

**Most common
derm mistakes**

In a busy clinic, it's easy to make your best guess. Not so fast, says one expert.

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Ticks will be a menace in 2015, CAPC predicts

Lyme, ehrlichiosis and other tick-borne diseases continue to spread; year-round prevention urged.

The Companion Animal Parasite Council (CAPC) has released its annual parasite forecasts, calculating the probability of four important parasite-transmitted diseases occurring in 2015: Lyme disease, anaplasmosis, ehrlichiosis and heartworm. The forecasts show that the threat of vector-borne diseases transmitted by ticks continues to be a year-round menace to both pets and pet owners.

The annual CAPC parasite forecasts are based on a model similar to the one meteorologists use to predict U.S. hurricanes.



Dr. Susan Little

This model predicts activity based on factors such as temperature, precipitation and population density.

"One common pet owner misperception is that parasites are only active during warm weather," says CAPC President Susan Little, DVM, PhD, DACVM, a parasitologist at Oklahoma State University, in a

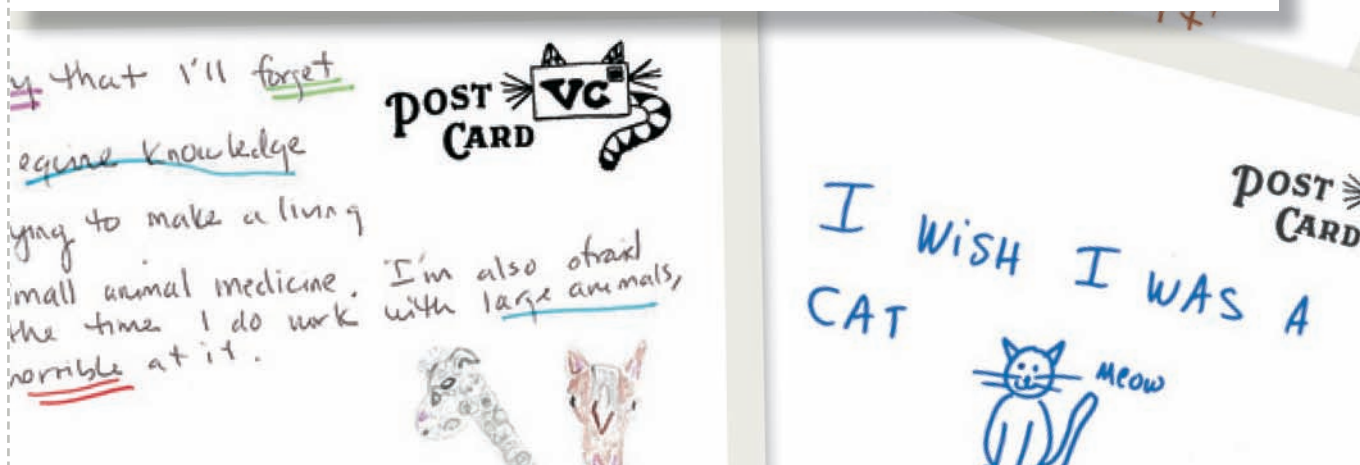
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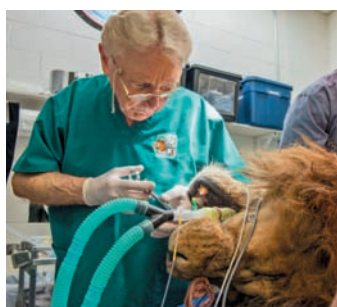
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This growing effort allows veterinary professionals to express themselves freely—without being judged.

