM EVEN BETTER?**

Called **beyond** traditional practice

Vogelsang dedicates career to humor, compassion—and good death. *By Donna Loyle*

Known as “Dr. V,” Jessica Vogelsang, DVM, creator of the blog Pawcurious, has combined her love of writing and her passion for in-home pet hospice care to create a veterinary career that expands beyond traditional veterinary practice. Her book, *All Dogs Go To Kevin: What Three Dogs Taught Me (That I Didn’t Learn in Veterinary School)*, is scheduled for release this summer. But it has always been Vogelsang’s humor and compas-



Dr. Jessica Vogelsang

sion that has boosted her social media status, which includes 23,000 Twitter followers and 15,000 likes on Facebook. Her YouTube videos can garner more than 33,000 views.

Vogelsang still practices veterinary medicine as well. She is the director of Paws into Grace, a small animal practice in the Greater San Diego area that emphasizes compassionate in-home hospice care. During her popular talks on the topic, she describes how this type of euthanasia—at home with the pet’s human family around it—can help people, especially children, better understand and accept the death process.

dvm360: You started your career in a traditional way. What prompted you to follow your own path?

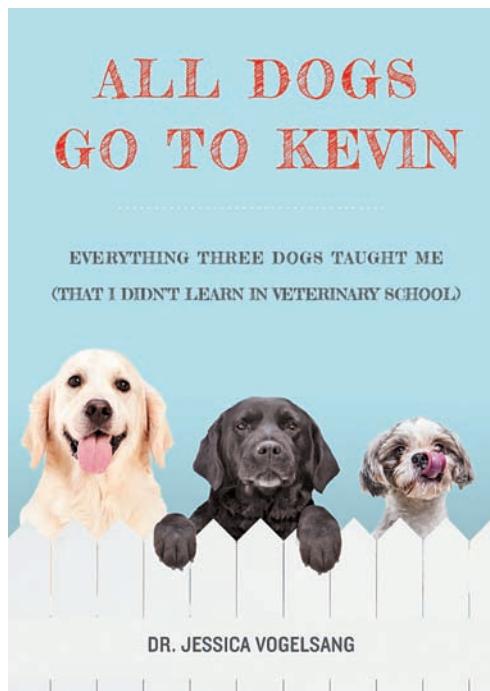
Vogelsang: When I graduated, I did what most people do; I went into practice and experienced what many young veterinarians do, which is this terrible internal conflict of trying to balance work and parenthood, to be there 100 percent for both of those demands.

I started my blog in 2009 as a hobby to keep myself entertained while I was up late with my young children. I was still working part time for corporate practice, but the writing was more fun. As the blog grew I started to get other offers to write, so I took the opportunity to get away from the rigidity of a practice schedule and embrace something more flexible.

I started in hospice when I called a former colleague to do an in-home euthanasia of my dog Kekoa. She offered me a part-time job doing home visit end-of-life care. I managed to cobble together this very fulfilling and completely untraditional way to use my veterinary degree, and I love it!

dvm360: Who is Kevin?

Vogelsang: The first Kevin is a made-up Angel of Death who steals pets. He came about



when my then 3-year-old misheard me say our dog had gone to heaven. “Who’s Kevin?” he asked, and the rest was history.

The second Kevin was a real person and one of my husband’s best friends. He died at age 40 from complications of pneumonia. He anchors the book because he really was a dog in human clothing: accepting of anyone, generous with his love, a little goofy, and gone from this earth much too soon.

dvm360: What do you hope readers will take away from your book?

Vogelsang: The basic message is this—pets make people better. The three dogs I talk about in the book helped me through three very different periods in my life: an awkward adolescent phase, a tumultuous bout with postpartum depression, and the transition into stable adulthood. I hope people see a bit of themselves and their own relationships in there, because it is such a universal, loving experience to share a life with a dog who then has to leave you when their work is done.

dvm360: Why is pet owner outreach important to you and the veterinary field?

Vogelsang: There are many people who are actively trying to drive a wedge into the trust veterinarians have built with clients over the years, because it’s advantageous for them to have that trust themselves in order to build their audience, sell vitamins or magazines, or whatnot. In order to win that back, we need to become more adept at communicating with the new generation on their own terms by generating more personal relationships, more immedi-

ate feedback and using more technology.

I think people still want to trust their veterinarians, but we have to be there in the trenches to make those connections, and to provide a counterpoint to the stories that are out there, and provide accurate information. We’re getting better at it, little by little.

dvm360: Why is “a good death experience for pets” so important to you?

Vogelsang: One time I pulled up to a home and saw seven cars in the driveway, which made me nervous—it can be very stressful doing this in front of a large audience. The owner was so upset she could barely talk. She was able to explain that her father had died in an agonizing manner, and she was very worried about her pet experiencing the same. I took it slow, and things went perfectly. At the end, she leaned back, grabbed her husband’s hand, and said, “That. Was. Awesome.” I almost cried! To see that weight of grief lifted a little by knowing her pet died surrounded by love, pain-free and peaceful—what an honor that is.

dvm360: Your post about your mother’s inoperable glioblastoma and her choice to be home at the end was very moving. Why did you decide to share that with your readers?

Vogelsang: All of that happened not two months after I got up in front of a big crowd and publicly proclaimed we should do all we can to help our loved ones die at home. It was all very theoretical at the time. I never would have done the talk if I suspected my mother, sitting there in the audience, was already suffering a terminal disease. That said, I just had to look up at the sky and say, “OK! I get it!” I spoke with my husband, and my parents moved in to my home as soon as she was discharged from the hospital into hospice care.

I’ve tried to always be respectful of other people’s privacy on the blog, and I struggled with whether or not to share her story. I decided to share some of what we were going through because it really mirrors so many of the themes I’ve spoken about in the past. I wanted people to understand that, yes, these lessons we learn from our pets really do carry over.

On the other hand, there are many small moments, triumphs, sadness, indignities and frustrations that I don’t share. I didn’t want to write something that would feel like a betrayal of privacy, but I hope what I did share helps someone who reads it at the right time. **dvm360**

Donna Loyle is a Philadelphia-based freelance writer who specializes in veterinary topics.

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Recuvyra (fentanyl): Recuvyra transdermal solution is indicated for the control of postoperative pain associated with surgical procedures in dogs.

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Deramaxx: As with all drugs in this class, side effects involving the digestive system, kidneys or liver may occur. These are normally mild, but may be serious. Owners should discontinue therapy and contact their veterinarian immediately if side effects occur. Evaluation for preexisting conditions and regular monitoring are recommended for pets on any medication, including Deramaxx (deracoxib). Use with other NSAIDs or corticosteroids should be avoided. For product information summary, see page 46.

Onsior: Onsior® (robenacoxib) tablets should not be used in cats that have a hypersensitivity to robenacoxib or known intolerance to NSAIDs. Do not administer Onsior tablets in conjunction with any other oral or injectable NSAID or corticosteroid. Owners should be advised to observe for signs of potential drug toxicity. The most commonly reported adverse reactions are surgical site bleeding, infected surgery sites, lethargy, vomiting and inappetence. For product information summary, see page 47.

Recuvyra: For product information summary, see page 48.

Before using RECUVYRA, it is important to read the entire product insert. The following is an excerpt from the Boxed Warning which highlights important safety information:

WARNING: Abuse Potential: RECUVYRA contains fentanyl, a high concentration μ -opioid receptor agonist (50 mg/mL) and is a Class II controlled substance with high potential for abuse. Risk Minimization and Action Plan: This product is distributed under a Risk Minimization Action Plan (RiskMAP) and its use is limited to certified veterinarians. Human Safety: SECONDARY EXPOSURE TO FENTANYL IN CHILDREN AND ADULTS: Strict adherence to the requirements of the RiskMAP and the INSTRUCTIONS FOR USE provided in this product insert is imperative in order to reduce the potential of secondary exposure to fentanyl from RECUVYRA treated skin. Animal Safety: Individual dogs may be especially sensitive to the effects of fentanyl. See Contraindications, Warnings: Human and Animal Safety, and Precautions for detailed information.

Studies suggest oxytocin fosters human-canine bond

The hormone that encourages bonding improves the ability of dogs to take cues, researchers assert.

Recently, two separate studies have argued that oxytocin, a hormone associated with maternal attachment and sexual bonding in people, enhances the relationship between people and dogs.

The research looked at the hormone's role in human-canine interactions and dogs' ability to understand cues from people. The results suggest that oxytocin plays a significant role in enabling deeper communication between dogs and owners and building their emotional connection.

One study, conducted by researchers at Monash University in Melbourne, Australia, explored how intranasal administration of oxytocin affected the ability of 62 dogs to understand cues directing them to hidden treats. Forty-five minutes passed after the treatment to allow each substance to take effect. The study's controls were administered saline solution instead of oxytocin and not using a cue with the same dogs that received the oxytocin and cues.

Researchers hid lamb puff cubes

inside one of two dog bowls, and a kneeling experimenter used two different cues in separate sessions to indicate the bowl containing the treat. After saying "OK" or something similar, she pointed for up to two seconds or gazed without moving her head. All the bowls smelled like the treats, and treats were placed around the room to eliminate the possibility of smell influencing the dogs' choices.

Dogs treated with oxytocin performed better with the pointing cue than when they were treated with saline solution. "This is consistent with findings for humans, demonstrating that oxytocin increases perception of biologically relevant human motion," according to the study.¹

Another study, conducted at Azabu University in Japan, examined the human-dog bond through urinary oxytocin concentrations. Using domestic dogs and hand-raised wolves, researchers had the owners gaze at the animals. Participants were placed into long- and short-gaze groups. Urine samples were taken from the animals

and owners before the interactions and 30 minutes after the sessions.

Higher oxytocin concentrations were found in the dogs and owners belonging to the long-gaze group. The wolves didn't share mutual gazing with owners as much as the dogs did.

"Thus, dog-to-owner gaze as a form of social communication probably evolved during domestication and triggers oxytocin release in the owner, facilitating mutual interaction and affiliative communication," according to the study.²

These results have implications for veterinarians. Armed with a better understanding of the owner-dog bond, practitioners can use the insight to navigate interactions with clients who have a close relationship with their dogs. [dvm360](#)

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Group targets Sept. as Animal Pain Awareness Month

IVAPM helps pet owners recognize pain, seek care. *By Tasha McNerney, BS, CVT*

The International Veterinary Academy of Pain Management (IVAPM) will celebrate Animal Pain Awareness Month in September 2015 with veterinary professionals around the world.

The campaign is intended to raise pet owner awareness and recognition of both acute and chronic pain in animals. The IVAPM selected September to coincide with human medicine's Pain Awareness Month and is encouraging various organizations—clinics, veterinarians, technicians, manufacturers, associations and veterinary educators—to do what they can to raise awareness about pain and pain management as it pertains to veterinary patients.

The theme of the campaign is "Because Their Pain Is Our Pain." Orga-

nizers hope this tagline will help pet owners understand that while we are different species, humans and animals process and feel pain similarly. In other words, if something causes pain in humans, it likely produces pain in animals as well. The IVAPM is encouraging pet owners to take an active role in recognizing the signs of pain in animals and seeking veterinary care.

Here are five ways to incorporate pain awareness activities into your practice during the month of September.

- > Offer in-house CE for staff members on pain management topics.
- > Set up a display for clients explaining common signs of osteoarthritis pain in senior pets.
- > Offer free pain consultations and tailored pain management protocols

for patients at risk for chronic pain such as osteoarthritis.

- > Offer client education seminars on pain management topics such as rehabilitation and chronic pain.

- > Consider having a team member join IVAPM and become a certified veterinary pain practitioner (CVPP). To learn more, visit the IVAPM website.

Pain management is an important aspect of any surgical or medical procedure. You can make your patients as comfortable as possible in the postoperative period and into their senior years.

Tasha McNerney, BS, CVT, is a member of the IVAPM and is currently pursuing her CVPP. She works as a technician at Rau Animal Hospital in Glenside, Pennsylvania.



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SOUTH CAROLINA

Dog found with muzzle taped shut recovering

William Leonard Dodson arrested on felony animal cruelty charges.



>>> Caitlyn rests following surgery to repair damage caused by the electrical tape wound around her muzzle.

A North Charleston, South Carolina, dog was found with its muzzle taped tightly with electrical tape for as long as two days, according to the Charleston *Post and Courier*. The tape was wound so tightly that the dog, named Caitlyn by caretakers, had her tongue caught between her teeth and the blood flow cut off.

Caitlyn was transferred to Veterinary Specialty Care in Mount Pleasant, South Carolina, for treatment, which has included hyperbaric oxygen chamber and laser therapy treatments and extensive surgery to remove the damaged portions of her lips, cheeks and tongue. At one point, it was estimated

that 25 percent of her tongue would need to be removed, but during surgery it was found that Caitlyn would lose only minimal function, the *Post and Courier* reports.

North Charleston animal control is investigating the case. William Leonard Dodson, 41, of North Charleston has been arrested on a felony charge of animal cruelty and jailed on \$50,000 bail. The maximum penalty for felony cruelty in South Carolina is five years in prison and a \$5,000 fine, which leaves some calling for harsher punishment. An affidavit states that Dodson said Caitlyn wouldn't stop barking and that was why he had taped her mouth shut.



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State roundup

A look at the world of animal health

KANSAS

Roman Ganta, MS, PhD, a professor at Kansas State University and director of its Center of Excellence for Vector-Borne Diseases, is establishing a breeding facility for ticks, trying to learn more about how they harbor and spread sickness to humans and animals, according to *The Kansas City Star*.

Until the laboratory is up and running, K-State researchers will continue to buy most of their ticks from Oklahoma State University or collect them in the field. They drag a white cloth through the grasslands, which the ticks are drawn to and cling to, the *Star* reports. To breed the ticks, scientists start with an engorged female that is ready to lay eggs in an incubator. When the larvae emerge they're planted on an animal for their first meal.

Ganta tells the *Star* that making people more aware of the dangers of a tick bite is part of what he wants K-State's new center to do, because he knows firsthand how sick a person can become when infected with a vector-borne disease. At age 25 he contracted malaria while still living in India, and was sick for 6 months. When he recovered, he promised to use his education to work toward slowing the spread of vector-borne diseases to humans and animals.

NEW MEXICO

The New Mexico Department of Health has determined through genetic sequencing that a new strain of rabies was found in a fox, according to the *Albuquerque Journal*. A 78-year-old woman who had been bitten by the fox received a series of vaccinations to keep her from developing the illness. The new strain, which was identified by the Centers for Disease Control and Prevention in Atlanta, is somewhat similar to the strains that bats carry, but unique, the *Journal* says.

NEW YORK

A service dog named Figo that jumped into the path of an oncoming minibus to protect his blind owner is out of surgery and recovering, according to

The Journal News. Audrey Stone, the dog's owner, and Figo were crossing the road when the bus came straight toward them. The dog's protective instincts kicked in and he jumped between Stone and the bus, trying to take most of the impact himself. The driver of the bus told police he didn't see the pair.

Stone was taken to the hospital where she was treated for a fractured right elbow, three broken ribs, a fractured ankle and a cut on her head, while Figo was treated at Middlebranch Veterinary for tissue damage and a slight break to his right front leg, according to *The Journal News*. The driver of the minibus was given a summons for failing to yield to a pedestrian and taken off the road while the incident is still under investigation.

OREGON

A Senate committee in Oregon is considering a bill that would ban cat declawing in the state, according to *The Oregonian*. HB 3494 contains two proposed amendments. One would allow veterinarians to declaw cats and other animals for behavioral reasons as long as they follow certain client education protocols and conduct a waiting period before surgery. Another amendment would ban declawing for nonmedical reasons beginning in 2018.

Both amendments would widen the scope of the bill, which would also prohibit devocalizing, to include dogs, rabbits, ferrets, iguanas and birds. The Oregon Veterinary Medical Association would also be required to begin reporting declawing data to the legislature by the end of 2016, the *Oregonian* reports.

SOUTH CAROLINA

The South Carolina Senate Agricultural Subcommittee is considering a bill known as "The Vet Bill." The bill outlines record-keeping guidelines for veterinary clinics and animal shelters, including prescription drug record and labeling rules, the scope of service veterinarians can provide, rules for

mobile veterinary clinics and provisions for those who seek low-cost veterinary clinics, according to WLTX-TV.

Some veterinarians are concerned that animals aren't getting the care they need from licensed veterinarians, and tracking medical records of animals serviced at low-cost and non-profit clinics would be key to ensuring this, the station reports.

A point of debate is that an individual would have to make less than \$11,770 per year to receive care for their pet at a low-cost or nonprofit clinic. Opponents are concerned that this would leave middle-income pet owners in a bind when it comes to paying for veterinary services. Should the bill not make full committee this session, proponents plan to pick it up next year. [dvm360](#)

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Veterinary app for pet owners generates concern

> Continued from the cover

The screenshot shows the VetOnDemand app interface. At the top, there's a header with patient info: 'Ace', 'Chihuahua', '3 YEARS OLD', 'INDOOR + OUTDOOR', '12 LBS (est)'. A 'REASON FOR CALL' section contains text: 'We just got home from dinner and found that Ace had gotten into a bottle of Neutella. He seems a little woozy but otherwise ok. How should I proceed here?'. Below this is a video call window with a veterinarian's video feed (Peter Nicks, Boca Raton, FL) and a client's camera feed. In the center, there are call notes: 'Ingested Nutella, approx 2 grams.', 'Nutella methyl xanthine concentration is 7%', and 'Continue to watch clos'. At the bottom, there's a WolframAlpha search engine showing results for 'Chihuahua', including 'INPUT INTERPRETATION', 'ALTERNATE NAMES', and 'IMAGE'. A search bar on the right shows 'DogBreed referring to dog breeds' and 'AdministrativeDivision an administrative division'.

Here's what a veterinarian sees during a call for VetOnDemand. The header contains information about the patient and the reason for the call. The video screen is on the lefthand side. Inside the video window are two boxes, one with a picture and name of the client, another with a feed of the veterinarian's front-facing camera. The call notes are in the center: The veterinarian enters information while still interacting with the client, and these notes are visible to the client after the call. Below the notes is Wolfram Alpha, a scientific search engine the veterinarian can access while on a call.

Is it legal?

While the veterinary profession has yet to dip its toe deeply into the debate on telemedicine, some state veterinary boards do have the issue on their radar.

Vic Cook, director of program operations and strategic initiatives at the American Association of Veterinary State Boards, says his organization conducted a poll last year asking if state boards were considering the use of telemedicine for practice across state lines. Results revealed that four states already had language about telemedicine in their practice acts, nine others were considering it, eight were unsure and 33 had not approached the subject.

VetOnDemand has already garnered attention from the Tennessee Board of Veterinary Medical Examiners. In May 2014, VetOnDemand founders Curt and Mason Revelette met with Board Director Lisa Lampley, along with Keith Hodges, assistant general counsel for the Tennessee Department of Health, to discuss their business proposal.

In a letter dated January 2015 addressed to Mason Revelette, Hodges wrote, "Based on infor-

mation provided to us [in May 2014], Ms. Lampley and I felt the services being offered through VetOnDemand would constitute the 'practice of veterinary medicine' ... and that those services could only be provided in the context of a veterinarian-client-patient relationship."

According to the Tennessee veterinary practice act, a veterinarian-client-patient relationship "cannot be established or maintained solely by telephone or other electronic means. Tennessee-licensed veterinarians may only be employed to practice veterinary medicine by other Tennessee-licensed veterinarians or by veterinary facilities operated at all times under the direct medical supervision of a veterinarian. Persons, corporations and other organizations operating veterinary facilities, including mobile clinics, must apply for and receive a premises permit."

The veterinary board says it received no reply from VetOnDemand after the issuance of the January letter but would not comment on whether an investigation has been launched.

Curt Revelette, owner of Vet-

OnDemand, says his company tried to reason with the board initially. "We were proactive about reaching out to the state," he told *dvm360*, "explaining what we had seen in technology, what we had seen with the numerous human telemedicine companies, and to get some insight from them on what we were wanting to do."

The problem, as Revelette sees it, is that "the laws are 50 years old" and need to change to accommodate current technology and its impact on medical advances. "We're hoping as we work through this process with the state that they and other states take a good conscious look at what's best for the animals and where we are with technology," he says.

Is it safe?

There are many reasons to be concerned about what VetOnDemand is doing, and at the top of the list is patient safety, says Dr. Ernie Ward, DVM, author, *Veterinary Economics* Editorial Advisory Board



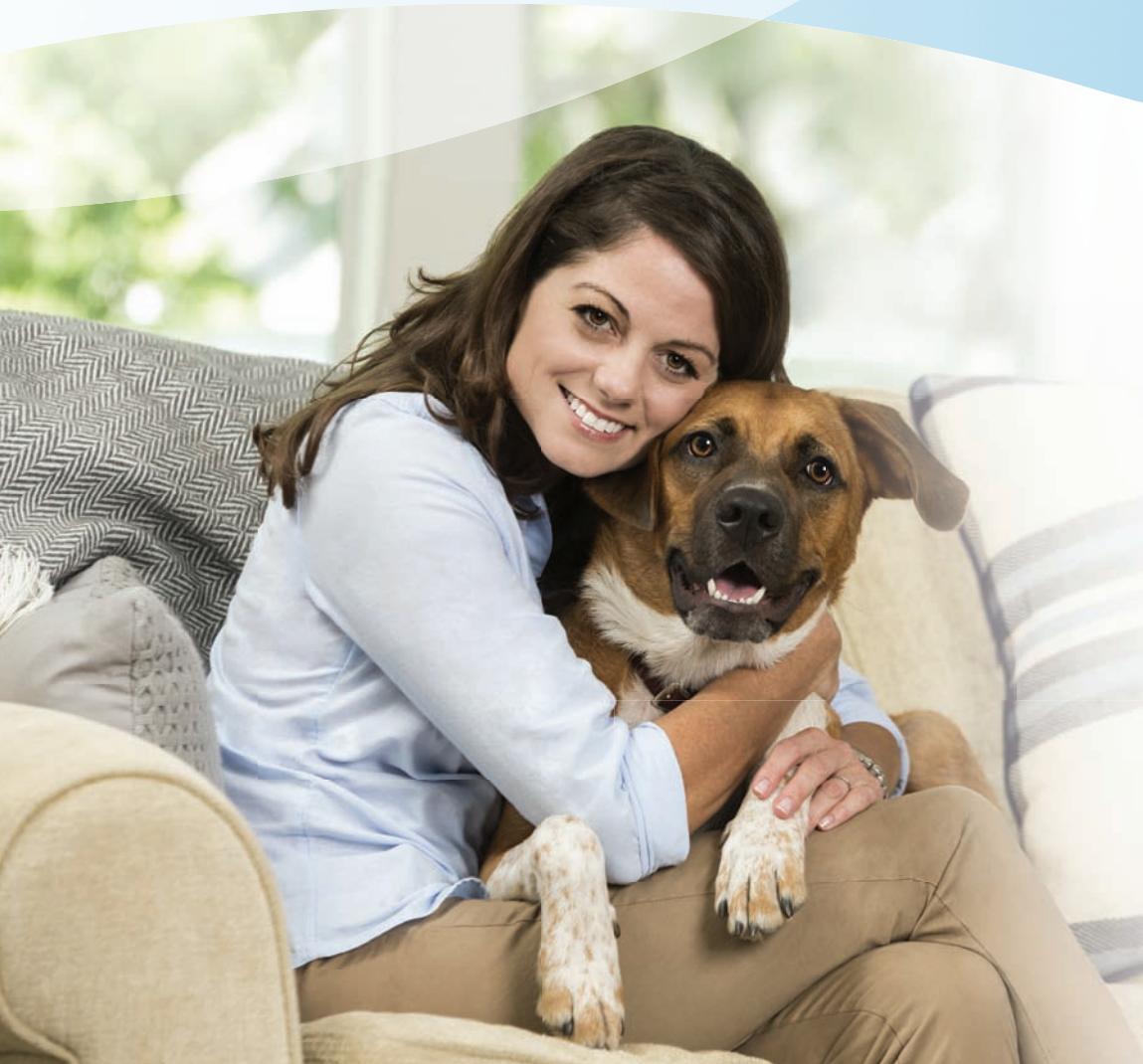
Dr. Ernie Ward

member and founder of Seaside Animal Care in Calabash, North Carolina.

Unlike human doctors, veterinarians can't ask an animal to describe its symptoms in a video chat, Ward says. They have to rely on the description of the owner. That's why a physical exam is so important; it gives the veterinarian information the owner can't—a subtle flinch of pain on palpation or labored breathing sounds audible only through a stethoscope, for example. "Doing this by proxy gives us one more level of challenge," Ward says.

But Revelette says VetOnDemand fills a gap for pets whose owners aren't able—or willing—to go to a brick-and-mortar practice for one reason or another. "There are so many common questions that people want to know," he says. "They currently are not going to a veterinarian to wait an hour or spend a couple hundred dollars for these minor questions, so what they're doing is going to Google, and there's a lot of misinformation out there. Ninety-nine percent of pet parents love this and are excited to get trusted advice from

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See brief summary on page 20

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**Dog Owner Information about
quellin™ (carprofen) soft chewable tablets
quellin™ (pronounced “kwell-in”)
for Osteoarthritis and Post-Surgical Pain
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This summary contains important information about quellin. You should read this information before you start giving your dog quellin and review it each time the prescription is refilled. This sheet is provided only as a summary and does not take the place of instructions from your veterinarian. Talk to your veterinarian if you do not understand any of this information or if you want to know more about quellin.

What is quellin?

quellin is a non-steroidal anti-inflammatory drug (NSAID) that is used to reduce pain and inflammation (soreness) due to osteoarthritis and pain following surgery in dogs. quellin is a prescription drug for dogs. It is available as a soft chewable tablet and is given to dogs by mouth.

Osteoarthritis (OA) is a painful condition caused by “wear and tear” of cartilage and other parts of the joints that may result in the following changes or signs in your dog:

- Limping or lameness
- Decreased activity or exercise (reluctance to stand, climb stairs, jump or run, or difficulty in performing these activities)
- Stiffness or decreased movement of joints

To control surgical pain (e.g., for surgeries such as spays, ear procedures or orthopedic repairs) your veterinarian may administer quellin before the procedure and recommend that your dog be treated for several days after going home.

What kind of results can I expect when my dog is on quellin?

While quellin is not a cure for osteoarthritis, it can relieve the pain and inflammation of OA and improve your dog’s mobility.

- Response varies from dog to dog but can be quite dramatic.
- In most dogs, improvement can be seen in a matter of days.
- If quellin is discontinued or not given as directed, your dog’s pain and inflammation may come back.

Who should not take quellin?

Your dog should not be given quellin if he/she:

- Has had an allergic reaction to carprofen, the active ingredient of quellin.
- Has had an allergic reaction to aspirin or other NSAIDs (for example deracoxib, etodolac, firocoxib, meloxicam, phenylbutazone or tepoxalin) such as hives, facial swelling, or red or itchy skin.

quellin should be given to dogs only. Cats should not be given quellin. Call your veterinarian immediately if your cat receives quellin. People should not take quellin. Keep quellin and all medicines out of reach of children. Call your physician immediately if you accidentally take quellin.

How to give quellin to your dog.

quellin should be given according to your veterinarian’s instructions. Your veterinarian will tell you what amount of quellin is right for your dog and for how long it should be given. Most dogs will take quellin soft chewable tablets right out of your hand or the soft chewable tablet can be placed in the mouth. quellin may be given with or without food.

What to tell/ask your veterinarian before giving quellin.

Talk to your veterinarian about:

- The signs of OA you have observed (for example limping, stiffness).
- The importance of weight control and exercise in the management of OA.
- What tests might be done before quellin is prescribed.
- How often your dog may need to be examined by your veterinarian.
- The risks and benefits of using quellin.

Tell your veterinarian if your dog has ever had the following medical problems:

- Experienced side effects from quellin or other NSAIDs, such as aspirin
- Digestive upset (vomiting and/or diarrhea)
- Liver disease
- Kidney disease
- A bleeding disorder (for example, Von Willebrand’s disease)

Tell your veterinarian about:

- Any other medical problems or allergies that your dog has now or has had.
- All medicines that you are giving your dog or plan to give your dog, including those you can get without a prescription.

Tell your veterinarian if your dog is:

- Pregnant, nursing, or if you plan to breed your dog.

What are the possible side effects that may occur in my dog during quellin therapy?

quellin, like other drugs, may cause some side effects. Serious but rare side effects have been reported in dogs taking NSAIDs, including quellin. Serious side effects can occur with or without warning and in rare situations result in death.

The most common NSAID-related side effects generally involve the stomach (such as bleeding ulcers), and liver or kidney problems. Look for the following side effects that can indicate your dog may be having a problem with quellin or may have another medical problem:

- Decrease or increase in appetite
- Vomiting
- Change in bowel movements (such as diarrhea, or black, tarry or bloody stools)
- Change in behavior (such as decreased or increased activity level, incoordination, seizure or aggression)
- Yellowing of gums, skin, or whites of the eyes (jaundice)
- Change in drinking habits (frequency, amount consumed)
- Change in urination habits (frequency, color, or smell)
- Change in skin (redness, scabs, or scratching)

It is important to stop therapy and contact your veterinarian immediately if you think your dog has a medical problem or side effect from quellin therapy. If you have additional questions about possible side effects, talk to your veterinarian.

Can quellin be given with other medicines?

quellin should not be given with other NSAIDs (for example, aspirin, deracoxib, etodolac, firocoxib, meloxicam, tepoxalin) or steroids (for example, cortisone, dexamethasone, prednisone, triamcinolone).

Tell your veterinarian about all medicines you have given your dog in the past, and any medicines that you are planning to give with quellin. This should include other medicines that you can get without a prescription. Your veterinarian may want to check that all of your dog’s medicines can be given together.

What do I do in case my dog eats more than the prescribed amount of quellin?

Contact your veterinarian immediately if your dog eats more than the prescribed amount of quellin.

How to store quellin soft chewable tablets.

The soft chewable tablets are flavored. **Keep quellin soft chewable tablets in a secured storage area out of the reach of your dog and other pets.** If your dog ingests more than your veterinarian prescribed, or if your other pets take quellin soft chewable tablets, contact your veterinarian right away.

What else should I know about quellin?

This sheet provides a summary of information about quellin. If you have any questions or concerns about quellin, osteoarthritis pain, or postoperative pain, talk to your veterinarian. As with all prescribed medicines, quellin should only be given to the dog for which it was prescribed. It should be given to your dog only for the condition for which it was prescribed.

It is important to periodically discuss your dog’s response to quellin at regular check ups. Your veterinarian will best determine if your dog is responding as expected and if your dog should continue receiving quellin.

To report a suspected adverse reaction, call Bayer Veterinary Services at 1-800-422-9874. For customer questions call 1-800-255-6826.

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NEWS | Cover story

a veterinarian for common questions.”

Revelette says he and his brother, Mason, got the idea for VetOnDemand after a harrowing veterinary visit with their own family pet that turned out to be not entirely necessary. Plus, he argues, many veterinarians are already giving advice via other media, like phones or messaging applications, but VetOnDemand allows them to actually see the animal through a video platform.

“The majority of people say, well I’m not too sure about this bump or scratch; I’ll just wait six months,” Revelette says. “That gap is where animals are not getting treatment.”

Revelette says the app is not meant to sideline the veterinary profession, but rather to complement it. “Our goal is not to alienate the vets. We need the vets as partners,” he says. “Our model is saying we need you, vets; we are providing a technology platform to assist you with your business and help you grow your business.”

A new model?

VetOnDemand partner David Victor says the company is not providing diagnoses or treatment but simply providing another platform for veterinarians to connect with their clients.

“There’s kind of a gray area in there. Medical advice is forbidden to be given out,” says Victor, adding that veterinarians are not technically employed by VetOnDemand. “We do not give out diagnoses. Our veterinarians are strictly prohibited from saying, ‘This is what’s wrong with your animal.’”

The goal of the service, rather, is to provide pet owners with more accurate advice than they might receive from an Internet search. “It’s advice from a trusted source. Veterinarians are experts. They know better than anyone else what the best course of action is,” Victor says, adding that veterinarians might recommend vaccination schedules or tips on how to socialize a new puppy. “Veterinarians are going to be able to answer those questions better than Google. If somebody calls in with a question more related to the medical side of an animal’s condition, our veterinarians always insist that the pet owner take the animal in to their local veterinarian.”

He says VetOnDemand eventually plans to encourage veterinarians to adopt the service themselves to engage with clients after hours or in times when travel is difficult. “We’re really focused on getting the platform in the hands of veterinarians so they can get their patients to reach out to them specifically,” Victor says.

The profession’s response

Ward says that after 25 years in practice, he won’t even give his own clients advice about their pets over the phone. It’s safer, he says, to always see the pet because you never know if the client’s description of the animal truly reflects



Mason Revelette



Curt Revelette

what’s going on. And for now, at least, he doesn’t believe VetOnDemand is within the legal parameters—most states are pretty clear about what constitutes the veterinarian-client-patient relationship.

“I think there’s a fine line between advice and diagnosis, advice and treatment recommendations, advice and second opinion,” Ward says. “If we accept this service, then it really does change fundamentally the way the profession will march forward.”

Ward believes state boards need to convene and come up with a clear stance on these new technologies before things get out of hand. Historically, the profession didn’t have to define “relationship” so narrowly, he says. But technology has offered new possibilities, and the profession must decide whether these new models are sufficient to adequately care for pets. Even if telemedicine is a service the public is demanding, the profession has the responsibility to advocate for what’s in the best interest of the animal, he continues.

“As a profession we need to start this discussion immediately,” Ward says. “If we don’t, we’re going to be left in the vapor trail. ... We need to define for ourselves on a state-by-state level what we will accept for minimum standards. These are murky legal waters.”

Ward says he’s also concerned about the reputation of veterinary medicine. “If these things go sour, it makes the whole profession look bad,” he says. “This is uncharted territory. We don’t have time to sit back for a year or two. These types of companies take advantage of that, of slow-moving organizations and professions. This is one of those areas where state boards really need to just convene and decide how to act.”

Ward says he’s not passing judgment on whether VetOnDemand is good or bad—in fact, if the company could prove patient safety was its top concern, he says he could get behind it. “But the fact that this is moving forward and they have no veterinary experience whatsoever ... are veterinarians prepared? And what about transparency for pet owners?” he says.

Here’s what the VetOnDemand founders do have for experience: Victor, 28, has a background in technology and owns a company that builds mobile applications. Curt, 33, and Mason Revelette, 28, own several restaurants in Nashville. Mason has also worked in real estate, and Curt has been CEO of an assisted living facility. Despite not having a veterinary background, they say they have seen a need—and a gap in service—in the veterinary world, and they want to

As a profession we need to start this discussion immediately. If we don't, we're going to be left in the vapor trail. We need to define for ourselves what we will accept for minimum standards.

—Dr. Ernie Ward

give pet owners a tool they want and need.

But what pet owners want and what is best for pet safety might not align, Ward cautions. “Just because a pet owner wants it doesn't mean that it's safe or accurate or sufficient,” he says.

Victor says the company trusts that veterinarians are going to do the right thing when it comes to giving advice over the platform. “We maintain a personal relationship with all the veterinarians we have,” he says. “We are vetting them to make sure these individuals are here for the right reasons.”

Veterinarians and users will also be able to rank one another, and any veterinarians earning just one star will be removed from the platform, Victor says. “There won't be any one-star vets because that's when a red flag goes off for us,” he says. “We are doing our best to make sure we run an extremely tight system.”

On-demand veterinarians

Two veterinarians who are already taking calls for VetOnDemand say they see the service as a benefit to the profession.

Joyce Gerardi, DVM, CVA, owner of Mobile Arthritis Therapy in North Carolina, began taking calls for VetOnDemand in March and says her clients appreciate having access to a veterinarian after hours. “So far it's been favorable. It's a great after-hours service just because then people aren't questioning themselves,” Gerardi says. “If anything it's going to drive people to the right care. If anything it's going to help my colleagues.”

Gerardi says her colleagues have been inquisitive but not opposed to the work she's doing. As far as being in compliance with state practice acts, she says veterinarians must adhere to the law in their own state.

Phil Baxter, DVM, owner of Animal Health Care in Rainbow City, Alabama, also takes calls for VetOnDemand. He says the service is valuable for many clients who are in financial straits and have to weigh taking their animal to the veterinarian against other critical expenses.

As for safety, Baxter says it's not any more dif-

icult to assess the patient over video chat than it is in the clinic. “Can you really get an assessment in the clinic?” he asks, adding that many of his clients can't afford advanced testing and he must rely on visual symptoms, the animal's history and the word of his clients. “I can't go in and run every test in the world. What I was taught was that the test was not to be the basis of diagnosing the disease, it's for confirming the diagnosis.”

But Baxter agrees that the service—like some aspects of a physical practice—may fall into a legal gray area. “It depends on where you draw the line,” he says. “Yes, to a degree we are providing some kind of diagnosis.”

Diagnosis, by definition, is the identification of the nature of an illness or problem. The question is how a veterinarian can assess the severity of a patient over a video chat—or in a clinic—without first making some form of diagnosis.

But Baxter says 80 percent of the health issues in human medicine will resolve on their own, and animals are no different. What he's able to do is offer clients advice on home remedies and provide them with knowledge that will help them care for their animal. Whether a veterinarian prescribes the right or wrong thing in a physical clinic, most animals will get well either way, Baxter says. “Here I can give them some advice, and they can manage their money a little better,” he says.

In terms of the veterinarian-patient-client relationship, Baxter says he sees VetOnDemand as no different from one veterinarian in a multi-veterinarian practice answering an emergency or after-hours call for a colleague. “He doesn't have a patient-client relationship. There's a practice relationship, but not a doctor relationship,” Baxter says.

VetOnDemand is “not a bunch of veterinarians trying to keep people out of clinics,” Baxter says. “It's just an alternative way of determining if there's a need in taking care of the smaller things.”

The VetOnDemand app is free, but the service costs users \$2.50 per minute. Seventy percent of that goes to the veterinarian. Revelette says the app has been downloaded 5,500 times since its launch in May, and 4,500 users already have created profiles for the service. Not all of those users have made calls to VetOnDemand yet, he says—the company is averaging about 10 calls per day. VetOnDemand has 32 veterinarians ready to take the calls across 13 states, and Revelette says he's already gotten requests in the United Kingdom and Canada to offer the service there too.

“We're not expanding as fast as possible; we're trying to provide a higher level of care to as many animals as possible—and that's what's going to govern our growth,” Revelette says. [dvm360](#)

Rachael Zimlich is a freelance writer in Cleveland and a former reporter for dvm360.

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Bear kidneys may hold key to new treatments

No urination in hibernation wrecks kidneys—but ursine organ regenerates.

Scientists at the Jackson Laboratory in Bar Harbor, Maine, are studying the kidney of the American black bear (*Ursus americanus*) to see if they can learn how it functions—and, hopefully, use what

they discover to develop new treatments for kidney disease.

“Black bears go into hibernation in the fall with healthy kidneys,” says Ron Korstanje, PhD, a researcher at the Jackson Laboratory, in an article on

the Jackson Laboratory website. “They don’t urinate during hibernation, and by the time spring arrives, their kidneys are damaged and have lost most of their function.”

At that point, the bears’ kidneys appear to regenerate themselves, returning to normal function during the spring and summer. “How does that happen?” Korstanje asks. “And if we figure that out, can we come up with treatments that can prevent or reverse kidney damage?”

Korstanje has distributed a number of kits to bear hunters in the region (Maine has a 16-week bear hunting season in the fall). Participants collect kidney samples from the bears they hunt and mail them back to the lab. “We expected to get maybe a dozen kits back, and we’ve received about 40 samples, which also include some basic information from the hunters about the bears such as gender and approximate weight and age,” Korstanje says.

Gary Striker, PhD, a nephrologist at Mount Sinai Hospital in New York, New York, is an expert renal pathologist. He examines and scores the samples, which helps Korstanje’s team establish a rough timeline for kidney recovery and some estimation on the impact of age and sex.

The researchers also collaborate with Rita Seger, MD, PhD, of the University of Maine Animal and Veterinary Sciences Department, who studies bone and kidney metabolism of hibernating bears. Seger’s team has provided liver samples from a bear, which Korstanje’s team will use to extract DNA and ultimately assemble the world’s first complete black bear genome.

Then, to see which genes are expressed at different seasons of the black bear’s year, Korstanje will examine RNA samples taken from bear kidneys in the first weeks after hibernation, others from when regeneration appears to begin and others from before fall hibernation.

Korstanje says that if his lab can identify the black bear genes that have higher expression during the kidney-regeneration process, they can look into making gene expression more “bear-like,” with the ultimate goal of identifying potential drug targets for kidney patients. [dvm360](#)

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Dosage and Administration
SENTINEL SPECTRUM should be administered orally, once every month, at the minimum dosage of 0.23 mg/lb (0.5 mg/kg) milbemycin oxime, 4.55 mg/lb (10 mg/kg) lufenuron, and 2.28 mg/lb (5 mg/kg) praziquantel. For heartworm prevention, give once monthly for at least 6 months after exposure to mosquitoes.

Dosage Schedule

Body Weight	Milbemycin Oxime per chewable	Lufenuron per chewable	Praziquantel per chewable	Number of chewables
2 to 8 lbs.	2.3 mg	46 mg	22.8 mg	One
8.1 to 25 lbs.	5.75 mg	115 mg	57 mg	One
25.1 to 50 lbs.	11.5 mg	230 mg	114 mg	One
50.1 to 100 lbs.	23.0 mg	460 mg	228 mg	One
Over 100 lbs.	Administer the appropriate combination of chewables			

To ensure adequate absorption, always administer SENTINEL SPECTRUM to dogs immediately after or in conjunction with a normal meal.

SENTINEL SPECTRUM may be offered to the dog by hand or added to a small amount of dog food. The chewables should be administered in a manner that encourages the dog to chew, rather than to swallow without chewing. Chewables may be broken into pieces and fed to dogs that normally swallow treats whole. Care should be taken that the dog consumes the complete dose, and treated animals should be observed a few minutes after administration to ensure that no part of the dose is lost or rejected. If it is suspected that any of the dose has been lost, redosing is recommended.

Contraindications
There are no known contraindications to the use of SENTINEL SPECTRUM.

Warnings
Not for use in humans. Keep this and all drugs out of the reach of children.

Precautions
Treatment with fewer than 6 monthly doses after the last exposure to mosquitoes may not provide complete heartworm prevention. Prior to administration of SENTINEL SPECTRUM, dogs should be tested for existing heartworm infections. At the discretion of the veterinarian, infected dogs should be treated to remove adult heartworms. SENTINEL SPECTRUM is not effective against adult *D. immitis*.

Mild, transient hypersensitivity reactions, such as labored breathing, vomiting, hypersalivation, and lethargy, have been noted in some dogs treated with milbemycin oxime carrying a high number of circulating microfilariae. These reactions are presumably caused by release of protein from dead or dying microfilariae.

Do not use in puppies less than six weeks of age.

Do not use in dogs or puppies less than two pounds of body weight.

The safety of SENTINEL SPECTRUM has not been evaluated in dogs used for breeding or in lactating females. Studies have been performed with milbemycin oxime and lufenuron alone.

Adverse Reactions
The following adverse reactions have been reported in dogs after administration of milbemycin oxime, lufenuron, or praziquantel: vomiting, depression/lethargy, pruritus, urticaria, diarrhea, anorexia, skin congestion, ataxia, convulsions, salivation, and weakness.

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>>> Just as physician assistants and nurse practitioners deliver healthcare to patients in remote areas, a veterinary professional associate (VPA) could be mobilized to help underserved pets not currently receiving veterinary care.

‘Physician assistants’ for the veterinary profession: *Are they a good idea?*

Colorado State University broaches the idea of a mid-tier ‘veterinary professional associate’; practitioners aren’t sure they’re on board.

By Sarah Wooten, DVM

Here in Colorado an interesting conversation is taking place—a potential development that could change the trajectory of the veterinary profession and is already generating controversy. It’s the idea of a mid-tier veterinary professional, similar to a physician assistant (PA) or nurse practitioner in human medicine.

At a recent Colorado Veterinary Medical Association (CVMA) Big Ideas Forum in Denver, Wayne Jensen, DVM, PhD, MBA, associate head of clinical sciences at Colorado State University (CSU), introduced the idea

of a veterinary professional associate (VPA) master’s program that would be completed in three semesters. In the same way PAs do, VPAs could focus on serving underrepresented areas and populations, much like the 1950 midwifery depicted in the popular BBC series *Call the Midwife*.

In human medicine, solo practices employing a PA report greater efficiency, expanded practices and overall better healthcare for their patients, according to a 1994 survey by the American Medical Association Socioeconomic Monitoring System.

Physicians in these practices say they’re able to work, on average, one week less per year than those without PAs yet still increase the number of hours they offer for office visits and patient care, resulting in a net income increase of 18 percent. Cost-benefit studies of PAs report that for every dollar PAs generate, their employer pays 28 cents. Other positive aspects of employing PAs include reduced waiting times and improved patient satisfaction.