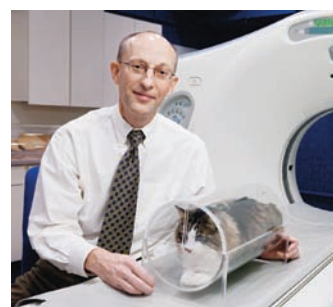
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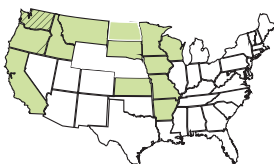
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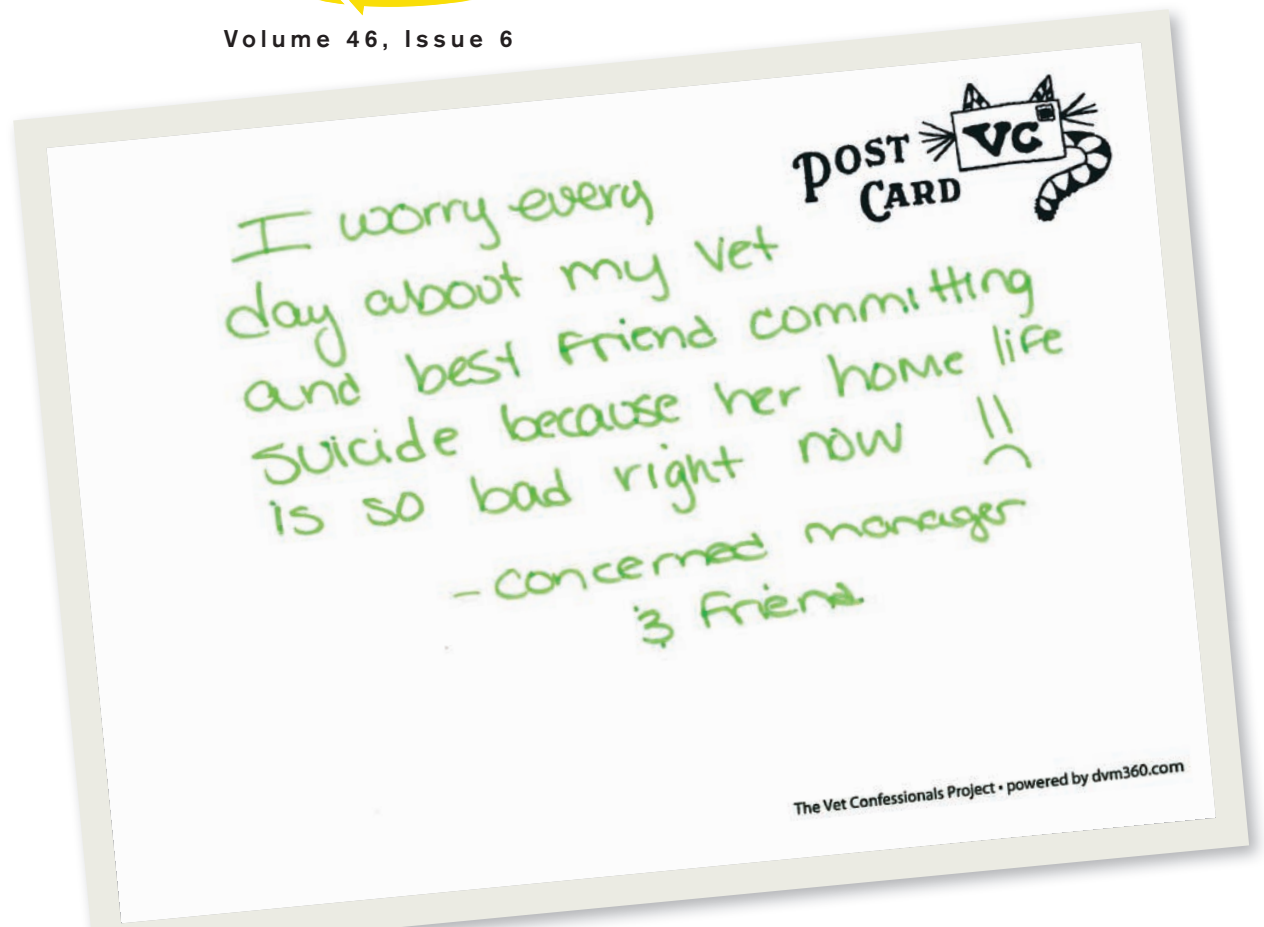


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DIRECTOR'S CUT | Kristi Reimer

I confess: I'm an ardent fan of the Vet Confessionals Project

Veterinarians', team members' secrets are too good not to share.