The idea, Jensen says, is that VPAs could stretch the capacities of veterinarians, both in terms of the geographical area they serve and also in the breadth and depth of services that can be provided, as well as lower costs. By performing some of the routine aspects of veterinary medicine under the supervision of a veterinarian, VPAs

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See brief summary on page 24

Shaping the future of animal health

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could give veterinarians the time to focus on the more challenging aspects of veterinary medicine, help them avoid career burnout that can accompany long hours and on-call services, and fill the growing need for veterinary services in public health and lab animal medicine. A VPA's duties would be limited by state veterinary practice

acts, Jensen says, and would vary according to each state's codes and laws. It would be up to the profession to enact any changes at the state level.

Speaking from experience, we all know how difficult it is to find (and keep) a good technician. Many veterinary technicians—the vast majority of whom are female—battle it out

every day to make ends meet doing the job they love. Although in some areas there are plenty of positions and opportunities for professional growth, veterinary technicians complain of a pervasive disconnect between their skills and their potential earnings, and they express frustration at their lack of ability to impact the financial growth of their hospitals.

Stephen Cital, a veterinary technician at the California National Primate Research Center at the University of California, Davis, notes that a veterinary technician's education is as substantial as that of a nurse—and the job typically requires a broader range of skills—and yet the average pay is a fraction of what a nurse earns. A NAVTA survey in 2008 found that pay was the number-one concern: Nearly 79 percent surveyed felt that veterinary technicians were so underpaid that the feasibility of staying in the profession was declining. Only 43 percent reported being satisfied and definitely planned to stay in the profession.

The disappointment with potential salaries is compounded for some technicians by high college debt. Although two-year veterinary technician programs are offered at many inexpensive community colleges, the private veterinary technician programs are costly—as much as \$30,000 to \$40,000 per year for a two-year program. The proposed one-year VPA program at CSU could cut college costs for paraprofessionals, lower hiring costs for veterinary clinics, create a valuable position with the potential for higher income earnings, and provide a more satisfying career path for people wishing to pursue veterinary medicine at a paraprofessional level.

At this point, the idea of a mid-tier veterinary role is not widely supported by the profession. "There is definite concern among veterinary students at CSU about how this will negatively impact the job market," Jensen says. "CSU would not proceed with this program without the support of the profession. But we know there is a huge reservoir of animals not currently receiving veterinary care for a myriad of reasons, and the need for veterinary services is expected to grow in the future. This could be a mechanism to increase the efficiency of veterinarians, generate more income and control rising costs of veterinary care."

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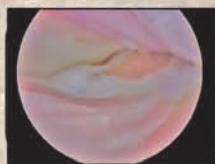
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“This could increase the efficiency of veterinarians, generate more income and control rising costs of veterinary care.”

—Dr. Wayne Jensen, CSU

At this point, the CVMA has voted to engage with CSU to learn more about the potential VPA program. President Erin Epperly, DVM, offered me this statement: “CVMA has significant concerns about the benefits of the VPA program, both to veterinarians and to potential graduates. Currently, we have submitted a detailed list of questions to CSU about the program and are engaging with them in dialogue sessions. CVMA has no position on the program at this point yet as we are still in the information-gathering phase.”

The creation of the PA position took the medical profession more than 20 years to adopt. With the financial crises facing veterinary medicine, I’m not sure veterinary medicine has the luxury of that much time. Whether or not a VPA is the answer, we can’t sit back and do nothing.

While the image of the James Herriot veterinarian who does everything is valuable, the impending growth in demand for veterinary services, shortage of food-supply veterinarians that is forecast to get worse, exploding debt for new graduates, and rapidly changing social environment strongly suggest that veterinarians cannot continue to do it all or do it all alone. Perhaps a new veterinary professional associate is worthy of discussion. Kudos to CSU for having the chutzpah to start the conversation. [dvm360](#)



Dr. Sarah J. Wooten is an associate veterinarian at Sheep Draw Animal Hospital in Greeley, Colorado, and a frequent contributor to [dvm360.com](#).

Clinical depression and the veterinary profession

Misunderstandings prevent proper response.

The veterinary profession, like many other vocations, has much to learn about clinical depression (see “The burden of care,” May [dvm360](#)). Clinical depression is a disease, and as such is not something you can “power through” or “put on your doctor coat and buck up” any more than you can “power through” cancer or buck up against diabetes mellitus.

While veterinarians may think they can pull themselves from the depths of mental illness, if they are experiencing true clinical depression, they simply

cannot. Sheer force of will does not make diseases disappear—and make no mistake, clinical depression is a disease. As soon as the world understands this, the sooner all of these myths and misunderstandings will fade away.

Guilt and shame have no place when dealing with depression and these emotions inhibit people from getting properly diagnosed and treated. The public will eventually learn this, but we have a long way to go.

—Drdave7177, comment left on [dvm360.com](#)



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SOCIAL MEDIA Roundup

Awake-patient CT and the VetMouseTrap

Readers respond on Facebook to one radiologist’s protocol for imaging patients using his motion-limiting device, the VetMouseTrap.



See [dvm360.com/awakeCT](#)

Jessica Ernst

Very cool. I will be on my radiology rotation soon so I will see what they think here in Minnesota.

Carolyn Loick

Wonderful advice. Each pet is different. Customizing treatment takes time but that is why you went to school, right?

Paisley Susan Lunchick

Awesome. Love that he doesn’t shoebox all his patients into one protocol.

Kathleen Morrison

I have used the VetMouseTrap before. It was pretty neat!

Brad Evergreen

Congrats on thinking outside the box! It’s not easy but it raises you above the rest.

Cheryl Lagana

I was at Illinois when Dr. O’Brien was testing the VetMouseTrap! It’s amazing!

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How to predict veterinary compensation: **part two**

Examining why starting veterinary salaries vary from year to year.

All of us occasionally wonder, “What would have happened if ... ?” Or “What’s going to happen when ... ?” Often the money we make (or could have made, or could still make) is a key component of this “what-if” thought process.

In my June AVMA Eye on Economics column in *dvm360* we discussed the

factors associated with differences in compensation levels among veterinarians in any given year. Knowing these factors can help answer income-related “what-if” questions such as, “What would my compensation have been if I’d moved to Nebraska, become board-certified and practiced mixed animal instead of equine veterinary medicine?”

Of course, we can calculate mean veterinary incomes—and the factors associated with earning more or less than the man—fairly easily by looking at the past. But what about the future? Can we predict what veterinarians will earn in coming years? Yes, to an extent. To determine future mean compensation, we need to forecast the future demand for veterinarians.

Demand is the relationship between price (wage) and quantity (number of veterinarians). In any year we have only one demand point, one mean wage and one quantity of veterinarians. To determine future demand, we select a particular time frame from which to gather a number of price (wage) and quantity points. To ensure that our mean starting salary is comparable year to year, we establish a constant cohort—a group with the same percentage of veterinarians by gender, location, age, hours worked and other important demographic factors shown to explain “within-year” variation in incomes.

Once we calculate the mean salary of a constant cohort over the course of a number of years, we look at the relationship between price and quantity.

AVMA senior surveys conducted over the past 14 years reveal that the number of new veterinarians entering employment as companion-animal-exclusive practitioners after graduation ranged from 460 in 2001 to a low of 301 in 2012 and a high of 603 in 2014—see the red line in Table 1. The mean nominal starting salary also varied over the period, from a low of just over \$45,000 in 2001 to a high of over \$70,000 in 2010 and then returning to just below \$70,000 in 2014.

However, the relationship between mean starting salary and the number of new veterinarians is unclear when we look at just those numbers. The theory of demand suggests that as the number of new veterinarians increases, their starting salaries should decline. And as the number of new veterinarians decreases, their starting salaries should increase. But Table 1 shows starting

TABLE 1

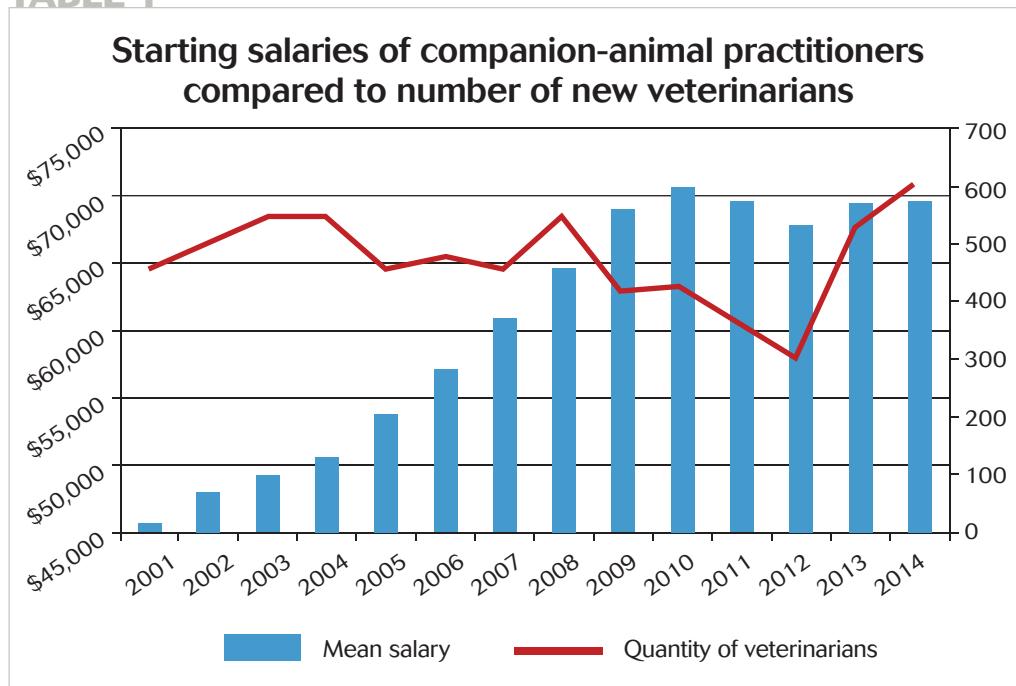
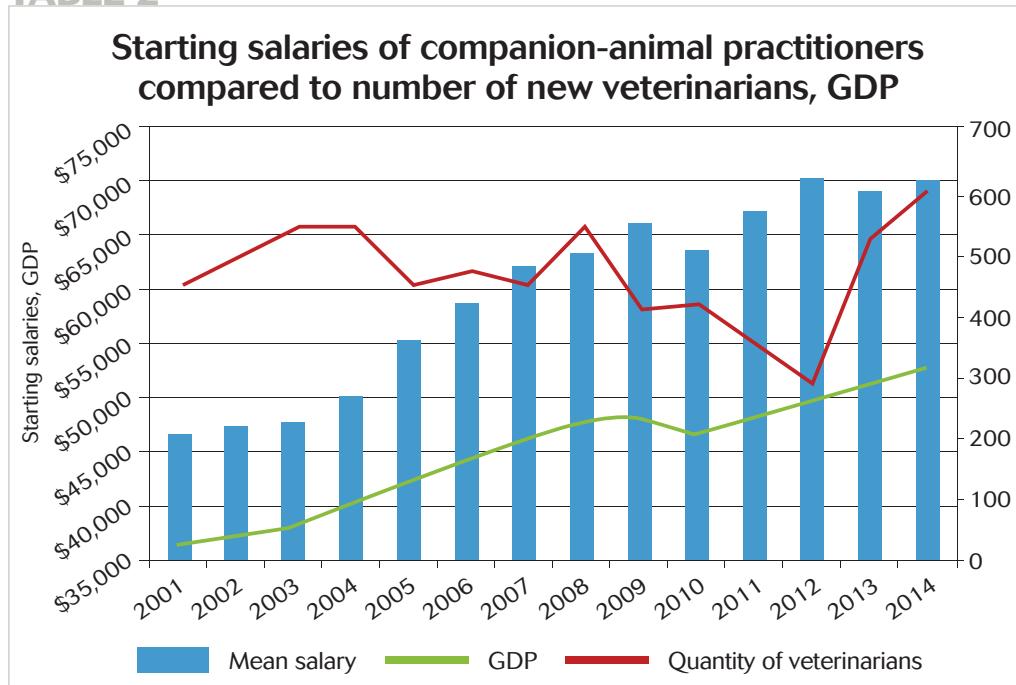


TABLE 2



Did you miss part one?

To read Dr. Dicks’ first article in this series, visit dvm360.com/compensation1.

SAY

NO



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



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¹ Of dogs showing a preference in two studies, all dogs preferred HEARTGARD Plus Chewables to TRIFEXIS® (spinosad + milbemycin oxime) beef-flavored chewable tablets; Executive Summary VS-USA-37807 and VS-USA-37808.
² Of dogs showing a preference in two studies conducted, all dogs preferred HEARTGARD Plus Chewables to SENTINEL® (milbemycin oxime-lufenuron) chewable tablets; Executive Summary VS-USA-37809 and VS-USA-37810.
³ Of dogs showing a preference in two studies conducted, all dogs preferred HEARTGARD Plus Chewables to IVERHART PLUS® (ivermectin/pyrantel) beef-flavored tablets; Executive Summary VS-USA-37811 and VS-USA-37812.
⁴ Of dogs showing a preference in two studies conducted, all dogs preferred HEARTGARD Plus Chewables to IVERHART MAX® (ivermectin/pyrantel/praziquantel) beef-flavored tablets; Executive Summary VS-USA-37813 and VS-USA-37814.
⁵ Of dogs showing a preference in one study conducted, all dogs preferred HEARTGARD Plus Chewables to SENTINEL® SPECTRUM (milbemycin oxime/praziquantel/lufenuron) beef-flavored tablet; Executive Summary VS-USA-37801.
⁶ Opinion Research Corporation, Heartworm Prevention Medication Study, 2012. Data on file at Merial.
⁷ Data on file at Merial.

See brief summary on page 30

LIVE LEARNING

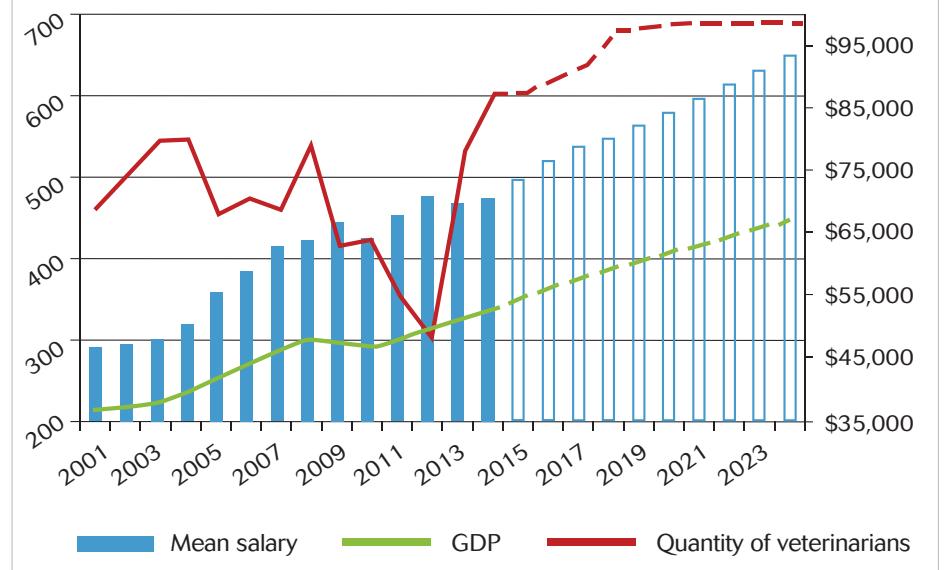
Econ in Boston

On Monday, July 12, economist Dr. Bridgette Bain will present two Eye on Economics Live sessions for AVMA Convention attendees. Topics are "How much do I pay my new associate?" and "How much can I expect to earn in five years?" Visit avmaconvention.org to register.

salaries increasing while the number of new companion-animal-exclusive practitioners remains relatively flat (2001 to 2008). And as the number of new veterinarians declines from 2008 to 2012, the mean starting salary also declines. Finally, as the number of new veterinarians increases in the 2012 to 2014 time period, starting salary also increases. Does this graph suggest that the theory

TABLE 3

Projected starting salaries of companion-animal practitioners compared to number of veterinarians, GDP



Source: AVMA Economics Division



CHEWABLES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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of demand (an inverse price-quantity relationship) does not apply here?

No, because demand for companion-animal-exclusive practitioners and services depends on the demand made by pet owners—and their demand depends on their level of income. As pet owners' incomes rise, their demand for veterinary services rises. Consequently the demand for veterinarians rises, leading to an increased willingness of employers to offer higher starting salaries.

This becomes clear when we include per capita gross domestic product (GDP), a proxy for consumer income and other time-related variables, along with quantity of new veterinarians to explain changes in mean starting salaries. In Table 2, the mean starting salaries have been adjusted for the number of new veterinarians and per capita GDP. These two factors explain roughly 91 percent of the year-to-year variation in mean starting salaries.

Estimates indicate that between 2001 and 2014, each new veterinarian added to the companion-animal-exclusive workforce reduced the income of all new veterinarians by nearly \$18. For every \$1,000 added to per capita GDP, new veterinarian income increased by \$1,610. Thus, adding 100 new veterinarians to the job market would offset a \$1,000 increase in per capita GDP. In Table 2, consider the period from 2001 to 2008, where the number of new veterinarians becoming companion-animal-exclusive practitioners was roughly constant at around 500 (456 to 547) per year. Real-dollar starting salaries (see

the blue bars) rose from nearly \$47,000 in 2001 to just over \$64,000 in 2008, which was in line with the growth of per capita GDP (\$36,000 to \$48,000).

When GDP rises, starting salaries increase. Likewise, when there is an increase in the number of new veterinarians entering full-time companion-animal-exclusive practice, the average starting salary declines. Knowing both the number of veterinary students in the pipeline and the forecast of growth in per capita GDP helps new veterinarians and veterinary employers gain insight into the future.

Predicting the number of new companion-animal-exclusive veterinary practitioners as a constant proportion of the estimated total number of new veterinarians and considering the Congressional Budget Office's forecast of GDP growth over the next 10 years, we can estimate mean starting salaries for veterinarians in this practice type between 2015 and 2024—see Table 3. This estimate does not include the possibility of new schools opening in the future or the occurrence of future economic recessions. But by using accurate numbers to examine the present, we can, in fact, look into the future of veterinary medicine. **dvm360**

ECN Dr. Mike Dicks, director of the AVMA's Veterinary Economics Division, holds a doctorate in agricultural economics from the University of Missouri.

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How to take charge of your happiness



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You have the power to change your situation—and the profession.

A recently published feature in *dvm360* magazine, “The current state of veterinary job satisfaction” (May 2015), cast light on a profession experiencing a crisis of confidence. The study revealed a profession that is somewhat disenchanted—frustrated with salary levels and job-related stress. While 25 percent of respondents judge themselves extremely happy and 20 percent are doing what they always wanted to do, most find themselves less happy than they were five years ago.

Personally, I find that when it comes to job satisfaction and career frustration—despite many of the factors described in the study (income, hours worked, student indebtedness)—individual circumstances are more to blame than inherent flaws in the profession. The net result, however, is often the same: a perceived lack of success, control or power.

Powerful or powerless

“Power” refers to the relationship between people as they try to influence one another. Everyone strives for some degree of power, and feeling powerless leads to feelings of frustration. But this process starts internally as a matter of choice. In every situation, be it personal or professional, we choose whether to be powerless or powerful.

A number of the well-worn books on my shelf were written by Steven Covey and like-minded authors. While some are a bit old, the principles and methods they outline are never out of date. I recommend all of them to you. *The Seven Habits of Highly Effective People* should be required reading. *The Power Principle* by Blaine Lee is based on the idea that if you change the principles you live by, you can change your world.

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Most unhappy people feel powerless. They've decided that there's nothing they can do about their situation but wring their hands. Nobody likes feeling powerless—but you can either remain in that position or find a way to develop your personal power. It's up to you how you deal with disappointments. Don't give your power away.

I learned this lesson late in my career, partly through the rather insensitively titled Larry Winget book *Shut Up, Stop Whining, and Get a Life*. For years I believed I was powerless to change my circumstances, even though I wasn't really happy. I wanted to create a change but lacked the personal power to do so. Once I assumed that power, doors opened and lights came on.

If we remain powerless the result is self-doubt. "What will become of me? Did I choose wrongly? Who will rescue

In every situation, be it personal or professional, we choose whether to be powerless or powerful.

me? When will things get better?" The answer: When we change them and make them better.

We need to recognize we are powerful—in fact, we are more powerful than we think. We need to speak to ourselves and identify and pursue our own fulfillment. That may mean making changes we hadn't anticipated, such as relocating for a new position or reinventing ourselves personally and professionally.

Three choices

If we're disappointed in our profession or frustrated by our career choice, it's up to us to recognize that there are really only three ways to deal with it.

1. We can do nothing. We can lead lives of what Henry David Thoreau referred to as "quiet desperation." We wish things were different but we do nothing to make them so.

2. We can pursue happiness. We can revisit our career choice and be willing to reinvent ourselves if necessary. We can find what we value and love about our lives and simply do more of that—in essence, we can

make the most of our reality.

3. We can be the change. We can recognize that the present day of our profession is very different from what most of us anticipated, and the future may be even more unsettling. It's up to us to do what we can to focus on principles of honor and integrity, remember that the whole is stronger

than its parts, and make the profession what we want it to be.

As the old saying goes, I can seek "the serenity to accept the things I cannot change, the courage to change the things I can, and the wisdom to know the difference." I would add that we can seek the power to support others in their search. **dvm360**

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



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Toronto or (drug) bust: Pot ruins veterinarian's road trip to ball game

Practitioner jeopardizes license with court probation and state board investigation.

Dr. Fred Lee and three of his friends decided to see their beloved Boston Red Sox play the Toronto Blue Jays. It was time for a road trip. The four men often traveled together to see Major League Baseball games and spend some vacation time in their destination cities. They loaded their luggage in Dr. Lee's Dodge Caravan, packed their passports for their Canadian excursion and were off.

Dr. Lee had known these men since his high school days. He became a veterinary emergency specialist at a large referral facility, while the other men explored other employment.

The group approached the Canadian border and joined the line of cars stopped at the checkpoint. Canine patrol sniffing dogs approached each car while officers asked the occupants for passports and the nature of their visit. Dr. Lee's group proudly voiced their

Boston Red Sox allegiance to the border agent. The agent then directed them to pull out of the line and informed Dr. Lee that the car and its occupants were being denied entry into Canada.

While this was happening, U.S. border patrol agents approached the car and asked the men to step out. The dogs had shown some interest in the luggage in the back of the van, and the agents proceeded to examine the bags. Lo and behold, one of Dr. Lee's passengers had a substantial amount of marijuana and some contraband pills in his suitcase. Dr. Lee informed the agents that he'd had no knowledge of the illegal contents in the car. His pleas fell on deaf ears and all the car's occupants were arrested.

Throughout the court proceedings, Dr. Lee maintained his ignorance and innocence of knowingly attempting to transport illegal drugs across an international border. But all of the men were found guilty, entered into a first offenders intervention program and put on probation for two years.

Needless to say, the road trip ended tragically, and some friendships were shattered forever. Dr. Lee had more problems to deal with when the arrest was automatically reported to his state licensing board. Dr. Lee was a licensed professional with a narcotics license. He responded to the state board as honestly as possible—he went on a road trip with his friends. Unbeknownst to him, one of his car mates brought illegal drugs, and everyone in the car was arrested.

He stated that he never used or possessed illegal drugs and that he took his responsibility as a veterinarian with a Drug Enforcement Administration (DEA) license seriously. He assured the board this would never happen again.

The board advised Dr. Lee that his responsibility as a licensed veterinarian with controlled dangerous substance

privileges extended not only to himself but to the behavior of those with whom he associated. He had to exercise due diligence to ensure that he wasn't in a collegial setting with anyone committing illegal acts. Dr. Lee replied that he didn't see how he could be expected to ask his friends if they were doing anything illegal before a social interaction.

With the understanding that the finding would be stayed during the probation mandated by the courts, the board cited him for professional misconduct. At the end of the probation it would be removed from his record unless he violated the court-ordered probation. Do you agree with the board's decision?

Rosenberg's response

If you believe Dr. Lee, he's truly an innocent victim in this case. But it's hard for me to believe he didn't know that his friend was a recreational drug user. Nevertheless, a veterinarian in possession of a controlled substances license is obligated to see that these medications are medicinally used and not abused.

This obligation applies to Dr. Lee and those around him. The idea of questioning all friends about substance abuse seems a bit far-fetched. On the other hand, the law is the law. Dr. Lee was convicted of attempting to import drugs to another country, and the state board could not ignore this information. It was an unfortunate situation and should stand as a cautionary tale. **dvm360**

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



>>> Dr. Lee's road trip with friends was derailed after Canada's border patrol agents found marijuana in his vehicle.

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When your ‘emergency’ isn’t

As veterinarians we’re wired for crisis, which can derail our personal goals if we’re not careful.

Striking the right life balance in veterinary medicine requires recognizing why all “emergencies” aren’t important.

In veterinary medicine, emergencies take priority. If we don’t deal with the most urgent situations right away, pets can suffer, permanent damage may be done and lives can be lost. When emergencies come in the door, we drop what we’re doing, hang up the phones and abandon whatever else we were working on.

While that’s a great strategy for keeping pets alive, the problem comes when those of us in the veterinary field take that approach outside of work. We’ve been trained to react to everything that comes up—to jerk our attention away from what we’re doing, focus on the immediate problem as soon as it arises, and fix it before going back to our lives. But as it turns out, this isn’t a rewarding way to go through our time here on earth.

Recently, while I was cleaning up dinner and talking with my 7- and 3-year-old daughters, I made the mistake of glancing at my phone when the screen lit up. I saw multiple emails from people awaiting my response, messages from a Facebook group that was including me in their heated debate and calendar alerts about meetings for the next morning that I had not prepared for.

“Emergency! Emergency!” my mind screamed. I felt myself going into veterinary crisis mode: I needed my laptop! I needed to fix these problems before I could go on with what I was doing! As I strode toward my computer, my younger daughter said, “Daddy, where are you going?” Her older sister replied, in her best consoling voice, “He needs to work.”

Her words stopped me in my tracks.

What was I doing? Why did these digital voices, these tiny pings from my phone, have the power to pull me away from my children? And what gave them this power over me? The voices came from people I hardly knew, and I gave them that power.

When we’re in the practice of handling emergencies regularly, we start to look for them everywhere. And

you know what they say about that: If you look for something hard enough, you’ll find it. Before long, we even find ourselves creating “emergencies.” The

result is that we spend our lives reacting and responding to those situations instead of dwelling thoughtfully in the areas of our lives that truly matter.

In *The 7 Habits of Highly Effective People*, the author, Stephen R. Covey, talks about setting priorities by asking these two questions:



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- > Is this task urgent?
- > Is this task important?

Urgency and importance aren't the same thing, but most of us use the terms interchangeably. Important tasks are those that bring us closer to achieving our goals. Urgent tasks are those that demand instant attention and are usually given to us by other

people (who want to achieve their own goals). We give them priority because they carry stated or implied deadlines. Covey believes every situation can be classified in one of four ways:

- > Urgent and important
- > Urgent but not important
- > Not urgent but important
- > Not urgent and not important.

I love this way of thinking because it addresses a trap that I and many other "emergency people" fall into. We consider all tasks that are urgent to be emergencies and tackle them instinctively before taking a moment to prioritize. The truth is that many things in our lives are "urgent" but are unimportant to our health, happiness

or success. (I expect 90 percent of your emails fall into this category. Mine certainly do.) The things that actually are important get neglected because they don't show up in our inboxes or have a flashing notification.

For me, the most important priorities are having a great relationship with my kids and being a good husband. But there's no urgency there. There's no deadline to force action, so putting off family time to call one more person back, see one more appointment or hammer out one more email can feel like a sensible move in the moment. It satisfies my urge to "just get this done."

Meanwhile, my kids are getting older and I won't get to scoop them up in my arms much longer. My wife deserves to have a great partner now, not at some point in the future when I "get done with work." The big, meaningful, life-defining things I want to do someday are in danger of remaining elusively off in the future if I spend all my time on things that are urgent. This is how people end up on their deathbeds asking, "What did I do with my life?"

So, as people who fix emergencies for a living, let's take a moment to remind ourselves of three things when it comes to our lives outside of work:

- > True emergencies are both urgent and important.
- > The most meaningful things in our lives may not be urgent, but they should still be prioritized first because they are important.
- > We should all do fewer things that aren't important to us, whether they are urgent or not.

Having meaningful conversations with people you really like, going on a special vacation or spending time on a hobby that energizes or relaxes you—these aren't activities that show up on your calendar. They won't send an alert on your phone. Neither will being a good friend, parent, spouse or family member—but what could possibly be more important than being a decent human being? So let's try to turn off that emergency response instinct when it comes to our personal lives. We'll get so much more out of life if we do. [dvm360](#)

Dr. Andy Roark practices in Greenville, S.C. He is the founder and managing director of veterinary consulting firm Tall Oaks Enterprises. Follow him on Facebook or @DrAndyRoark on Twitter.

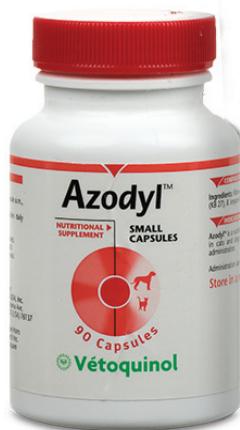
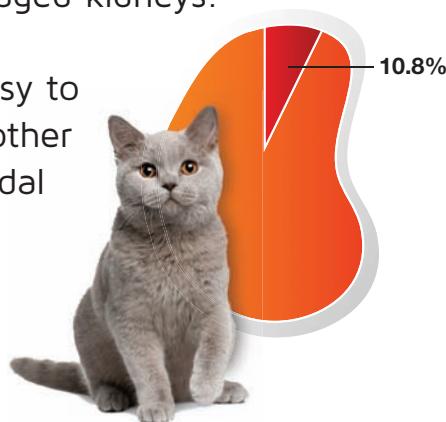
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Students receive Bayer scholarships to improve client communication

Tuskegee graduate named national winner; Bayer donates \$70,000 total.

Bayer Animal Health gave \$70,000 total in scholarships to 27 veterinary schools as part of its Bayer Excellence in Communication Award (BECA). Created to improve communication with clients, BECA identifies students who engage clients with open-ended questions, empathy and reflective listening, according to a Bayer release. Faculty members at each school review student submissions to select a winner, and each regional winner receives a \$2,500 scholarship.

The schools enter their individual winners in the national contest for an additional \$2,500 scholarship. The national winner this year was Chad Malpass, DVM, a 2015 graduate of Tuskegee University School of Veterinary Medicine and now a small animal practitioner in North Carolina.

“I’ve learned to be more empathetic, to ask more open-ended questions and to really listen to clients’ responses,” Malpass says. “I am proud to have won, but had I not, I’d still have walked away a winner with skills that are going to help me better serve my clients for the next 50 years.”

Caroline Schaffer, DVM, assistant professor and director of the Center for the Study of Human-Animal Interdependent Relationships at Tuskegee, says, “Because Tuskegee University places great emphasis on teaching our veterinary students good communications skills, we are especially proud to have Chad Malpass named BECA’s national winner.”

Ian Spinks, president and general manager of Bayer HealthCare Animal Health of North America, says, “Our support begins with veterinary students since we know positive communications skills are vital to keeping animals healthy and veterinary practices strong.”

The students from the other schools who received scholarships are:

- > Mason Chandler,

- Auburn University
- > Kay Wicinas, University of California-Davis
- > Jenny Ross, Colorado State University
- > Emily Donaldson, Cornell University
- > Camila de Andino, University of Florida
- > Jennifer James, University of Georgia
- > Amy Sneed, University of Illinois
- > Amie Johnson, Iowa State University
- > Anna Champagne, Kansas State University
- > Megan Partyka, Louisiana State University
- > Jessica Chronowski, Michigan State University
- > Tim Rozendaal, University of Minnesota
- > Steve Hutter, Mississippi State University
- > Laurel Marshalek, University of Missouri
- > Tyler Gallaher, North Carolina State University
- > Abby Taylor, Ohio State University
- > Caitlin McLagan, Oregon State University
- > David Zimmer, Purdue University
- > Carmella Britt, Ross University
- > Addie Reinhard, University of Tennessee
- > Suzanne Li, Texas A&M University
- > Stephanie Sapowicz, Tufts University
- > Kaitlyn Somers, Virginia Tech
- > Matt Sammons, Washington State University
- > Sarah Renee Furtney, Western University
- > Chase McNulty, University of Wisconsin. **dvm360**

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-[5-[3-chloro-5-(trifluoromethyl)-phenyl]-4, 5-dihydro-5-(trifluoromethyl)-3-isoxazolyl]-N-[2-oxo-2-[(2,2,2-trifluoroethyl)amino]ethyl].

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

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

Dosing Schedule:

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

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

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

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

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

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

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

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

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

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

Table 1: Dogs With Adverse Reactions.

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

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

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

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

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

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

Effectiveness: In a well-controlled laboratory study, NexGard began to kill fleas four hours after initial administration and demonstrated >99% effectiveness at eight hours. In a separate well-controlled laboratory study, NexGard demonstrated 100% effectiveness against adult fleas 24 hours post-infestation for 35 days, and was ≥ 93% effective at 12 hours post-infestation through Day 21, and on Day 35. On Day 28, NexGard was 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 unable to produce any eggs (0-1 eggs) while fleas from dogs in the control group continued to produce eggs (1-141 eggs).

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

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

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

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

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

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

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

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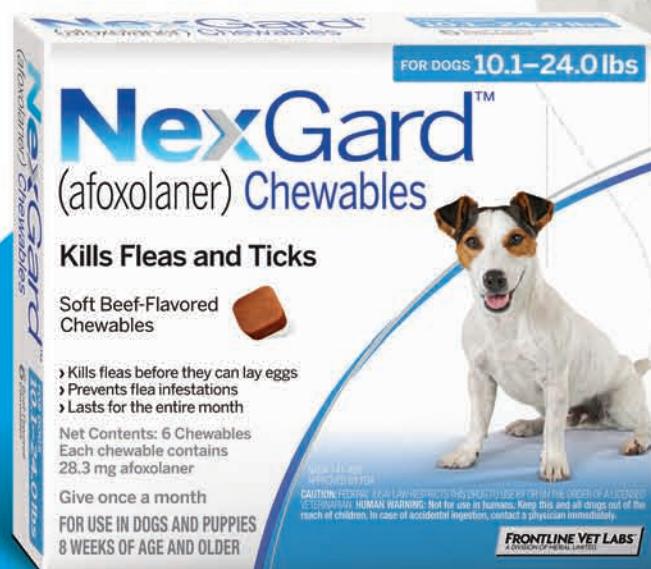
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IMPORTANT SAFETY INFORMATION: For use in dogs only. The most common adverse reaction is vomiting. Other adverse reactions reported are dry/flaky skin, diarrhea, lethargy, and anorexia. The safe use of NexGard in pregnant, breeding, or lactating dogs has not been evaluated. Use with caution in dogs with a history of seizures.

See brief summary on page 38

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What gives veterinary boards *the right?*

Understanding the power granted to professional oversight agencies may help you navigate interaction with veterinary boards.

One of the nifty benefits of attending law school is that the experience helps fill the gaps left by the average high school and college curriculum in the area of civics. Our form of democracy is complicated! The way laws are created, enforced and interpreted in the real world is a heck of a lot different from what we all heard about in grade school. And who heard anything about state veterinary boards or licensing authorities in grade school?

I'm reminded of how little we're taught about practical civics whenever a veterinarian contacts my office with a problem relating to a state veterinary board or licensing authority. In these instances I find myself explaining a number of very important though subtle details about how the professional regulatory and oversight system works. Many doctors are surprised to learn how differently this arm of government operates from how we generally think about our constitutional legal system.

Therefore, I decided I would offer something of a primer on administrative law generally, and veterinary licensing and disciplinary regulation specifically.

Delegated powers and enabling legislation (or, "What gives veterinary boards the right?")

"Delegated powers" means that all the power to govern the people resides with the states unless it is granted under constitutional authority to the United States. One of the powers that is not delegated to the United States is regulation of the so-called "learned professions," like engineering, pharmacy and veterinary medicine. Professions need to be regulated to protect the public from posers and sloppy practitioners, and responsibility for that is a state function—it is not the duty of the federal government.

In our democracy, at both the federal and state levels, governments turn over an enormous

quantity of their day-to-day duties and responsibilities to other agencies, boards and sub-bureaucracies using special laws known as "enabling statutes." These are laws that provide empower other groups of people (theoretically people more familiar with the intricacies of specific areas and possessing more training in those areas) to handle the nitty-gritty of a specific legally regulated realm. It is a result of enabling statutes that medical boards, dental boards, architecture boards and veterinary boards exist, are funded and possess their authority.

So why is this important?

Enabling legislation, while indispensable and an integral part of American jurisprudence, effectively collapses the walls between the three branches of government. Here's an example: If the education department in your state decides that veterinarians must take 20 hours of continuing education per year in order to maintain their licenses, then that is the law. It has been legislated. If that same department establishes a veterinary disciplinary board to monitor, among other things, the adequacy of each practitioner's CE compliance, that board is a quasi-judicial authority. It can and will judge veterinarians. And if the decision of that board is that a veterinarian's CE is not sufficient in quantity or quality, they can fine or impose penalties against his or her right to practice. And the sentence shall be thusly carried out.

The realities of administrative agency culture (yes, they have an agenda)

Administrative agencies, with all their regulation-writing, evidence-weighting and penalty-issuing authority in tow, are composed of people and a chain of command. As such, boards and departments each have their own culture and set their own priorities; the culture in these agencies morphs over time. For example, in the mid-





1990s, New York state eliminated the two-day practical licensing examination for veterinarians that had existed seemingly forever. It was expensive. Some felt it was overly subjective. Whatever the reasons, this particular bureaucracy imposed its will. With the stroke of a pen, the test was gone.

In other states, one veterinary board may focus on enforcing a high standard of care among practitioners while later in a decade the quality and cleanliness of veterinary facilities are a predominant concern. Administrative agencies, boards and departments possess enormous latitude in carrying out their mandate. Generally, they make a concerted effort to try to use that latitude fairly and with restraint in order to further the public good.

Practical impact for veterinarians (understand the game)

Most important is to remember an important reality: Administrative agencies are not legislatures and they are not courts. They often are legally permitted to exercise their authority under a much different set of guidelines than police departments, courts

and legislatures. Evidence rules are usually substantially different in administrative or board hearings than in civil or criminal courts. Appeals based on many technicalities are doomed to fail, and objections made on technical grounds may result more in annoying a board's fact finders or judge than in strengthening a party's case.

Furthermore, appealing the decisions of an administrative board decision can be difficult. Often the legal standard that must be met in order to overturn a board ruling on appeal can be tough to satisfy. Therefore, here are three pieces of advice:

1. Think twice about answering a veterinary board complaint or summons without consulting a qualified and experienced attorney who is conversant in professional disciplinary matters.

2. Even if your employer or partners won't pay for it, obtain veterinary license defense coverage in addition to your general malpractice insurance.

3. When speaking to anyone even remotely associated with an administrative agency, remain calm, deferential and respectful. Behaving in a disagreeable manner is virtually always counterproductive. **dvm360**

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

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MEDICINE | Dentistry

How to repair sick teeth

Extraction isn't always the best choice for patients with tooth troubles. Find out in which cases tooth repair—not removal—can restore dental health. *By Jan Bellows, DVM, DAVDC, DABVP, FAVD*

When patients present with an illness, we diagnose and treat the treatable. But when they present with sick teeth, the most common dental procedure performed after scaling and polishing is tooth extraction. What can be done to treat and repair dental pathology in our patients when the tooth can be fixed with a reasonable prognosis and the client is willing and able?

In this second article of a series on dental care, we explore repairing teeth with pathology from the outside, inside and surrounding support tissue. While some of the procedures can be performed by general practitioners, others should be attempted only with a full understanding of the anatomy,

physiology, procedure and aftercare involved and by individuals with proper equipment and training. Referral to a dental specialist should be considered for advanced dental techniques.

Enamel repair

Enamel, the hardest tissue in the body, protects the underlying coronal dentin and pulp. Enamel disease presentations include enamel hypoplasia, hypomineralization, fracture, abrasion and attrition.

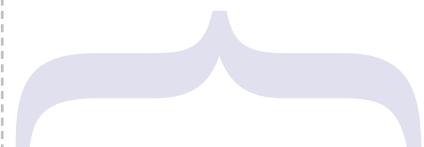
Enamel hypomineralization results from inadequate mineralization of the enamel matrix. The crowns of affected teeth are covered by soft enamel that may be worn rapidly, leaving exposed sensitive dentin (Figure 1A).

Enamel hypoplasia occurs second-

ary to disrupted deposition of the enamel matrix between 9 and 12 weeks of age caused by infection, poor nutrition or trauma. Enamel hypoplasia can affect one or several teeth and may be focal or multifocal. The crowns of affected teeth have areas of normal enamel next to areas of hypoplastic or missing enamel (Figure 1B). Repair consists of applying light-cured acrylic resin over dental bonding agent and adhesive on the prepared areas void of enamel to protect the underlying dentin and pulp. Canines and carnassial teeth are often further restored with metallic crowns to help protect the underlying structures from sensitivity from pressure, heat and cold (Figures 1C and 1D).



>>> **Figure 1A.** Teeth affected by enamel hypomineralization.
>>> **Figure 1B.** A tooth with enamel hypoplasia. Note the areas of normal enamel next to missing enamel.
>>> **Figure 1C.** Acrylic restoration of enamel defects.
>>> **Figure 1D.** Metallic restoration of the crown for maximum protection.



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>>>Figure 2A. Focal loss of enamel due to attrition, exposing dentin in a 2-year-old dog.
 >>>Figure 2B. The tooth restored with light-cured acrylic resin.
 >>>Figure 3. A discolored coronal tip, which was treated with anti-inflammatory and pain control medication.
 >>>Figure 4A. A discolored maxillary canine secondary to irreversible pulpitis.
 >>>Figure 4B. An intraoral radiograph showing root canal therapy for repair.

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Enamel fractures, attrition (tooth rubbing on another tooth) and abrasion (tooth rubbing on a foreign object) also result in enamel loss. When the dentin is exposed and the dog is young, a similar treatment as that used for enamel hypoplasia is indicated (Fig-

ures 2A and 2B). When a mature dog presents with minimal enamel loss, usually no treatment is needed unless dentin or pulp is also exposed.

A discolored tooth usually results

When a mature dog presents with minimal enamel loss, usually no treatment is needed unless dentin or pulp is also exposed.

ures 2A and 2B). When a mature dog presents with minimal enamel loss, usually no treatment is needed unless dentin or pulp is also exposed.