My first exposure to the Veterinary Confessionals Project was at NAVC this year. I was attending a swanky industry reception, glass of wine in hand, when my boss handed me her phone to check out the pictures she'd snapped at the Vet Confessionals exhibit earlier that day.

I was not prepared.

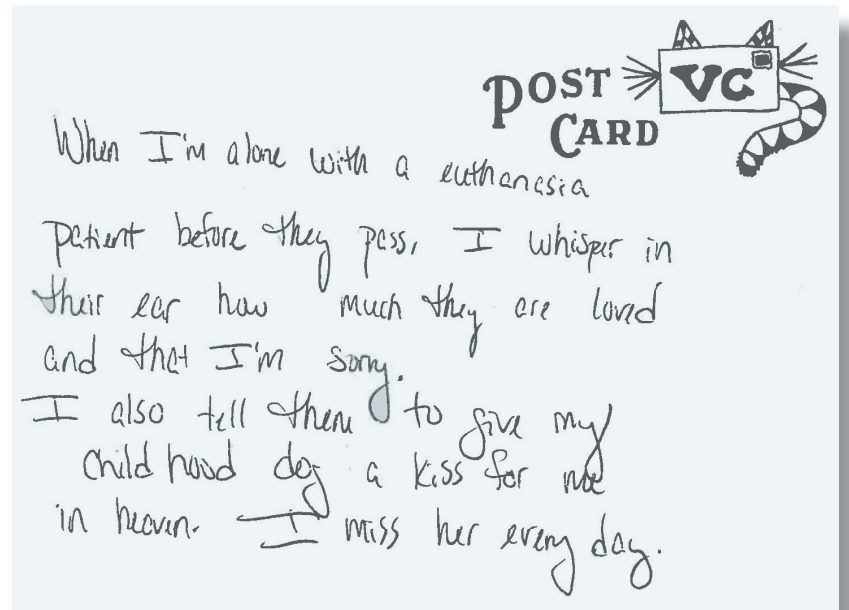
When I read the first one, my eyes flooded with tears that spilled over—and kept spilling over, to my chagrin—to the point that I had to find a dark, quiet corner and hunker down until I'd regained my composure.

Such is the power of a confession. The card I read is pictured at right, and it brought back with extreme force my own last moments with my pet during her euthanasia with a kind and compassionate veterinarian. Along with the hole in my heart that's still there even years after she's been gone.

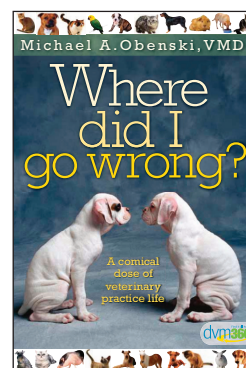
I couldn't read anymore cards that night (I think my coworkers were actually a little concerned about me), but when the *dvm360* team got involved in the project, I eventually had the opportunity to read every single card submitted to the Vet Confessionals folks. And I did. Every. Single. Card.

Some made me laugh so hard my stomach hurt. Many were poignant and sad, even heartbreaking. All were incisive microcommentaries on what it's like to be a veterinary professional today—even the parts no one will publicly admit to.

We promoted this project a bit in last month's Burden of Care coverage focusing on the emotional toll associated with working in this profession, but it was too good not to include in this issue of *dvm360*. I hope you'll enjoy it at least half as much as I have—tears and all. **dvm360**



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Fervor over ‘feral’ cat bow killing still hot

Young veterinarian’s boast could result in felony indictment. *By Julie Scheidegger*

The firestorm that ignited with the braggadocious—and, to many, appalling—post from Texas veterinarian Kristen Lindsey still simmers on social media. A photo on the young veterinarian’s Facebook page on April 17 showed her holding up the limp body of an orange cat from the arrow she claims to have used to shoot it through its skull.

“My first bow kill ... lol,” the post read. “The only good feral tomcat is one with an arrow through it’s [sic] head! Vet of the year award ... gladly accepted.”