Repairing inside the tooth

Tooth trauma. A traumatized tooth can present discolored secondary to irreversible pulpitis, with part of the enamel and dentin exposed (uncom-

plicated fracture), or as a complicated fracture with pulp exposure. Consideration of the tooth's importance, animal's age, age of the fracture and degree of pathology will help you decide if repair is possible.

from acute trauma causing pulp swelling and internal bleeding against an unyielding pulp chamber. In time, the pulp dies and the tooth becomes nonvital. People with similar conditions often complain of dull pain. If the discoloration is noted acutely with only the coronal tip affected, anti-inflammatory and pain control medication can be used to treat the pulpitis and, hopefully, prevent pulpal death (Figure 3). For all

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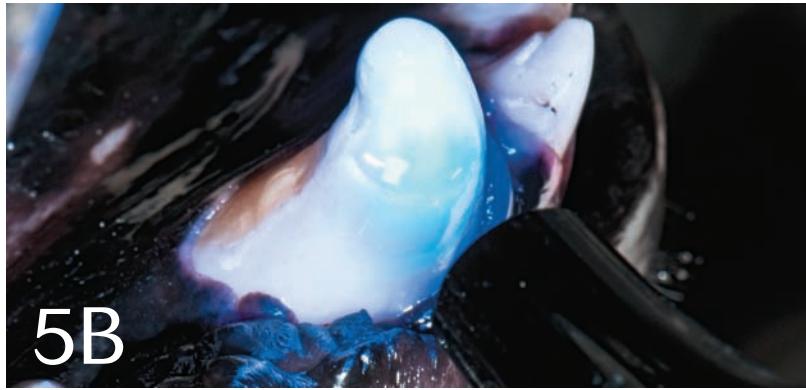
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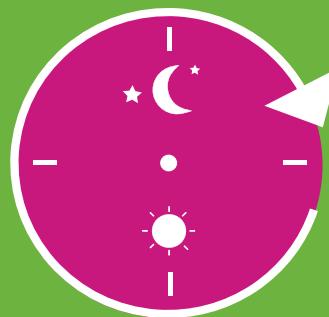
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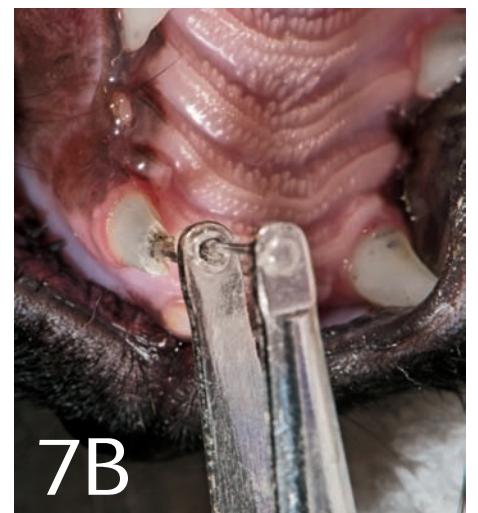
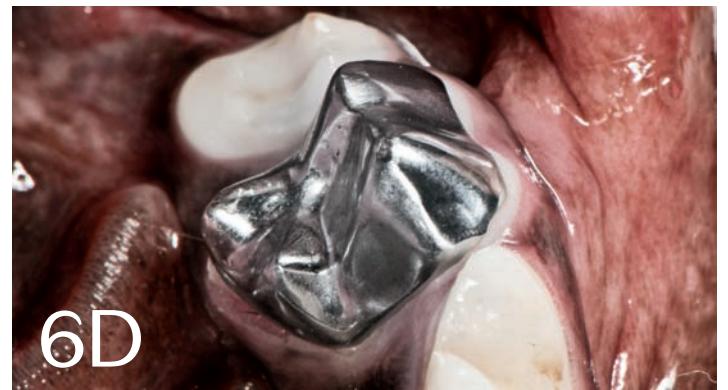
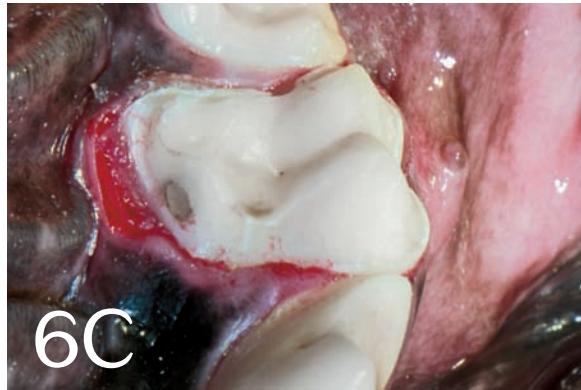
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- Demonstrated safety and efficacy in **more than 200 cats** treated with SIMBADOL
- Up to 3 once-daily subcutaneous doses for a **total of 72 hours of pain control**

INDICATION: SIMBADOL is indicated for the control of postoperative pain associated with surgical procedures in cats.

IMPORTANT SAFETY INFORMATION

WARNINGS, PRECAUTIONS and CONTRAINDICATIONS: Due to serious human safety and abuse concerns, including physical or psychological dependence, life-threatening respiratory depression and additive CNS depressant effects, read the full prescribing information before using this drug, including the complete Boxed Warning. Not for use in humans. Hospital staff should be trained in the handling of potent opioids and should avoid accidental exposure. For subcutaneous (SQ) injectable use in cats. Opioid excitation has been observed up to 8 hours after anesthetic recovery. Use with caution in cats with impaired hepatic function. SIMBADOL has not been evaluated in breeding, pregnant, or lactating cats, in cats younger than 4 months of age or moribund cats. Do not use in cats with known hypersensitivity to buprenorphine hydrochloride or any of the components of SIMBADOL, or known intolerance to opioids.

See attached full Prescribing Information, including the complete Boxed Warning for human safety and adverse reactions.



>>>Figure 6B. Application of calcium hydroxide to the pulp.
 >>>Figure 6C. Crown preparation for impression.
 >>>Figure 6D. The restored tooth with metallic crown.
 >>>Figure 7A. An acute complicated canine crown fracture in a cat.
 >>>Figure 7B. Application of mineral trioxide aggregate (MTA) during vital pulp therapy.
 >>>Figure 7C. Crown restoration with light-cured flowable composite.



1.8 mg/mL
 For subcutaneous use in cats

BRIEF SUMMARY: Before using SIMBADOL, please consult the full prescribing information, a summary of which follows.

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

PRECAUTIONS: Hyperactivity (opioid excitation) has been observed up to 8 hours after anesthetic recovery (see ADVERSE REACTIONS). Safety has not been evaluated in moribund cats. Use in such cases should be based on the risk-benefit assessment of the veterinarian. Use with caution in cats with impaired hepatic function. The use of SIMBADOL has not been evaluated in breeding, pregnant, or lactating cats, or in cats younger than 4 months of age.

ADVERSE REACTIONS: In two controlled field studies, the following adverse reactions were reported.

Adverse Reactions in Two Field Studies

Adverse Reaction ^a	SIMBADOL (N = 224)		Control (N = 226)	
	During Surgery ^b	After Surgery	During Surgery ^b	After Surgery
Hypotension ^c	68 (30.4%)	51 (22.8%)	60 (26.5%)	40 (17.7%)
Tachycardia ^d	55 (24.6%)	73 (32.6%)	30 (13.3%)	44 (19.5%)
Hypothermia (≤98.0°F)	38 (17.0%)	1 (0.4%)	47 (20.8%)	0
Hyperthermia (≥103.0°F)	1 (0.4%)	91 (40.6%)	0	33 (14.6%)
Hypertension ^e	10 (4.5%)	40 (17.9%)	17 (7.5%)	18 (8.0%)
Anorexia	0	40 (17.9%)	0	35 (15.5%)
Hyperactivity	0	26 (11.6%)	0	11 (4.9%)
Reduced SpO ₂ (≤90%)	8 (3.6%)	1 (0.4%)	11 (4.9%)	0
Bradycardia (≤90 beats/min)	5 (2.2%)	1 (0.4%)	4 (1.8%)	1 (0.4%)
Tachypnea (≥72 breaths/min)	0	5 (2.2%)	1 (0.4%)	6 (2.7%)
Arrhythmia	1 (0.4%)	1 (0.4%)	2 (0.9%)	0
Blindness	0	2 (0.9%)	0	1 (0.4%)
Apnea/Death	1 (0.4%)	1 (0.4%)	0	0
Ataxia	0	1 (0.4%)	0	0
Hyperesthesia	0	1 (0.4%)	0	0

- a. Cats may have experienced more than one type or occurrence of an adverse reaction. Cats experiencing the same reaction both during and after surgery are presented in both time periods.
- b. During surgery is the time from the administration of the anesthetic induction agent until discontinuation of the gas anesthetic.
- c. Hypotension is defined as a mean blood pressure of ≤60 mmHg during surgery and ≤90 mmHg after surgery.
- d. Tachycardia is defined as a heart rate of ≥180 beats per minute during surgery and ≥200 beats per minute after surgery.
- e. Hypertension is defined as a mean blood pressure of ≥120 mmHg during surgery and ≥160 mmHg after surgery.

To report suspected adverse events, contact Abbott Animal Health at 1-888-299-7416, FDA at 1-888-FDA-VETS or FDA online at <http://www.fda.gov/AnimalVeterinary/SafetyHealth>.

EFFECTIVENESS: The effectiveness of SIMBADOL was demonstrated in two randomized, masked, placebo-controlled, multi-site field studies involving client-owned cats of various breeds. A descriptive, interactive pain assessment system was used by the trained assessor over the 72-hour post-operative period to determine pain control, and treatment success was defined as a cat that completed the 72-hour post-operative period without rescue analgesia. A statistically significant difference ($P \leq 0.005$) in the number of successes in the treatment group over the placebo control group was observed. The results of two field studies demonstrate that SIMBADOL is effective and has an acceptable safety margin for the control of postoperative pain in cats.

HOW SUPPLIED: SIMBADOL (buprenorphine injection) is supplied in a carton containing one 10 mL amber glass vial. Each multidose vial contains 1.8 mg/mL of buprenorphine.

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HUMAN SAFETY WARNING

Abuse Potential
SIMBADOL contains buprenorphine (1.8 mg/mL), an opioid agonist and Schedule III controlled substance with an abuse potential similar to other Schedule III opioids. Buprenorphine has certain opioid properties that in humans may lead to dependence of the morphine type. Abuse of buprenorphine may lead to physical dependence or psychological dependence. The risk of abuse by humans should be considered when storing, administering and disposing of SIMBADOL. Persons at increased risk for opioid abuse include those with a personal or family history of substance abuse (including drug or alcohol abuse or addiction) or mental illness (suicidal depression).

Life-Threatening Respiratory Depression
Respiratory depression, including fatal cases, may occur with abuse of SIMBADOL.

Additive CNS Depressant Effects
SIMBADOL has additive CNS depressant effects when used with alcohol, other opioids, or illicit drugs that cause central nervous system depression.

Accidental Exposure
Because of the potential for adverse reactions associated with accidental injection, SIMBADOL should only be administered by veterinarians or veterinary technicians who are trained in the handling of potent opioids.

See Human Safety for detailed information.

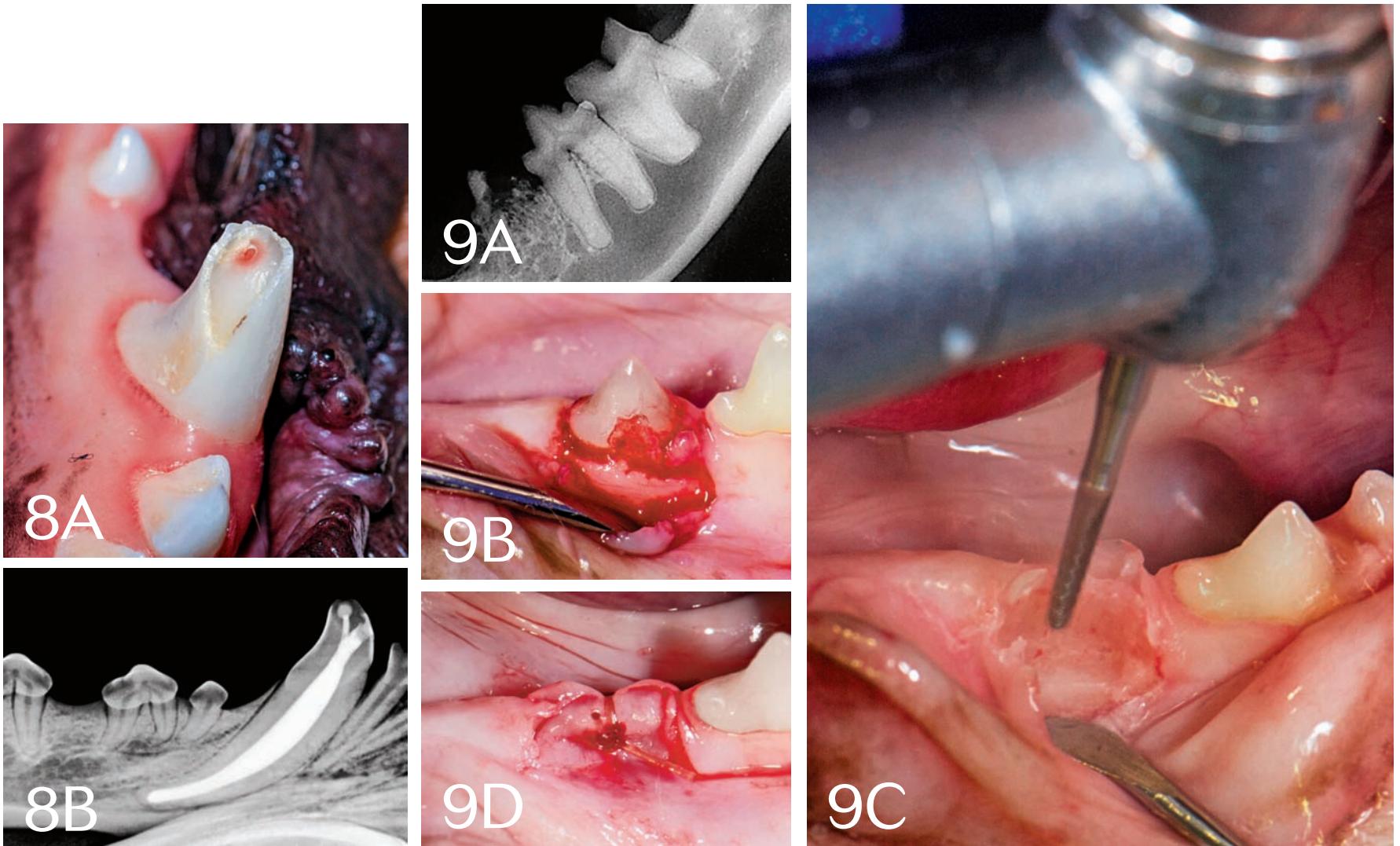
INDICATION: SIMBADOL is indicated for the control of postoperative pain associated with surgical procedures in cats.

DOSAGE AND ADMINISTRATION: The dosage of SIMBADOL is 0.24 mg/kg (0.11 mg/lb) administered subcutaneously once daily, for up to 3 days. Administer the first dose approximately 1 hour prior to surgery. Do not dispense SIMBADOL for administration at home by the pet owner (see Human Safety).

CONTRAINDICATIONS: SIMBADOL is contraindicated in cats with known hypersensitivity to buprenorphine hydrochloride or any of the components of SIMBADOL, or known intolerance to opioids.

WARNINGS: For subcutaneous (SQ) injectable use in cats.

Human Safety: Not for use in humans. Keep out of reach of children. Because of the potential for adverse reactions, hospital staff should avoid accidental exposure and contact with skin, eyes, oral or other mucous membrane during administration. SIMBADOL contains buprenorphine, a mu opioid partial agonist and Schedule III controlled substance with an abuse potential similar to other Schedule III opioids. SIMBADOL can be abused and is subject to misuse, abuse, addiction and criminal diversion. SIMBADOL should be handled appropriately to minimize the risk of diversion, including restriction of access, the use of accounting procedures, and proper disposal methods, as appropriate to the clinical setting and as required by law. Abuse of SIMBADOL poses a hazard of overdose and death. This risk is increased with concurrent abuse of alcohol and other substances including other opioids and benzodiazepines. Buprenorphine has been diverted for non-medical use into illicit channels of distribution. All people handling opioids require careful monitoring for signs of abuse. Drug abuse is the intentional non-therapeutic use of a prescription drug for its rewarding psychological or physiological effects. Abuse of opioids can occur in the absence of true addiction. Naloxone may not be effective in reversing respiratory depression produced by buprenorphine. The onset of naloxone effect may be delayed by 30 minutes or more. Doxapram hydrochloride has also been used as a respiratory stimulant.



>>> **Figure 8A.** A complicated crown fracture with pulpal exposure.
 >>> **Figure 8B.** An intraoral radiograph showing root canal therapy to save the tooth with excellent prognosis.
 >>> **Figure 9A.** An intraoral radiograph confirming Type 2 tooth resorption.
 >>> **Figure 9B.** Clinical examination of the tooth reveals tooth resorption affecting the mandibular third premolar.
 >>> **Figure 9C.** Crown reduction to treat type 2 tooth resorption.
 >>> **Figure 9D.** Gingival closure after crown reduction.

other cases of discolored teeth, root canal therapy or extraction is indicated (Figures 4A and 4B).

Uncomplicated enamel and dentin (near pulp exposure) fractures enter enamel and dentin approaching the pulp. Treatment depends on the animal's age and the fracture's proximity to the underlying pulp. Restoration with acrylic resin covering the exposed dentin is indicated if the animal is young and the pulp cannot be clinically visualized (Figures 5A-5D). When

the pulp is visualized but not exposed, direct pulp capping is indicated to decrease tooth sensitivity and bacterial invasion through exposed dentin tubules (Figures 6A-6D).

If the near pulp fracture occurs in an older animal (more than 12 months), there is an increased amount of dentin between the fracture and pulp resulting in less sensitivity. In these cases, you have one of three options:

1. Root canal therapy
2. Serial radiographs (every four to six months) to detect signs of endodontic involvement before root canal
3. Extraction if the client will not agree to root canal therapy or periodic follow-up.

The pulp is exposed in complicated crown fractures. When the fracture is acute (up to two days), vital pulp therapy can be attempted with a guarded prognosis. Extraction or conventional root canal therapy can be performed with a more predictable outcome of an excellent prognosis (Figures 7A-7C).

When the pulp exposure is chronic, extraction or root canal therapy is the treatment of choice. Leaving a pulp-

exposed tooth without treatment allows oral bacteria to enter the patient's blood and create painful inflammation and infection at the tooth's apex (Figures 8A and 8B).

Tooth resorption. In cases of type 2 tooth resorption where the tooth's root is being replaced by bone as confirmed by intraoral radiography, treatment other than an extraction is possible. Crown reduction with gingival closure can be performed to eliminate tooth exposure to the oral cavity and allow continued root replacement resorption. Intraoral radiography is a must to properly identify those cases that would benefit from this procedure (Figures 9A-9D). [dvm360](#)

Dr. Jan Bellows owns All Pets Dental in Weston, Florida. He is a diplomate of the American Veterinary Dental



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Veterinary, human surgeons collaborate to save cat

Balloon dilation used to correct rarely seen congestive heart failure.

Vanilla Bean, a 1-year-old female Burmese cat from Mill Valley, California, was brought to veterinary cardiologist Kristin MacDonald, DVM, PhD, DACVIM, for respiratory distress. MacDonald

diagnosed her with a rare congenital heart defect that does not allow blood to flow properly through the chambers. This improper flow can cause too much blood to collect in one chamber, create pressure, enlarge it and ulti-

mately lead to congestive heart failure.

MacDonald, a former University of California, Davis, cardiology resident, was familiar with a special technique for correction reported only once before by Josh Stern, DVM, PhD, DACVIM. MacDonald referred the case to UC Davis where Stern is on the faculty at the Veterinary Medical Teaching Hospital (VMTH). Stern accepted the case and, after an echocardiogram, confirmed MacDonald's diagnosis.

Assisted by four other doctors—both veterinary surgeons and human cardiologists—the team began the delicate procedure of opening the stenosis with a hybrid cutting balloon dilatation. Vanilla Bean's chest cavity was opened to expose the heart, and the delicate process of positioning the catheters and balloons within Vanilla Bean's heart began.

Transesophageal echocardiography helped Stern visualize where he was in the heart and monitored the success of each technique that was utilized. "This is an extremely uncommon technique employed in veterinary medicine," Stern says. "It's even more rarely employed in cats due to their small size."

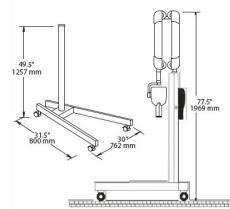
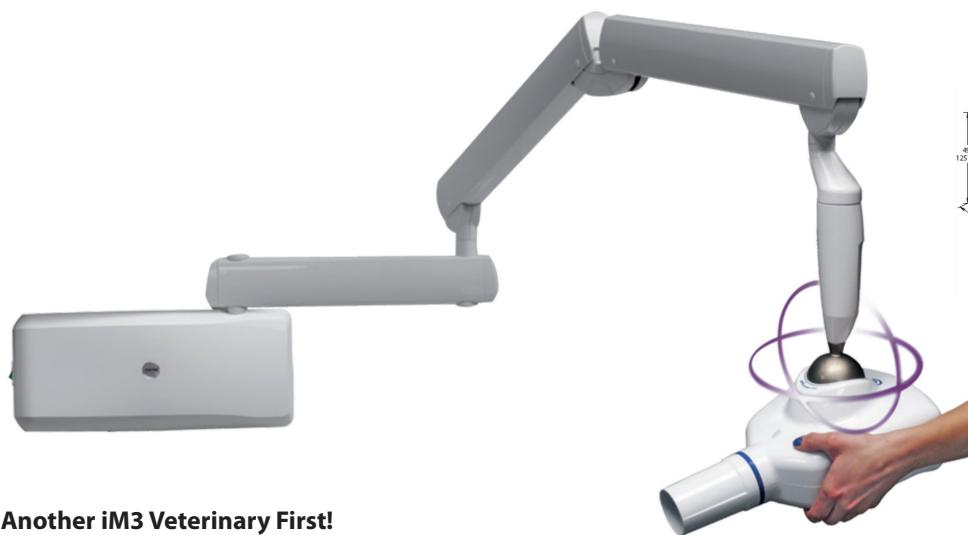
Stern was able to place the balloon across the defect. The balloon cuts the membrane to allow blood to flow through it regularly.

While the balloon dilatation was successful, Vanilla Bean's surgery was not without complication. She lost a lot of blood during the procedure. Transfusions were swiftly performed with blood from the hospital's feline donor base. Due to the blood loss, though, Vanilla Bean suffered an acute kidney injury. During a week of hospitalization, however, her creatinine levels slowly decreased every day.

Vanilla Bean was able to go home eight days after her surgery. A week later, she returned to the VMTH for a check-up. Her creatinine levels, while still not in the normal range, continued to drop. An echocardiogram showed the balloon dilatation was successful.

Vanilla Bean is no longer in congestive heart failure and is off all medications. Her creatinine levels have returned to the normal range. Stern expects her to make a complete recovery. [dvm360](#)

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EQUINE | Safety

Prevent fire to preserve life, property

Equine veterinarians have a unique opportunity to work with barn personnel to protect horses from all-too-common disaster. *By Ed Kane, PhD*

Barn fires are one of the primary causes of disaster-related horse deaths in the United States, says Ron Lindroth, chief of the Central Valley Fire District in Belgrade, Montana. Knowing this, equine veterinarians can partner with fire service personnel and

barn managers to reduce the loss of life and property. Often veterinarians have access to horse facilities that fire departments do not, and they may be able to spot potential problems to help prevent fires from occurring in the first place. Here are some key considerations.

Prevention is key

Once a fire starts in a barn, it's extremely difficult to put out. A barn is large and airy and typically contains a high volume of exposed combustibles, allowing a fire to engulf the barn quickly. Plus, horse barns are usually



>>> Barn fires kill hundreds of horses each year, experts say—and most of them could have been prevented. Equine veterinarians who make calls to horse facilities can help reduce the loss of life and property by spotting potential problems, such as a heat lamp too close to bedding.



SURGERY STAT **E5**

Wound reconstruction: Free skin grafts in horses that involve relocating the skin from a donor site to cover a wound and restore function and cosmesis

NEWS **E8**

FDA taps veterinarians to oversee antimicrobial use in food animals

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located in remote areas far from fire stations, so emergency response times can be long. Potential severity of horse burn injury is high (see the April 2013 issue of *dvm360*); human injury and loss of life are also a major concern.

Know what causes fires. According to the National Fire Protection Association (NFPA), the number-one source of fire in horse barns is improperly used or faulty heating equipment, which represents 23 percent of barn fires. Heat lamps are the most common cause of these types of fires. Together, heating equipment, electrical distribution (faulty wiring) and lighting equipment cause 40 percent of barn fires.

“People who keep their horses in barns need to make sure the heating and electrical equipment are installed correctly, in good repair, installed within conduits when subject to damage, and connected to ground-fault interrupters,” Lindroth says. Heat

Exits, evacuation routes and safe areas should also be clearly marked.

Evaluate storage. Another important fire prevention strategy is to store hay, feed, manure and bedding material—all combustible items—in a different building. “If the materials catch on fire due to spontaneous combustion, or from an electrical or heat source being too close, with them stored properly away from the barn, the barn and animals are at reduced risk of loss,” Lindroth says.

Know your alarms. In barns, smoke detectors are generally not good for detecting fires. Barns have such a dusty environment that smoke detectors can be damaged and activate false alarms. Rate-of-rise heat detectors, while more expensive, are not affected by dust like smoke detectors are. Plus, fire detection systems are an advantage only if they notify someone 24 hours a day. Facilities managers should consider having

them correctly. It’s also a good idea to have garden hoses and nozzles handy. “All these items are critical to fight fires when they’re small, such as trash-can-size fires,” Lindroth says.

However, once a fire is larger than a trash can, it becomes much more difficult for untrained individuals to control it. “Fire essentially doubles in size every minute,” Lindroth says. “It grows logarithmically—what was first two square feet becomes four, then eight, then 16 and so on. Since a fire can get out of control so quickly, calling 911 to notify the fire department immediately is essential.”

Even if a small fire by barn personnel, it’s best call the fire department anyway—as early as possible—so officers can check to make sure the fire is truly out and won’t rekindle at a later time.

Evacuating horses

Just as firefighters recommend that people have two escape routes out of every room in a house, they also advise two escape routes from a barn stall, Lindroth says. For a center-hallway type of barn, that means an exterior door in each stall. “When a fire begins, it’s safer to open exterior stall doors,” Lindroth says. “To try to evacuate horses from a center hallway is a very dangerous proposition—not a good idea.”

Evacuation should begin as soon as 911 has been called. The first horses evacuated should be those farthest from the fire, Lindroth says—it’s better to focus on the horses at the perimeter than to risk getting too close to a major blaze. “The barn, horses and those items already affected might have to be sacrificed for other animals and personnel to remain safe,” Lindroth says. “The fire department, once it arrives, will determine the best course of action to take to save the most lives and property possible. We always contend that human life is more valuable than animal life. Though we acknowledge owners love their animals, it’s not worth the risk to anybody’s life.”

The decision of whether to stay and defend the facility and horses or evacuate early is one to be made well before a fire occurs. To stay and defend, you need adequate defensible space, training on how to keep yourself safe and some tools available to fight the fire. Without any one of these, the best option is to evacuate early. If you decide to evacuate, have a good plan. Trucks

“When a fire begins, it’s safer to open exterior stall doors. To try to evacuate horses from a center hallway is a very dangerous proposition—not a good idea.”

—Ron Lindroth, chief of the Central Valley First District in Belgrade, Montana

lamps should be of good quality and secured in a location where the horse can’t knock them over into bedding. Combustible material should be stored far from heat-producing lights or equipment. Needless to say, poorly maintained or makeshift heat sources should never be used.

About 8 percent of barn fires are “exposure” fires, according to the NFPA. A large portion of these result from burning ditches, fence rows or other material too close to the barn.

Post clear messaging. Barn managers need to clearly post and strictly enforce smoking bans in barns. Additionally, they should post highly visible notices in several locations instructing personnel how to call for emergency services by dialing 911. It’s a good idea to include the name and address of the facility right on the sign in case it’s a visitor with a cell phone who calls—or an agitated staff member who’s not thinking clearly.

the fire alarm transmit to an alarm monitoring company so the fire department will automatically be notified.

Install sprinklers or fire extinguishers. Lindroth strongly suggests that high-value horse facilities have a fire sprinkler system installed—they’re the best approach to protecting property and horses from a serious barn fire. Even in larger, well-built stud farm barns with stone or granite exteriors, oak or hardwood stalls and significant solid structure, a fire sprinkler system is a good investment. “Whether it’s the high-end value of the animals or a high-value facility, the gold standard is a fire sprinkler system,” Lindroth says.

If sprinklers are not an economically viable option, make sure several 20-lb ABC (multipurpose) fire extinguishers are available to fight small fires if they erupt. Extinguishers should be inspected annually to ensure they’re properly charged and usable, and barn personnel should be trained to use



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>>> Wildfires can happen anywhere natural vegetation is prevalent. Experts recommend clearing vegetation and installing at least a two-foot-wide strip of gravel around the barns.

and trailers that are serviceable, easily accessible, gassed up and ready to go are as important as having horses that will easily load and a safe shelter to head to.

Considerations for wildfires

Not all areas of the country are susceptible to wildfires; however, if a facility is located in a rural area or natural vegetation is prevalent, there's a good chance it's at risk. "It's important to clear vegetation a sufficient distance away from the barn," cautions Lindroth. "Keep the weeds and grasses mowed back, and if at all possible have at least a two-foot-wide strip of non-combustible material—gravel, dirt or a driveway—encircling the barn."

If a grass or brush fire starts nearby, a clear area can provide a safety area for horses and keep the barn from catching fire, Lindroth continues.

A good rule of thumb is horizontal clearance that's 10 times the height of the surrounding natural vegetation. "Having adequate defensible space from wildfire is a wise prevention measure," Lindroth says.

In the case of a wildfire, traffic heading out of the area could be significant, Lindroth says—meaning evacuation should begin well ahead of immediate danger. "A road or highway could be blocked by others trying to escape a raging wildfire or emergency equipment attempting to access the fire area," he says. "If you plan to evacuate, do so early and well ahead of the fire. Due to wind changes, variable terrain and the fuels involved, the possibility of a major wildfire moving quickly and trapping you is a very real danger. Statistically, your greatest chance of dying is evacuating at the last minute."

Summary: Know, plan, be conscious of the risk

Fires are extremely dangerous and represent a significant risk to horse barns, horses and human life. Putting a proper plan in place to mitigate the risk of fire, as well as having the proper equipment and knowledge of what to do in case of a fire, is crucial for everyone working in this environment. Veterinarians have a wonderful opportunity to be a partner in fire prevention efforts that will not only save property but the lives of hundreds of horses each year. [dvm360](#)

Suggested Reading

1. Lindroth R. "Emergency preparedness: A Fire Chief's perspective." AAEP Proceedings, December 2014, 60:451.
2. "Structure Fire in Barns," National Fire Protection Association (NFPA) 2012, www.nfpa.org/research/reports-and-statistics/fires-by-property-type/storage/barns.
3. "Wildfire Preparedness," NFPA 2014, www.firewise.org/wildfire-preparedness.aspx.

Wound reconstruction: Free skin grafts in horses

These grafts involve relocating the skin from a donor site to cover a wound and restore function and cosmesis.

By Maureen Kelleher, DVM, DACVS

In horses, skin grafts are most often used for limb wounds where primary closure is not possible or second intention healing is delayed or not occurring. Grafts may also be considered for large wounds of the trunk, as grafting will decrease healing time. This article concentrates on free skin grafts, with an emphasis on punch grafts. With free skin grafts, the donor skin is severed from its blood supply and relocated to a wound.

Free skin graft options

Free skin grafts are categorized by thickness and type. Full-thickness grafts include epidermis and the entire dermis. Split-thickness grafts include epidermis and a portion of dermis. Full- and split-thickness grafts can be either sheet grafts or island grafts. Sheet grafts are applied to the surface of a wound, and island grafts are embedded in the wound (Figure 1). Island graft techniques include punch, pinch, tunnel and modified meek grafts. The advantage of island grafts is that the failure or loss of one graft does not affect other grafts in the wound.

Initial wound preparation

Fresh wounds accept grafts better than mature granulation tissue. Granulation tissue should be trimmed level to the skin edge. With chronic wounds, mature tissue should be trimmed below the skin edge. Allow a few millimeters of new granulation tissue to grow, creating a better source of capillaries before grafting.

Surgical scrubs and alcohol are cytotoxic to cells and increase graft

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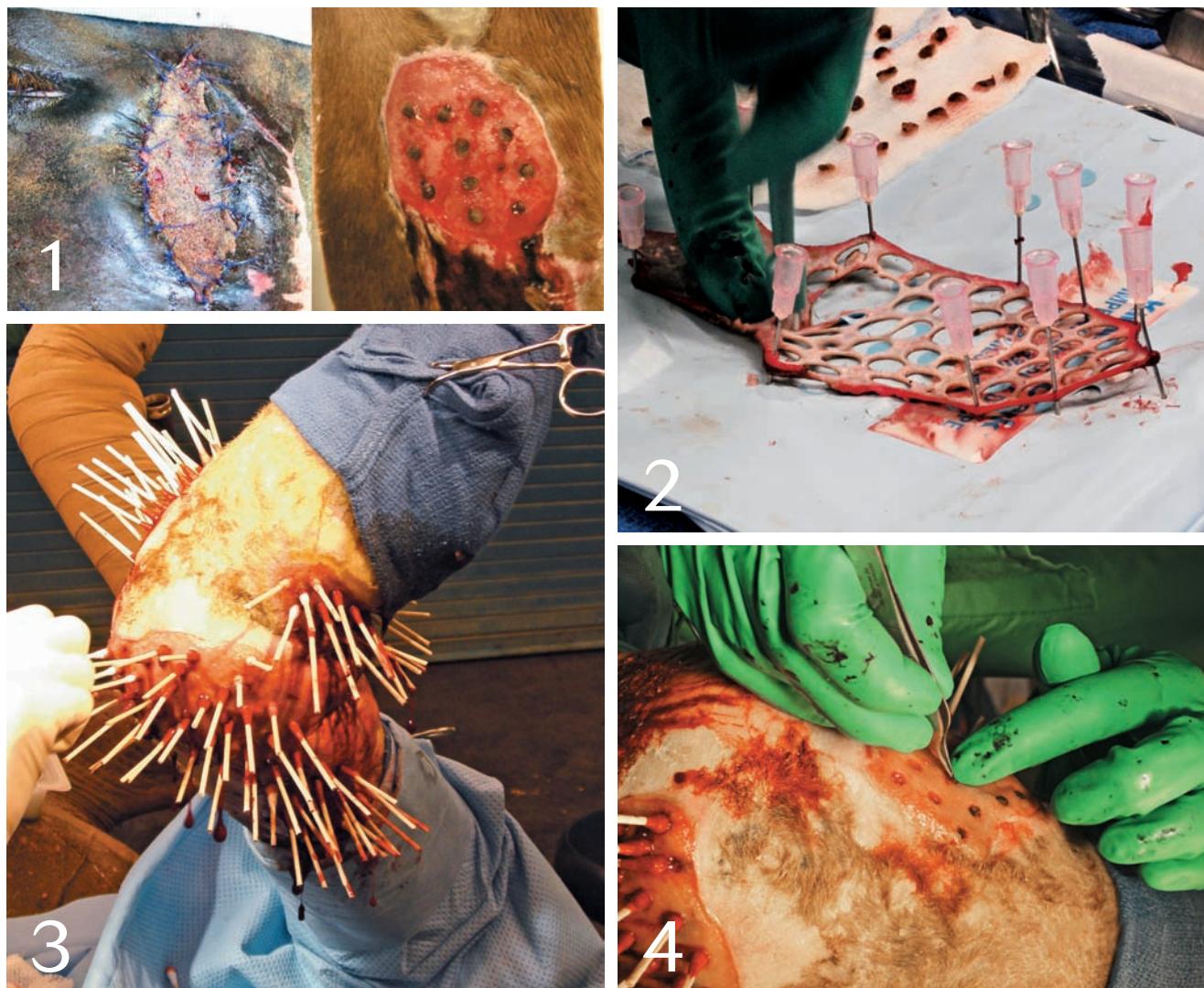
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>>> **Figure 1** On the left, a full-thickness sheet graft applied to the face, caudal to the lateral canthus of the eye. On the right, a punch island graft after implantation in a distal radial wound.

>>> **Figure 2** A sheet graft taken from the pectoral region, stripped of subcutaneous tissues and used to make punch island grafts.

>>> **Figure 3** Sterile cotton-tipped applicators inserted into graft recipient sites to control hemorrhage.

>>> **Figure 4** Punch grafts are inserted into premade biopsy sites with thumb forceps. Note that hemorrhage from the biopsy sites in the wound bed has stopped.

and wound susceptibility to infection. Instead, cleanse the wound before grafting with saline solution. The graft donor skin should be rinsed thoroughly before harvest with saline solution, after surgical preparation.

Donor site harvesting

Keep in mind that standing procedures are easier on the horse, but the veterinarian and the grafts are near the ground. If this horse is anesthetized, preparation of both the wound bed and grafts are easier and cleaner but more costly with the added risk of anesthetic recovery.

Graft donor locations include the ventral abdomen, the ventral

under the mane, the pectorals and the perineum are the easiest donor sites to access for local anesthesia and follow-up wound care. Subcutaneous tissue should be removed before graft implantation. Trimming of island grafts at or just after harvest can be tedious. Instead, a sheet graft can be taken and trimmed of subcutaneous tissue, and grafts can be cut from the sheet (Figure 2).

Punch grafts

Punch grafts involve the use of a punch biopsy instrument. Grafts are created with a punch tool a few millimeters larger than the punch tool used to create recipient sites in the wound. The

into the sites with thumb forceps or a hemostat (Figure 4).

After implantation, the wound should be dressed with a nonadherent dressing, such as Telfa (Covidien), foam or gel-impregnated dressing. Immobilization of the region with a Robert-Jones bandage or a cast will decrease risk of graft failure from motion. Dressing changes should be minimized in the first week to prevent graft loss with dressing removal.

Graft healing

The graft is vascularized by day 5. Lymphatic circulation is established by day 7. The graft is completely adhered to the wound by day 10. The epidermis of the graft may become hyperplastic and die, exposing pink dermis that is often mistaken as granulation tissue but tends to be paler. Pigmentation of the graft begins about a month after transplantation, with hair appearing in four to six weeks.

Graft failure

Infection and chronic inflammation are the two most important factors in graft failure; however, nonadherence

thorax, the pectoral region, under the mane and the perineal region. If the grafting is performed in the field or on a standing patient, then

wound recipient sites are created first. Sterile cotton-tipped applicators are inserted into the sites to stop hemorrhage (Figure 3). Grafts are inserted

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because of blood or serum interfering with fibrin attachment and excessive motion are factors as well. Chronically inflamed wounds—even if they are not considered infected—produce purulent exudate, interfering with graft attachment.

Methods to overcome these factors include trimming excessive granulation tissue, which also removes surface bacterial and inflammatory debris. Topical antimicrobial therapies and limited-use (one to two days of a single daily application) topical corticosteroids decrease infection and inflammation. Fluid interference should be minimized by halting hemorrhage before graft placement and clearing graft beds of clots and serum prior to graft placement.

Conclusion

Grafting is a time-consuming process. Successful grafting entails proper preparation of the wound and graft sites but also follow-up wound and graft care. Educate owners about the time and monetary investment. With time and patience, a more cosmetic and functional outcome can be obtained. **dvm360**

Dr. Maureen Kelleher is an American College of Veterinary Surgeons board-certified surgeon with San Dieguito Equine Group in San Marcos, California. She enjoys the variety of her practice, working with jumpers, dressage horses, racehorses and polo horses. She lives in nearby Oceanside, California, savoring the sunset with her husband and two dogs after work each day.



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FDA taps veterinarians to oversee antimicrobial use in food animals

Veterinary Feed Directive requires veterinarian-client-patient relationship.

Veterinarians were placed front and center in the U.S. Food and Drug Administration (FDA) strategy to promote the judicious use of antimicrobials in food-producing animals. The Veterinary Feed Directive (VFD) final rule brings the use of antimicrobial drugs under veterinary supervision to ensure they are used only when necessary for ensuring animal health. The VFD is the cornerstone of the FDA's efforts to evolve how antibiotics are used in food-animal production to protect animal health and welfare in addition to food safety and public health.

"Antibiotic resistance is a threat that the veterinary profession takes very seriously, and that's why the nation's veterinarians have been, and remain, engaged with the FDA and food producers to ensure that livestock are healthy and that our food supply stays safe by overseeing the use of antibiotics to ensure appropriate use," says American Veterinary Medical Association (AVMA) CEO Ron DeHaven, DVM, MBA, in an association release.

The AVMA has worked closely with the FDA in the development of the VFD as well as the guidance documents the agency produced to establish changes

in antimicrobial use. The VFD final rule outlines how medically important antibiotics given to food animals are to be used and distributed to producers. The VFD requires veterinary approval and an established veterinarian-client-patient-relationship (VCPR) prior to use. A provision mandates that state law will dictate VCPR requirements regarding antimicrobial use; otherwise the federally defined VCPR is applied.

DeHaven praised the adoption of this provision, saying it provides for both flexibility and consistency in how veterinarians and food producers comply with the FDA's guidance. "This is really a milestone in the antimicrobial resistance strategy," he says. "Veterinary oversight is critical to ensuring appropriate judicious use, and this provision provides clarity to those who will be responsible for it.

"When state VCPRs complement federal regulations, everyone wins," DeHaven continues. "It strengthens and supports the goals of the program to ensure healthy animals, a safe food supply and the reduction of antibiotic resistance. ... Veterinarians want to help ensure that antibiotics remain an important part of preventing and treating diseases in both humans and animals."

Pledge to help

At a White House forum June 2 following the announcement of the VFD final rule on antibiotic resistance, Ron DeHaven, DVM, MBA, said the AVMA would:

- > Initiate an educational outreach campaign on responsible therapeutic use of antimicrobials in animals, including greater veterinary oversight.
- > Advocate for enhanced funding for surveillance and response in diagnostic animal health laboratories and the National Antimicrobial Resistance Monitoring System, as well as studies to assess antimicrobial resistance in food animals.
- > Advocate for research that address infectious and zoonotic diseases, food safety, and environmental issues relating to human and animal well-being.
- > Promote the understanding of antimicrobial resistance and the further development of alternatives to or improved uses of antimicrobials in food animals.



Esaote Ultrasound platforms

Esaote has launched two new ultrasound platforms for general practice veterinarians, the MyLabGamma and MyLabSix, along with the MyLabAlpha and MyLabSeven platforms for specialists. The MyLabSix and MyLabSeven are cart-based, created for in-practice use and designed to meet increasing demand from veterinarians, clinics and group practices wishing to offer high-quality ultrasound services.

In addition, Esaote introduces OPUS, its "One Probe Ultrasound Solution." Based on the micro-convex transducer, OPUS has a frequency range between 9 and 4 MHz and a scan angle of up to 93 degrees.

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Vetstreet Website mobile optimization service

Vetstreet has launched a program designed to optimize veterinary practice websites for mobile search and viewing, enabling Vetstreet clients to elevate their visibility among a customer base that is increasingly reliant on mobile devices. The mobile website program provides Vetstreet Web builder clients with a mobile-friendly version of their practice site that mirrors the content on the practice's main site. Subscribers can continue to update their sites using the same administrative tools from Vetstreet's website builder program.

For fastest response visit vetstreetpro.com or call (888) 799-8387



SunTech Medical Blood pressure monitor

SunTech Medical has developed the SunTech Vet20, an automated blood pressure monitor that allows veterinarians to take fast, simple and accurate blood pressure measurements on awake or sedated companion animals. The monitor uses an algorithm specifically developed for animals to deliver reliable, motion-tolerant results without audible alarms that frighten the animals. Small enough to carry between exam rooms, the battery-operated SunTech Vet20's intuitive touch screen interface is easy to use with little to no staff training.

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The Green Pet Shop Canine cooling device

Requiring no water or electricity to operate, the Cool Pet Pad cooling device from The Green Pet Shop contains a nontoxic, warmth-absorbing gel that's pressure-activated by the pet's own weight. When a pet lies down, a gentle cooling effect is initiated that lasts up to four hours. When the pad is removed and allowed to rest, the cooling gel is automatically recharged. In warm weather, the Cool Pet Pad is beneficial for overheated, dehydrated dogs. The pad is available in small, medium, large and extra-large sizes and is designed to fit standard-size beds and crates.

For fastest response visit theGreenPetShop.com



VitusVet Mobile medical record storage

VitusVet has launched the VitusVet app for iPhone and Android as a tool for pet owners, giving them access to their pets' medical records, including notes, lab work, patient alerts and digital images. The app places vital information in the palm of a client's hand in an emergency when their regular veterinarian is closed. VitusVet also sends notifications for reminders.

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Innovacyn Wound care product

Innovacyn has developed a new formulation of Vetericyn Plus, indicated for wounds, cuts, lacerations, abrasions, ear ailments and eye irritations. It is a nontoxic and antibiotic-free solution that is effective in dermal cleaning and debriding. It includes a higher concentration of hypochlorous, making it up to three times as concentrated as original Vetericyn without requiring a withdrawal period.

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Enrofloxacin Injectable Solution	Baytril® Injectable Solution (Bayer)
Enrofloxacin Flavored Tablets	Baytril® Taste Tabs® (Bayer)
Cefpodoxime Proxetil Tablets	Simplicef® Tablets (Zoetis)
Meloxicam Solution for Injection	Metacam® Solution for Injection (Boehringer Ingelheim)
Tiletamine-Zolazepam (tiletamine HCl and zolazepam HCl)	Telazol® (Zoetis)
Ketamine Hydrochloride Injection, USP	Vetalar® (Boehringer Ingelheim)

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¹Based on list price 2015.





Chewable Tablets

**For Oral Use in Dogs Only
Do Not Use in Cats**

Caution:

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

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

Indications and Usage:

Always provide "Information for Dog Owners" Sheet with prescription. Carefully consider the potential benefits and risk of DERAMAXX and other treatment options before deciding to use DERAMAXX. Use the lowest effective dose for the shortest duration consistent with individual response.

Osteoarthritis Pain and Inflammation:

DERAMAXX Chewable Tablets are indicated for the control of pain and inflammation associated with osteoarthritis in dogs.

Dosage and Administration:

Osteoarthritis Pain and Inflammation: 0.45 – 0.91 mg/lb/day (1 to 2 mg/kg/day) as a single daily dose, as needed.

Dogs needing a dose of less than 12.5 mg can only be accurately dosed through use of the 12 mg tablet, which can be broken in half to provide 6 mg. Do not attempt to accurately dose smaller dogs through the use of breaking larger tablets. **Inaccurate dosing may result in adverse drug events.**

Postoperative Orthopedic Pain and Inflammation:

DERAMAXX Chewable Tablets are indicated for the control of postoperative pain and inflammation associated with orthopedic surgery in dogs.