“The only good feral tomcat is one with an arrow through it’s [sic] head! Vet of the year award ... gladly accepted.”

—Dr. Kristen Lindsey, Facebook post

As the post circulated, so did outrage. “Too bad she doesn’t just wander onto my property when I have a bow and arrow handy ... They need to take her license so she can never work at a vet again. She is a disgrace to veterinary medicine!” wrote Brooklyn Isaacs on the Justice for Cat Murdered by Kristen Lindsey Facebook page.

“No I did not lose my job,” Lindsey wrote in response to critics shortly after her initial post. “Lol. Pssh. Like someone would get rid of me. I’m awesome!”

Local media outlets reported that it took less than an hour for Lindsey’s employer, Washington Animal Clinic in Brenham, Texas, to fire her and put duct tape over her name on the clinic’s sign. News also spread that the cat was in fact not feral, but named “Tiger” and owned by a local couple.

Public outcry

A blaze of condemnation followed Lindsey’s post—from her alma mater, Colorado State University, the American Veterinary Medical Association (AVMA), the Texas Veterinary Medical Association and an infinite number of social media commentators. In fact, the public outrage was so vast that

Lindsey took down her Facebook page. Her former clinic shut down its social media and website as well.

The Austin County Sheriff’s Department handling the case pleaded on its Facebook page for patience. “As we are trying to conduct normal operations of dispatching police, fire and EMS, our dispatchers are being snowed under answering calls about our investigation,” the department wrote. “We are asking you to please take it easy on our dispatchers.”

The following day, Dean Mark Stetter, DVM, and Associate Dean Melinda Frye, DVM, PhD, DACVIM, of CSU’s College of Veterinary Medicine and Biomedical Sciences, issued a statement. “We write to address a troubling issue that has drawn attention in our college, and is gaining attention in the nation and around the world,” it reads. “At Colorado State University, we join the veterinary clinic that earlier employed this individual, the Texas Veterinary Medical Association, and countless others who strongly decry the grotesque actions and comments displayed in that post.”

The AVMA, also inundated with phone calls and social media posts concerning the Lindsey case, created an e-mail address, judicialcouncil@avma.org, to gather complaints in order to forward them to the AVMA Judicial Council. The council will decide whether action should be taken against Lindsey—mainly dismissal from AVMA membership.

“We are disturbed that this situation undermines the public trust and credibility that veterinarians have earned and so richly deserve,” says Ron DeHaven, DVM, chief executive officer of the AVMA, in a release. “Every veterinarian takes an oath which states in part that they will ‘use my scientific knowledge and skills for the benefit of society through the protection of animal health and welfare, the prevention and relief of animal suffering.’ The behavior depicted in the photograph and its caption is contrary to that oath and

all that the veterinary profession strives to be; we are committed to ensuring that every animal is treated with respect and dignity.”

Heated comments on the AVMA Facebook page prompted the association to remove personal attacks and post warnings that attacks and foul language were not allowed on its social media page. More tempered responses came from commenters such as Adrienne Foster. “The only thing more disturbing than a fellow veterinarian killing animals in such a callous manner is that she felt OK posting about it on social media,” Foster wrote. “I hope she gets the help she so obviously needs.”

Demand for justice

Although it’s been reported that Lindsey and her lawyer spoke with the Austin County Sheriff’s Department before the case was handed over to the district attorney, Lindsey has not been seen or heard from publicly since. Austin County Sheriff Jack Brandes filed the case with the district attorney under Texas Penal Code 42.092, cruelty to non-livestock animals. The district attorney is not presently commenting on the case and, to date, no charges have been filed. However, charges of torturing an animal, killing an animal in a cruel manner, or killing an animal without the owner’s effective consent can result in a felony indictment.

Presently, there is no indication of when Austin District Attorney Travis Koehn will present the case to the grand jury. Alley Cat Allies is offering a \$7,500 reward for evidence leading to the accused’s arrest. Online petitions to revoke Lindsey’s license abound.