Dosage and Administration:

Postoperative Orthopedic Pain and Inflammation: 1.4 – 1.8 mg/lb/day (3 to 4 mg/kg/day) as a single daily dose, as needed, not to exceed 7 days of administration.

Dogs needing a dose of less than 12.5 mg can only be accurately dosed through use of the 12 mg tablet, which can be broken in half to provide 6 mg. Do not attempt to accurately dose smaller dogs through the use of breaking larger tablets. **Inaccurate dosing may result in adverse drug events.**

Postoperative Dental Pain and Inflammation:

DERAMAXX Chewable Tablets are indicated for the control of postoperative pain and inflammation associated with dental surgery in dogs.

Dosage and Administration:

Postoperative Dental Pain and Inflammation: 0.45 – 0.91 mg/lb/day (1 to 2 mg/kg/day) as a single daily dose, for 3 days.

The first dose should be given approximately 1 hour prior to dental surgery and subsequent doses should be given daily for up to two additional treatments.

Dogs needing a dose of less than 12.5 mg can only be accurately dosed through use of the 12 mg tablet, which can be broken in half to provide 6 mg. Do not attempt to accurately dose smaller dogs through the use of breaking larger tablets. **Inaccurate dosing may result in adverse drug events.**

Since DERAMAXX tablet bioavailability is greatest when taken with food, postprandial administration is preferable. However, DERAMAXX tablets have been shown to be effective under both fed and fasted conditions; therefore, they may be administered in the fasted state if necessary. For postoperative orthopedic and dental pain, administer DERAMAXX tablets prior to the procedure. Tablets are scored and dosage should be calculated in half-tablet increments. In clinical practice it is recommended to adjust the individual patient dose while continuing to monitor the dog's status until a minimum effective dose has been reached.

Contraindications:

Dogs with known hypersensitivity to deracoxib should not receive DERAMAXX.

Warnings:

Not for use in humans. Keep this and all medications out of reach of children. Consult a physician in case of accidental ingestion by humans. **For use in dogs only. Do not use in cats.**

Dogs needing a dose of less than 12.5 mg can only be accurately dosed through use of the 12 mg tablet, which can be broken in half to provide 6 mg. Do not attempt to accurately dose smaller dogs through the use of breaking larger tablets. **Inaccurate dosing may result in adverse drug events.**

All dogs should undergo a thorough history and physical examination before the initiation of NSAID therapy. Appropriate laboratory tests to establish hematological and serum biochemical baseline data prior to, and periodically during, administration of any NSAID is recommended. **Owners should be advised to**

observe for signs of potential drug toxicity and be given an "Information for Dog Owners" Sheet.

Precautions:

Dogs needing a dose of less than 12.5 mg can only be accurately dosed through use of the 12 mg tablet, which can be broken in half to provide 6 mg. Do not attempt to accurately dose smaller dogs through the use of breaking larger tablets. **Inaccurate dosing may result in adverse drug events.**

Since NSAIDs possess the potential to produce gastrointestinal ulceration and/or perforation, concomitant use of DERAMAXX tablets with other antiinflammatory drugs, such as NSAIDs or corticosteroids, should be avoided. As a class, NSAIDs may be associated with gastrointestinal, renal and hepatic toxicity. The following collective group of clinical signs has been reported with some serious gastrointestinal events, in decreasing order of reported frequency: anorexia, tachycardia, tachypnea, pyrexia, ascites, pale mucous membranes, dyspnea. In some cases, circulatory shock, collapse and cardiac arrest have also been reported. Sensitivity to drug-associated adverse events varies with the individual patient. Dogs that have experienced adverse reactions from one NSAID may experience adverse reactions from another NSAID. Patients at greatest risk for adverse events are those that are dehydrated, on concomitant diuretic therapy, or those with existing renal, cardiovascular, and/or hepatic dysfunction. Plasma levels of deracoxib may increase in a greater than dose-proportional fashion above 8 mg/kg/day. DERAMAXX tablets have been safely used during field studies in conjunction with other common medications, including heartworm preventatives, anthelmintics, anesthetics, pre-anesthetic medications, and antibiotics. If additional pain medication is needed after a daily dose of DERAMAXX tablets, a non-NSAID/non-corticosteroid class of analgesic may be necessary. It is not known whether dogs with a history of hypersensitivity to sulfonamide drugs will exhibit hypersensitivity to DERAMAXX tablets. The safe use of DERAMAXX tablets in dogs younger than 4 months of age, dogs used for breeding, or in pregnant or lactating dogs has not been evaluated.

NSAIDs may inhibit the prostaglandins which maintain normal homeostatic function. Such anti-prostaglandin effects may result in clinically significant disease in patients with underlying or pre-existing disease that has not been previously diagnosed. Appropriate monitoring procedures should be employed during all surgical procedures. The use of parenteral fluids during surgery should be considered to decrease potential renal complications when using NSAIDs perioperatively. Concurrent administration of potentially nephrotoxic drugs should be carefully approached.

The use of concomitantly protein-bound drugs with DERAMAXX tablets has not been studied in dogs. Commonly used protein-bound drugs include cardiac, anticonvulsant and behavioral medications. The influence of concomitant drugs that may inhibit metabolism of DERAMAXX tablets has not been evaluated. Drug compatibility should be monitored in patients requiring adjunctive therapy. Consider appropriate washout times when switching from one NSAID to another or when switching from corticosteroid use to NSAID use.

Adverse Reactions:

See product insert for complete safety information.

Post Approval Experience (Rev. 2010):

The following adverse events are based on post-approval adverse drug experience reporting. Not all adverse reactions 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 this data. The following adverse events are grouped by body system and are presented in decreasing order of reporting frequency.

Gastrointestinal: vomiting, diarrhea, hypoalbuminemia, melena, hematochezia, elevated amylase/lipase, hematemesis, abdominal pain, peritonitis, decreased or increased total protein and globulin, gastrointestinal perforation, gastrointestinal ulceration, hypersalivation.

General: anorexia, depression/lethargy, weight loss, weakness, fever, dehydration

Hepatic: elevated liver enzymes, hyperbilirubinemia, icterus, ascites, decreased BUN

Hematologic: anemia, leukocytosis, leukocytopenia, thrombocytopenia

Neurologic: seizures, ataxia, recumbency, trembling, confusion, collapse, hind limb paresis, nystagmus, proprioceptive disorder, vestibular signs

Behavioral: nervousness, hyperactivity, aggression, apprehension

Urologic: elevated BUN/creatinine, polydipsia, polyuria, hyperphosphatemia, hematuria, low urine specific gravity, urinary incontinence, renal failure, urinary tract infection

Dermatologic: pruritus, erythema, urticaria, moist dermatitis, facial/muzzle edema, dermal ulceration/necrosis

Respiratory: panting, dyspnea, epistaxis, coughing

Cardiovascular: tachycardia, heart murmur, bradycardia, arrest

Sensory: Vestibular signs, glazed eyes, uveitis.

Ophthalmic: blindness, mydriasis, conjunctivitis, keratoconjunctivitis sicca, uveitis In some cases, death has been reported as an outcome of the adverse events listed above.

To report suspected adverse drug events, contact Novartis Animal Health at 1-800-637-0281. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or <http://www.fda.gov/AnimalVeterinary/SafetyHealth>.

For technical assistance, call Novartis Animal Health at 1-800-637-0281.

Chewable Tablets

Information for Dog Owners:

DERAMAXX, like other drugs of its class, is not free from adverse reactions. Owners should be advised of the potential for adverse reactions and be informed of the clinical signs associated with drug intolerance. Adverse reactions may include vomiting, diarrhea, decreased appetite, dark or tarry stools, increased water consumption, increased urination, anemia, yellowing of gums, skin or white of the eye due to jaundice, lethargy, incoordination, seizure, or behavioral changes. **Serious adverse reactions associated with this drug class can occur without warning and in some cases result in death (see Warnings, Post-Approval Experience and Adverse Reactions). Owners should be advised to discontinue DERAMAXX therapy and contact their veterinarian immediately if signs of intolerance are observed.**

The vast majority of patients with drug related adverse reactions have recovered when the signs are recognized, the drug is withdrawn, and veterinary care, if appropriate, is initiated. Owners should be advised of the importance of periodic follow up for all dogs during administration of any NSAID.

Effectiveness:

DERAMAXX tablets were evaluated in masked, placebo-controlled multi-site field studies involving client-owned animals to determine effectiveness.

Osteoarthritis Pain and Inflammation Field Study:

Two hundred and nine (209) client-owned dogs with clinical and radiographic signs of osteoarthritis of at least one appendicular joint were enrolled in this study. A total of 194 dogs were included in the safety evaluation and a total of 181 dogs were included in the effectiveness evaluation. The effectiveness of DERAMAXX tablets in the control of pain and inflammation associated with osteoarthritis was demonstrated in a placebo-controlled, masked study evaluating the anti-inflammatory and analgesic effects of DERAMAXX tablets. Tablets were administered by the owner at approximately 1-2 mg/kg/day for forty-three (43) consecutive days.

In general, statistically significant ($p \leq 0.05$) differences in favor of DERAMAXX were seen for force plate parameters (vertical impulse area, peak vertical force) and owner evaluations (quality of life, lameness and overall level of activity).

The results of this field study demonstrate that DERAMAXX tablets, when administered at 1-2 mg/kg/day for 43 days, are effective for the control of pain and inflammation associated with osteoarthritis.

Postoperative Orthopedic Pain and Inflammation Field Study:

In this study, 207 dogs admitted to veterinary hospitals for repair of a cranial cruciate injury were randomly administered DERAMAXX tablets or a placebo. Drug administration started the evening before surgery and continued once daily for 6 days postoperatively. Effectiveness was evaluated in 119 dogs and safety was evaluated in 207 dogs. Statistically significant differences in favor of DERAMAXX tablets were found for lameness at walk and trot, and pain on palpation values at all post-surgical time points. The results of this field study demonstrate that DERAMAXX tablets, when administered daily for 7 days are effective for the control of postoperative pain and inflammation associated with orthopedic surgery.

Postoperative Dental Pain and Inflammation Field Study:

In this study, 62 dogs admitted to veterinary hospitals for dental extractions were randomly administered DERAMAXX tablets or a placebo. Drug administration started approximately 1 hour before surgery and continued once daily for 2 days postoperatively. Effectiveness was evaluated in 57 dogs and safety was evaluated in 62 dogs. There was a statistically significant reduction ($p=0.0338$) in the proportion of dogs that required rescue therapy to control post-surgical pain in the DERAMAXX treated group compared to the placebo control group. Pain assessors used a modification of the Glasgow Composite Pain Scale (mGCPS) to assess pain.⁷ A dog was rescued if it scored ≥ 4 on the combined mGCPS variables of Posture/Activity, Demeanor, Response to Touch, and Vocalization, or if the investigator determined at any time that pain intervention was needed. The results of this field study demonstrate that DERAMAXX, when administered once daily for 3 days, is effective for the control of postoperative pain and inflammation associated with dental surgery.

Manufactured for: Novartis Animal Health US, Inc.
Greensboro, NC 27408 USA

NADA # 141-203, Approved by FDA

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onsior® (robenacoxib) 6 mg Tablets for Cats

For Oral Use In Cats Only

Caution:

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

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

Indication:

ONSIOR tablets are indicated for the control of postoperative pain and inflammation associated with orthopedic surgery, ovariohysterectomy and castration, in cats \geq 5.5 lbs (2.5 kg) and \geq 4 months of age; for up to a maximum of 3 days.

Contraindications:

ONSIOR tablets should not be used in cats that have a hypersensitivity to robenacoxib or known intolerance to NSAIDs.

Warnings:

Not for use in humans. Keep this and all medications out of reach of children. Consult a physician in case of accidental ingestion by humans.

For use in cats only.

All cats should undergo a thorough history and physical examination before the initiation of NSAID therapy. Appropriate laboratory tests should be conducted to establish hematological and serum biochemical baseline data prior to administration of an NSAID.

Owners should be advised to observe for signs of potential drug toxicity and be given an “Information for Cat Owners” Sheet about ONSIOR tablets.

Do not administer ONSIOR tablets in conjunction with any other oral or injectable NSAID or corticosteroid.

Precautions:

Appetite should be monitored in cats receiving ONSIOR tablets.

Stop administration of ONSIOR tablets if appetite decreases or if the cat becomes lethargic.

The use of ONSIOR tablets has not been evaluated in cats younger than 4 months of age and weighing less than 5.5 lbs, cats used for breeding, or in pregnant or lactating cats. Cats receiving ONSIOR should weigh at least 5.5 lbs.

The use of ONSIOR tablets in cats with cardiac disease has not been studied. ONSIOR tablets has been shown to prolong the QT interval.

As a class, cyclo-oxygenase inhibitory NSAIDs may be associated with gastrointestinal, renal, and hepatic toxicity. Sensitivity to drug-associated adverse events varies with the individual patient. Cats that have experienced adverse reactions from one NSAID may experience adverse reactions from another NSAID. Patients at greatest risk for adverse events are those that are dehydrated, on concomitant diuretic therapy, or those with existing renal, cardiovascular, and/or hepatic dysfunction. Anesthetic drugs may affect renal perfusion; approach concomitant use of anesthetics and NSAIDs cautiously. Appropriate monitoring procedures (including ECG, blood pressure, and temperature regulation) should be employed during all surgical procedures. The use of parenteral fluids during surgery is recommended to decrease potential renal complications when using NSAIDs perioperatively.

If additional pain medication is needed after a daily dose of ONSIOR tablets, a non-NSAID/non-corticosteroid class of analgesic may be necessary. Concurrent administration of potentially nephrotoxic drugs should be carefully approached and monitored. NSAIDs may inhibit prostaglandins which maintain normal homeostatic function. Such anti-prostaglandin effects may result in clinically significant disease in patients with underlying or pre-existing disease that has not been previously diagnosed. NSAIDs possess the potential to produce gastrointestinal ulcerations and/or gastrointestinal perforations. Do not use ONSIOR tablets concomitantly with other anti-inflammatory drugs, such as NSAIDs or corticosteroids. Consider appropriate washout times when switching from one NSAID to another or when switching from corticosteroid use to NSAID use.

The use of concomitantly protein-bound drugs with ONSIOR tablets has not been studied in cats. Commonly used protein-bound drugs include cardiac, anticonvulsant and behavioral medications. The influence of concomitant drugs that may inhibit metabolism of ONSIOR tablets has not been evaluated. Drug compatibility should be monitored in patients requiring adjunctive therapy. Concurrent medications used during the field study with ONSIOR tablets included antiparasitics, anesthetics, pre-anesthetic medications, and antibiotics.

The effect of cyclo-oxygenase inhibition and the potential for thromboembolic occurrence or a hypercoagulable state has not been evaluated. It is unknown whether cats with a history of hypersensitivity to β lactam drugs will exhibit hypersensitivity to ONSIOR tablets. Occurrences of seizures, ataxia, and nystagmus have been associated with the use of ONSIOR. Robenacoxib is poorly soluble in water and in acid solutions readily degrades to form γ -lactam. In cats, lactam is a metabolite of robenacoxib. Additionally, lactam is a degradation product that increases over the shelf-life of the tablets. Neurologic signs have been associated with the use of β lactam drugs;

it is unknown if the lactam in robenacoxib may cause similar neurologic signs. Robenacoxib may prolong the QT interval; the associated risk of developing ventricular arrhythmia is unknown. The use of robenacoxib with other drugs shown to prolong the QT interval is not recommended. Commonly used drugs that prolong the QT interval include antihistamines and prokinetic drugs.

Adverse Reactions:

In a controlled field study, a total of 249 male and female cats representing 6 breeds, 6 months to 13 years old, weighing 5.5 – 15 lbs were included in the field safety analysis. The following table shows the number of cats exhibiting each observation.

Adverse Reactions in the Postoperative Pain Field Study ¹		
Clinical Sign	ONSIOR 6 mg Tablets for Cats (robenacoxib) n = 167	Placebo (vehicle control) n = 82
Inappetance, weight loss	4	2
Incision site bleeding	7	1
Incision site infection	6	2
Decreased activity, lethargy	4	1
Cystitis, hematuria	3	0
Hair loss, excoriation, bruising	2	0
Vomiting	4	1
Hematachezia, diarrhea	3	1
Respiratory, cardiac arrest	1	0
Incoordination, weakness	1	1
Death	0	1

¹Cats may have experienced more than one of these signs during the study.

The most commonly reported adverse reactions were surgical site bleeding, infected surgery sites, lethargy, vomiting and inappetance. Changes in the clinical pathology values were not considered clinically significant.

To report suspected adverse drug events and for technical assistance, contact Novartis Animal Health at 1-800-332-2761.

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

Information for Cat Owners:

ONSIOR tablets, like other drugs of its class, is not free from adverse reactions. Owners should be advised of the potential for adverse reactions and be informed of the clinical signs associated with drug intolerance. Adverse reactions may include vomiting, diarrhea, decreased appetite, dark or tarry stools, increased water consumption, increased urination, anemia, yellowing of gums, skin or white of the eye due to jaundice, lethargy, incoordination, seizure, or behavioral changes. **Serious adverse reactions associated with this drug class can occur without warning and in rare situations result in death (see Warnings and Adverse Reactions). Owners should be advised to discontinue ONSIOR tablets and contact their veterinarian immediately if signs of intolerance are observed.** The vast majority of patients with drug related adverse reactions have recovered when the signs are recognized, the drug is withdrawn, and veterinary care, if appropriate, is initiated.

Effectiveness:

Effectiveness was demonstrated using ONSIOR tablets in a masked, placebo-controlled, multi-site field study involving client-owned cats. In this study, 249 cats presenting for ovariohysterectomy or castration in conjunction with an onychectomy (forelimbs only) were randomly administered ONSIOR tablets, or a placebo. Drug was administered approximately 30 minutes prior to surgery along with pre-anesthetic medications and continued once daily for two additional treatments. Effectiveness was evaluated in 244 cats and field safety was evaluated in 249 cats. A statistically significant difference in the proportion of treatment successes in the ONSIOR tablets treatment group (137/164 or 83.5%) compared to the placebo, vehicle control group (43/80 or 53.8%) was observed. Twenty-seven out of 164 robenacoxib cases (16.5%) and 37 out of 80 placebo cases (46.2%) were treatment failures. Statistically significant differences for pain elicited on palpation at the spay or castration incision site, behavior following social interaction and posture score at various post-surgical time points were also observed. The results of the field study demonstrate that ONSIOR tablets, when administered for a maximum of three days, are effective and well-tolerated for the control of postoperative pain associated with onychectomy, ovariohysterectomy and castration in cats.

Manufactured for: Novartis Animal Health US, Inc., Greensboro, NC 27408 USA

NADA # 141-320, Approved by FDA

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Recuvyra[®] (fentanyl) *transdermal solution*

For Topical Application in Dogs Only
Opioid Analgesic
NOT FOR INJECTION
50 mg/mL (500 mg/10 mL)

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

Before using this product, it is important to read the entire product insert. The following is a brief summary of the insert:

WARNING:

Abuse Potential:

RECUVYRA contains fentanyl, a high concentration μ -opioid receptor agonist (50 mg/mL) and is a Class II controlled substance with high potential for abuse similar to hydromorphone, methadone, morphine, oxycodone, and oxymorphone. Class II opioid substances have the highest potential for human abuse and criminal diversion. The high concentration of RECUVYRA may be a particular target for human abuse. Fentanyl has additive CNS depressant effects when used with alcohol, other opioids, or illicit drugs that cause central nervous system depression. Fatal fentanyl overdoses in humans are due to respiratory depression.

The risk of abuse by humans should be considered when storing, administering, and disposing of RECUVYRA. Persons at increased risk for opioid abuse include those with a personal or family history of substance abuse (including drug or alcohol abuse or addiction) or mental illness (suicidal depression).

Risk Minimization and Action Plan:

This product is distributed under a Risk Minimization Action Plan (RiskMAP) and its use is limited to certified veterinarians.

Human Safety:

SECONDARY EXPOSURE TO FENTANYL IN CHILDREN AND ADULTS: Strict adherence to the requirements of the RiskMAP and the INSTRUCTIONS FOR USE provided in this product insert is imperative in order to reduce the potential of secondary exposure to fentanyl from RECUVYRA treated skin.

- The dog should be isolated from children for 72 hours (3 days) from the time of RECUVYRA application to the dog.
- If a child comes in direct contact with the dog within 72 hours (3 days) from the time of RECUVYRA application to the dog, the exposed part of the child's body should not contact the child's mouth or eyes, and the area should be washed with soap and water.
- If a child's tongue comes in contact with the dog, or another part of the child's body comes in contact with the dog and is then placed in the mouth, it is possible for fentanyl to enter the bloodstream; this is a medical emergency and the child should be seen immediately by a physician.
- Adults should avoid contact with the application site for 72 hours (3 days) following the application of RECUVYRA to the dog. Within this period, any part of the body that directly contacts the application site should be washed with soap and not inserted into the mouth.
- The antidote for human exposure to RECUVYRA transdermal solution is an opioid reversal agent such as naloxone or naloxone.

Animal Safety:

Individual dogs especially sensitive to the effects of fentanyl may develop gastrointestinal stasis with an increased risk of bacterial overgrowth, accompanied by pronounced sedation, and decreased intake of food and water. Dehydration and elevations in hematocrit, albumin, and fibrinogen may occur. Feces, if present, could be soft and contain blood. In the event of severe gastrointestinal stasis, an opioid reversal agent should be administered to the dog (see PRECAUTIONS) with intravenous fluids and other supportive measures.

RECUVYRA is contraindicated for dogs with diseased or injured dorsal scapular epidermis, dogs expected to have mild or absent perioperative pain, dogs with paralytic ileus, and dogs with known hypersensitivity to fentanyl.

See Contraindications, Warnings: Human and Animal Safety, and Precautions for detailed information.

RISK MINIMIZATION & ACTION PLAN

The RECUVYRA Risk Minimization Action Plan (RiskMAP) provides educational materials to the veterinarian, veterinary staff, and the dog owner explaining the risks and proper use of RECUVYRA. Once it is documented that the dog owner has read and understood the materials by signing the client information sheet, the drug can be applied to the patient. Veterinarians are expected to report all serious adverse events that occur in animals or humans to the manufacturer (see WARNINGS).

RECUVYRA is only for use in dogs, and available only through a restricted distribution program limited to certified distributors that are trained to distribute RECUVYRA under the conditions of the RiskMAP. RECUVYRA can only be received and administered by veterinarians through the restricted distribution program because of the potential for human abuse and safety risks associated with its use in dogs.