The Texas Veterinary Medical Licensing Board has opened an investigation. However, the wheels of justice—veterinary and criminal—often move slowly. As impatience over action in this case grows, the Austin County Sheriff’s Department is urging understanding on its Facebook page that this case will be decided by the justice system—not social media. **dvm360**



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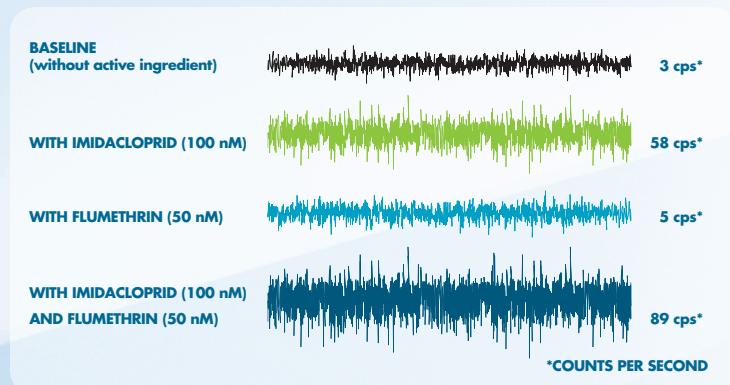
Insecticide, acaricide combination in collar provides reliable, 8-month protection for dogs or cats

Flea and tick infestations are more than just a nuisance; they pose a real threat to dogs and cats, and that risk is increasing in many areas. Fleas can transmit tapeworms and cause skin problems, such as flea allergy dermatitis. Ticks can transmit organisms that may cause diseases, such as Rocky Mountain spotted fever and Lyme disease. These diseases have become more frequently diagnosed and more geographically widespread.^{1,2}

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In studies in which the parasites' nervous systems were exposed to either flumethrin or imidacloprid, there was an increase in activity. When the nerve was exposed to both products together, the voltage difference was greater than either one alone, thus demonstrating synergy. Demonstration was completed on *Spodoptera frugiperda* larvae. Concentrations and application method used in study vary from that of Seresto®.

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"No other flea or tick preventive provides eight months of flea and tick protection with only one application for both dogs or cats," said Ian Spinks, President and General Manager, Bayer HealthCare LLC, Animal Health, North America. "With Seresto®, we give pet owners a convenient alternative to monthly topical and oral flea and tick preventives."

Seresto® is an innovative, easy-to-use collar that protects against fleas and ticks for eight months without relying on pet owners remembering to apply monthly treatments.

Getting pet owners to comply with a long-term prevention program can be difficult. Based on an online survey of 800 pet owners, 54 percent of topical users and 53 percent of oral product users treat their pets less than eight times per year on average.⁴

"Seresto® offers the performance you expect from a flea and tick topical in a convenient, non-greasy, odorless collar, without the need to remember monthly treatments," said Cristiano von Simson, DVM, MBA, Director of Veterinary Technical Services at Bayer HealthCare LLC, Animal Health, North America.

As the active ingredients wear off the dog or cat over time, the sustained release technology of Seresto® replenishes low concentrations of both imidacloprid and flumethrin from the collar to the hair and skin of the animal, providing continuous protection.

Douglas Neal, DVM, of the Oak Grove Animal Clinic in Oak Grove, MO, said that Seresto® is a great option for his clients who have had issues with remembering to apply a monthly topical.

"The best thing about the Seresto® collar and its 8-month flea and tick protection is that there are no compliance issues. They put it on their dog or cat and they're done," Dr. Neal said.

For more information, please visit BayerDVM.com.



¹Little S. (2008). Tick-borne disease: incidence and implications for understanding Lyme disease, ehrlichiosis, and anaplasmosis in dogs in the northern U.S. Presented at: The NAVC Conference, Orlando, Fla.; Jan. 19-23, 2008.

²Little SE. Tick-borne diseases reported in most states, expert says. Available at: <http://www.capcvet.org/expert-articles/tick-borne-diseases-reported-in-most-states-expert-says/>. Accessed January 23, 2014.

³Data on file.

⁴Data on file.