CONTRAINDICATIONS

Do not apply RECUVYRA to skin that is diseased or injured.

Do not administer RECUVYRA to anatomic areas other than the dorsal scapular area because absorption characteristics may be different.

Do not administer RECUVYRA to dogs where postoperative pain is expected to be mild or absent.

Do not administer RECUVYRA to dogs that have or are suspected of having paralytic ileus.

Do not administer RECUVYRA to dogs that are hypovolemic or debilitated.

Do not administer RECUVYRA to dogs with a known hypersensitivity to fentanyl.

Do not administer a second dose of RECUVYRA. Accumulation of fentanyl following repeated administration could result in severe adverse reactions, including death (see ANIMAL SAFETY).

Do not administer RECUVYRA to any other species; it is intended for use in dogs only. Safe and effective concentrations of fentanyl are dependent on appropriate absorption from skin, and the absorption characteristics of skin vary greatly between species. The safety of RECUVYRA in cats, horses, or other species has not been evaluated.

WARNINGS

Human Safety:

Not for use in humans. Keep out of reach of children. Avoid unprotected contact with application site for 72 hours.

SECONDARY EXPOSURE TO FENTANYL: Strict adherence to the requirements of the RiskMAP and the INSTRUCTIONS FOR USE provided in this product insert is imperative in order to reduce the potential of secondary exposure to fentanyl from RECUVYRA treated skin.

Adult Human User Safety while handling and applying RECUVYRA in the Hospital:

Two trained staff for administration:

Do not dispense RECUVYRA for administration at home by the pet owner. RECUVYRA should only be handled and administered to dogs by hospital staff specially trained in its use. To prevent human adverse reactions or abuse, at least 2 trained administrators should be present during administration of RECUVYRA.

Protective covering:

To prevent direct contact of RECUVYRA with human skin or mucous membranes when handling and/or applying the solution, wear impermeable latex or nitrile gloves, protective glasses and a laboratory coat. To avoid inadvertent contamination of other humans or animals, remove and appropriately dispose of protective garments after RECUVYRA minimum drying time of 5 minutes.

Mucous membrane or eye contact during administration:

Direct contact of RECUVYRA with the eyes, oral cavity or mucous membranes of dogs or humans could result in systemic, clinically relevant fentanyl concentrations. If accidental eye, oral or other mucous membrane contact is made during administration, flush the area with water and seek immediate medical attention.

Skin contact during administration:

If human skin is accidentally exposed to RECUVYRA, wash the exposed area with soap and water and seek medical attention immediately. Accidental exposure could cause adverse reactions.

Drying time:

Following application to the dog, allow a minimum drying time of 5 minutes. As a precaution, hospital staff responsible for handling the dog prior to, during, and after surgery, should wear gloves. All others (including owners) should avoid contact with the application site for 72 hours following application. **Within this period, any part of the body that directly contacts the application site should be washed with soap and water and not placed in the mouth.**

User Safety following discharge of the dog to the owner:

Adult exposure:

Adults should avoid contact with the application site for 72 hours (3 days) following the application of RECUVYRA to the dog. Within this period, any part of the body that directly contacts the application site should be washed with soap and not placed in the mouth.

Child exposure:

The dog should be isolated from children for 72 hours (3 days) from the time of RECUVYRA application to the dog.

If a child comes in direct contact with the dog within 72 hours (3 days) from the time of RECUVYRA application to the dog, the exposed part of the child's body should not contact the child's mouth or eyes, and the area should be washed with soap and water.

If a child's tongue comes in contact with the dog, or another part of the child's body comes in contact with the dog and is then placed in the mouth, it is possible for fentanyl to enter the bloodstream; this is a medical emergency and the child should be seen immediately by a physician.

Drug abuse, addiction and diversion of opioids:

RECUVYRA contains fentanyl, a μ -opioid agonist and a Class II controlled substance with high potential for abuse similar to hydromorphone, methadone, morphine, oxycodone, and oxymorphone. Fentanyl can be abused and may be subject to misuse, and criminal diversion. RECUVYRA should be handled appropriately to minimize the risk of diversion, including restriction of access, the use of accounting procedures, and proper disposal methods, as appropriate to the clinical setting and as required by law.

Physician information:

Fentanyl is a μ (mu) opioid receptor agonist (50 mg/mL). The antidote for human exposure to RECUVYRA is an opioid reversal agent such as naloxone or naloxone. In the case of an emergency, provide the physician with the package insert and Client Information Sheet.

Animal Safety:

Individual dogs sensitive to the effects of fentanyl may develop pronounced sedation, decreased food and water intake and gastrointestinal (GI) stasis, which may increase the risk of bacterial overgrowth. Dehydration and elevations in hematocrit, albumin and fibrinogen may occur. Feces, if present, could be soft and contain blood. If severe GI stasis occurs, the dog should be reversed with naloxone (see PRECAUTIONS) and administered supportive intravenous fluids.

RECUVYRA has not been evaluated in dogs with respiratory disorders, cardiovascular disease, renal disease, or hepatic disease.

Opioid effects, including adverse reactions, may last for 7 days beyond administration in some dogs. To prevent potential overdose and severe adverse reactions, do not administer other opioids within 7 days of RECUVYRA administration.

During general anesthesia following administration of RECUVYRA, dogs should be continuously monitored and facilities should be available for the maintenance of a patent airway, artificial ventilation, IV fluids, and oxygen supplementation.

Hypothermia may be severe and prolonged (greater than 24 hours) necessitating the use of an external heat source during surgery, throughout recovery, and after recovery from anesthesia.

PRECAUTIONS

The concomitant use of RECUVYRA with other CNS depressants (sedatives, hypnotics, general anesthetics, phenothiazines, and skeletal muscle relaxants) may cause respiratory depression, hypothermia, bradycardia, hypotension, and profound sedation. When such concomitant therapy is used, the doses of these agents should be reduced.

ADVERSE REACTIONS

The following are the most common adverse reactions reported in RECUVYRA-treated dogs during anesthesia:

Adverse Reaction*	RECUVYRA (N=249)
Tachypnea (>20 breaths/min)	158 (63%)
Bradypnea (<10 breaths/min)	116 (47%)
Hypertension	37 (15%)
Hypotension	32 (13%)
Tachycardia (>180 beats/min)	26 (10%)
Hypothermia (<95°F)	23 (9.2%)
Bradycardia (<50 beats/min)	9 (3.6%)
Pyrexia (>102.5°F)	3 (1.2%)

*Physiological adverse reactions occurred during general anesthesia and were included if there was at least one excursion outside the normal anesthetic range at any 5 minute interval during the entire duration of anesthesia.

Most common adverse reactions from extubation through 96 hours after surgery:

Adverse Reactions:	Day 0*	Day 1	Day 2	Day 3	Day 4
RECUVYRA (N=249)	N (%)	N (%)	N (%)	N (%)	N (%)
Sedation (moderate or severe)	123 (49%)	8 (3.2%)	1 (0.4%)	0 (0%)	0 (0%)
Diarrhea	1 (0.4%)	5 (2%)	2 (0.8%)	1 (0.4%)	0 (0%)
Emesis	0 (0%)	4 (1.6%)	2 (0.8%)	2 (0.8%)	0 (0%)
Hypothermia	4 (1.6%)	10 (4%)	0 (0%)	0 (0%)	0 (0%)

* Day 0 is the period following extubation on the day of the surgical procedure.

To report suspected adverse drug events, for technical assistance, or to obtain a Material Safety Data Sheet (MSDS), contact Elanco Animal Health at 1-888-545-5973.

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

EFFECTIVENESS

In two randomized multi-centered, double-masked, active-controlled field studies across 25 investigative sites, dogs were randomized to RECUVYRA group (N = 249) or opioid active control group (oxymorphone hydrochloride; N = 253 dogs). Dogs in the RECUVYRA group received a single, topical application at a dose of 1.2 mg/lb (2.7 mg/kg) onto the dorsal scapular skin 2 – 4 hours prior to orthopedic or soft tissue surgery. Acepromazine was the most commonly used preanesthetic. Surgeries included cruciate ligament repair, ovariohysterectomy, lateral ear resection, laparotomy, liver biopsy, kidney removal, and tumor removal. Pain was quantified by a trained observer for 96 hours following surgery. At any time point, if the dog's pain was scored as inadequately controlled, the dogs were considered treatment failures and received supplemental analgesia. Any dogs given an emergency opioid reversal agent for adverse reactions were also considered treatment failures. A total of 21 dogs were treatment failures (4 in the RECUVYRA group and 17 in the active control group). No RECUVYRA-treated dogs were removed due to adverse reactions. The 4 RECUVYRA-treated treatment failures were withdrawn due to inadequate pain control between 1 and 6 hours post-extubation. A non-inferiority evaluation of the upper bound margin of difference between RECUVYRA and active control treatment failure rates over 96 hours demonstrated that RECUVYRA was non-inferior to the active control. Therefore RECUVYRA was effective in controlling pain associated with orthopedic and soft tissue surgery.

STORAGE INFORMATION

Store at controlled room temperature, 20 - 25°C (68 - 77°F). Once broached with the needleless adaptor, store the vial upright at controlled room temperature, 20 - 25°C (68 - 77°F), with the needleless adaptor attached. Discard broached vials after 30 days.

NADA 141-337, Approved by FDA NDC 0986-4232-11

Manufactured for Elanco Animal Health, A Division of Eli Lilly and Company, Indianapolis, IN 46285

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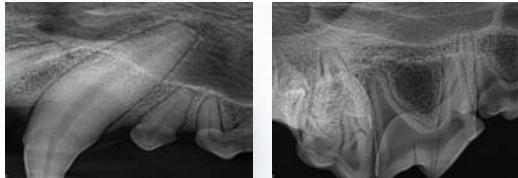
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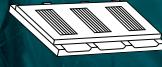
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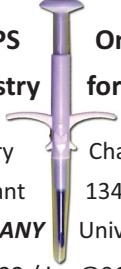


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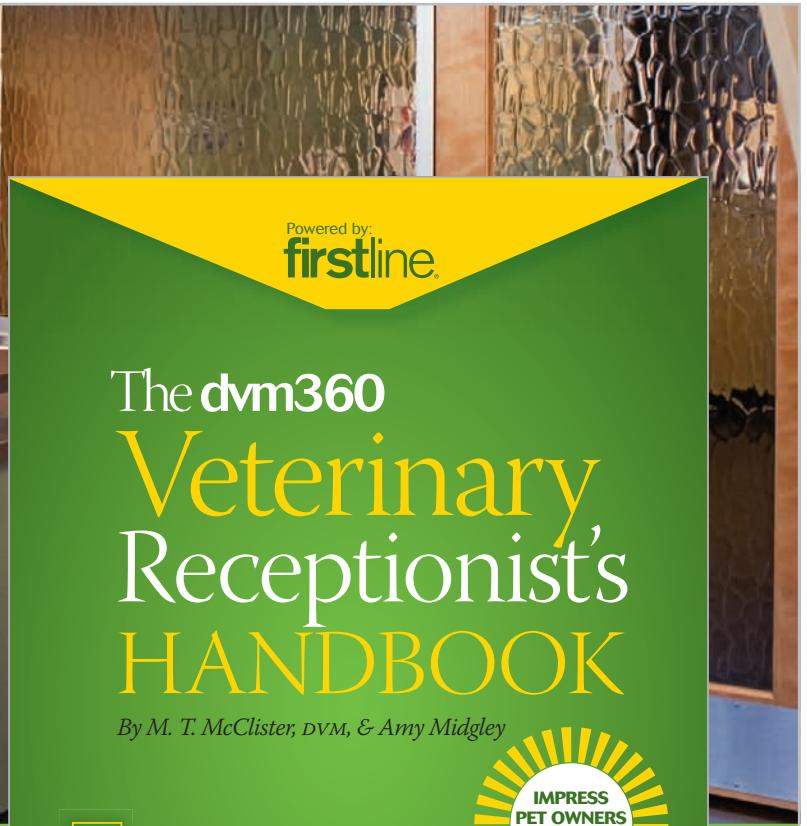
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For a full listing of events in 2015, visit dvm360.com/calendar

August 26-28

Veterinary Economics Hospital Design Conference
(800) 255-6864, ext. 6
thevcv.com/hdconf



August 28-31

CVC Kansas City
(800) 255-6864, ext. 6
thevcv.com/kc



December 03-06

CVC San Diego
(800) 255-6864, ext. 6
thevcv.com/sd



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National and international meetings

July 19

Veterinary Dentistry & Radiology for the Veterinarian and Technician
Bloomfield Hills, MI
(941) 276-9141
veterinarydentistry.net/vet-dental-course-denver-colorado

August 05-08

2015 Therio Conference
San Antonio, TX
(334) 395-4666
therio.org

August 08-09

Frank Workshop
Fort Collins, CO
(970) 297-1273
csu-cvmb.colostate.edu/academics/clinical/veterinary-communication/Pages/frank-workshops.aspx

August 10-15

25th International Conference of the World Association for the Advancement of Veterinary Parasitology
Liverpool, UK
+44 28 9066 4020
waavp2015.com

August 13-16

9th Keystone Veterinary Conference
Hershey, PA
(888) 550-78620
pavma.org

August 16

Veterinary Dentistry & Radiology for the Veterinarian and Technician
Raleigh, NC
(970) 297-1273
(941) 276-9141
veterinarydentistry.net

net/vet-dental-course-bloomfield-hills-michigan

August 22

WVC On The Road: Updates in Canine and Feline Gastroenterology for the General Practitioner
Salt Lake City, UT
(866) 800-7326
wvc.org

August 25-31

Veterinary Seminary & Cycling Adventure
French Alps, France
(303) 817-8203
keepupyourpace.com

August 26-28

Veterinary Economics Hospital Design

Conference
Kansas City, MO
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thevcv.com/hdconf

August 28-31

The CVC in Kansas City
Kansas City, MO
(800) 255-6864, ext. 6
thevcv.com/kc

September 04-06

British Small Animal Veterinary Association Scottish Congress 2015
Edinburgh, Scotland
+44 (0) 1452 726700
bsava.com/congress

September 16-19

Veterinary Management School
Lakewood, CO
(800) 883-6301

aaha.org/professional/education/vms.aspx

September 18-22

International Veterinary Emergency & Critical Care Symposium
Washington, DC
(210) 698-5575
veccs.org

September 24-27

Principles in Small Animal Fracture Management
San Diego, CA
(610) 695-2459
aona.org/#AONA=/

Masters Course on Advanced Osteotomy—Small Animal
San Diego, CA
(610) 695-2459
aona.org/#AONA=/

Local and regional meetings

July 25-26

UC Davis 8th Annual Back to School Seminar
Davis, CA
(530) 752-3905
vetmed.ucdavis.edu/ce/

September 02

North Carolina Academy of Small Animal Medicine / NCASAM 1-Day Meeting
Sanford, NC
(910) 452-3899
ncasam.org

September 03-04

Montana Veterinary Medical Association Fall Symposium
Bozeman, MT
(406) 447-4259
mtvma.org

September 09

GA Veterinary Managers Association Meeting
(678) 467-2750
gavma.com

September 17-18

Iowa VMA 133rd Annual Meeting

Ames, IA
(800) 369-9564
iowavma.org

September 19-20

San Diego County VMA Veterinary Conference: "Internal Medicine for the General Practitioner"
San Diego, CA
(619) 640-9583
sdcvma.org

September 24-27

New England Veterinary Conference

Portland, ME
(207) 752-1392
nevma.org/eweb/startpage.aspx

September 25-27

104th Kentucky VMA Meeting/42nd Mid-America Veterinary Conference
Louisville, KY
(800) 552-5862
kvma.org

Pacific Northwest Veterinary Conference

Tacoma, WA

(800) 399-7862
wsvma.org

September 27

Toxicology Seminar by Louisiana Academy of Veterinary Practice
Hammond, LA
(985) 687-7242
laavp.org

October 09-11

California VMA Fall Seminar
Lake Tahoe, CA
(800) 655-2862
<http://cvma.net/>

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

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Bagging happiness

How a down-on-his-luck man found his calling in a grocery market.

Our church helps feed the homeless in one of the larger cities near Lamesa. I met Billy there the very first time I went to help out, and we've been friends ever since. Billy had always wanted an apartment and a dog—and things had worked out for him. He now had a job and a nice apartment, so I decided to bring him a puppy.

The way Billy got his job is one of the funniest stories I've ever heard. See, Billy was in a bicycle wreck 25 years ago that left him unable to

Billy kept his conversations to a minimum for a few days. But it didn't last long. Eventually he couldn't help himself and started talking too much again.

remember things well and at times confused. But the one thing it didn't take from him was the ability to talk. Billy loved to talk. He could carry on a conversation with anyone, and he would talk for hours if you let him.

One day Billy wandered into a very large supermarket in town and watched as the people rang up baskets of groceries. He noticed there was always someone who sacked the groceries and took them out to the car for the customers. He also noticed that the grocery sackers got to talk to

people all day long, and he thought that was great.

The next morning Billy showed up at the market with a blue shirt on and started sacking groceries. He walked up to the first register and began putting the cold stuff with the cold stuff and the bread in a sack of its own—talking to people all the while. The checkers assumed he was a new hire and asked his name. He told them Billy, and they asked why he didn't have a smock. He said no one had gotten him one, so they went to the back and brought him two new smocks. Billy worked all day sacking groceries, and other employees even called his name over the intercom for help with packages a few times.

Billy showed up for work again the next day. He was, of course, wearing a company-issued smock now, which made him look official to everyone, including the assistant manager who said hello to him as he passed. What a great job. All day long he could talk to people and they would listen. He got to see dozens of people and talk, and he *loved* to talk.

This went on every day for four weeks. Billy worked hard and developed a reputation for being the most reliable sacker in the store. He was always there, always friendly, always working and always talking. But he wasn't actually employed by the store.

One day Billy was called to the manager's office and confronted

about a complaint. It seemed that a few of the store's patrons had complained that Billy talked too much, and they didn't like it. The manager gave Billy a warning.

Billy kept his conversations to a minimum for a few days. But it didn't last long. Eventually he couldn't help himself and started talking too much again. Once again he was called into the manager's office. This time he was told he was being let go. He had been warned once, and now he wasn't going to be on the payroll at this large market anymore.

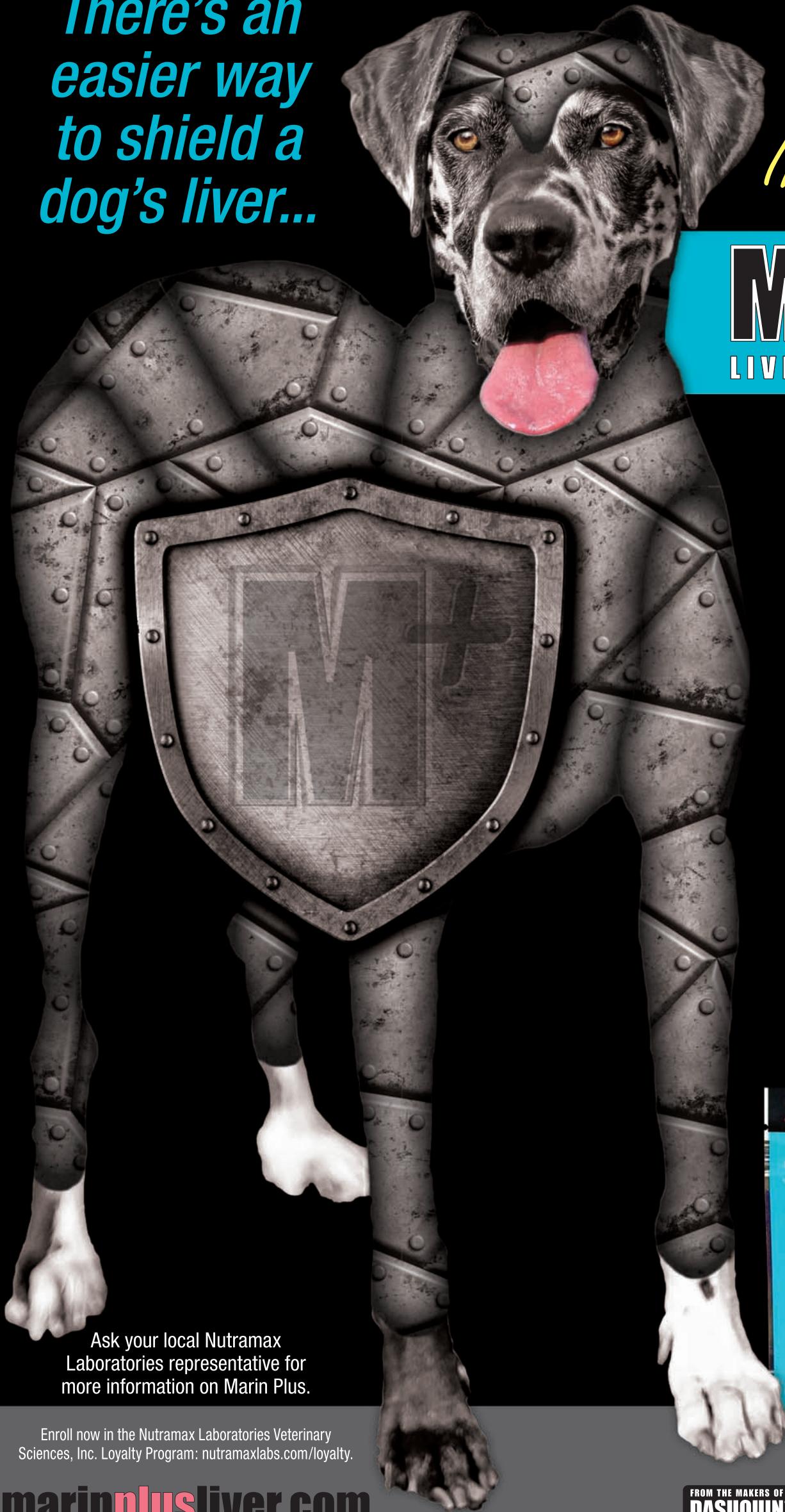
I went to the shelter the next Sunday. Billy seemed a bit down as I talked to him. I asked him what was wrong and he explained that he had been fired from his job. I was very curious, because I had no idea he'd ever had a job. When he told me the story I was amazed.

Eventually the supermarket figured out what had happened. When they went to write him his last paycheck, they discovered that he didn't work at the store but that for seven weeks he had sacked groceries every day but one. They discovered that he was very popular with the checkers, and they hired him back to be a welcome agent and hand out baskets as people entered the store.

I think he deserves a puppy. **dvm360**

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

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