U.S. News reveals how it ranks veterinary schools

One-question survey sent to deans and department chairs scores each program's overall quality on a scale of 1 to 5. *By Matthew Kenwright*

Confronting criticism that the 2015 veterinary school rankings are a flawed measurement of quality, *U.S. News and World Report's* chief data strategist explained the rankings process to *dvm360* and recommended how schools can improve their positions.

To arrive at the rankings, *U.S. News* sent surveys to veterinary school deans and chairs of the pre-clinical and clinical science departments. With eight weeks to return the surveys, the response rate was 49 percent, according to *U.S. News's* website.

Respondents rated each of the 28 schools as 5 (outstanding), 4 (strong), 3 (good), 2 (adequate) and 1 (marginal), or they could select "Don't know." The instructions asked respondents to "consider all factors that contribute to or give evidence of the excellence of the school's programs, for example, curriculum, record of scholarship, quality of faculty and graduates," according to a sample survey *U.S. News* provided *dvm360*.

The scope of the rankings is limited to perception, Robert Morse, *U.S. News* chief data strategist, says.

"The veterinary ranking is based on reputation only. It does not take into account or include other factors besides the one reputation score," Morse told *dvm360*.

Reactions to the rankings from the veterinary medicine community were mixed after they were announced.

"While we understand that a more objective methodology could be developed for these rankings, what they do show is that we have a very positive reputation among our peers, and we don't take that recognition for granted," Mark D. Markel, DVM, PhD, dean of University of Wisconsin School of Veterinary Medicine, told *dvm360*. The program tied for fifth with Ohio State University.

A *dvm360.com* reader commented online, "Unlike rankings for other pro-



grams (like law and medical schools), there is no quantitative metric contribution at all. This amounts to little more than a popularity contest where those at the top remain at the top because of historical prestige."

Critics who suggest that the rankings are a popularity contest are mistaken, Morse says. "We're asking leaders in the field—the top educators in the field who haven't risen to those positions overnight, who have knowledge of the other schools at some level—to rate the other schools, and their opinion is more than superficial, which is what the comment implies," he says.

Morse says trimming to the mean, which removes the two to three highest and lowest scores from the

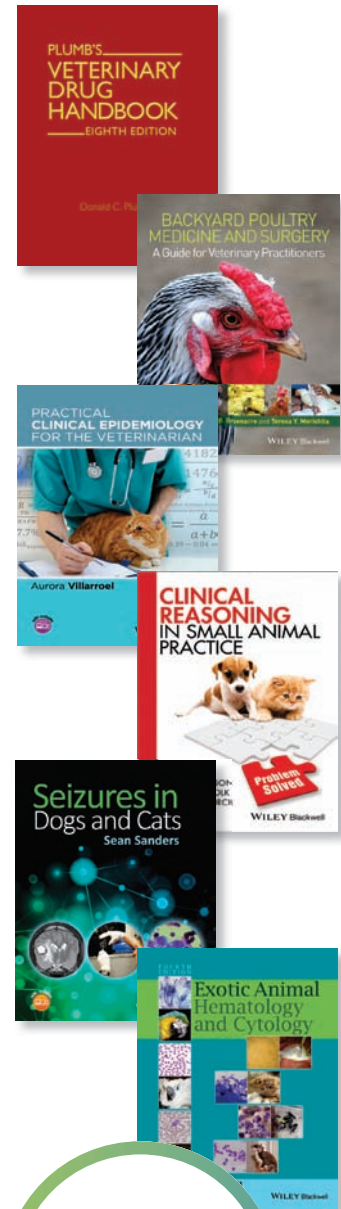
votes, can be used to deter strategic voting. But this wasn't necessary with the veterinary results, he says.

"We think the aggregate ratings of those informed raters gives a good perspective of the relative standing of the schools compared to each other," Morse told *dvm360*.

Programs that want to improve their rank should look to the top schools for a model, he says. "Find out why Davis and Cornell rank so much higher and then try to adopt some of the attributes if they're missing in your program," Morse says. "But I don't know what those attributes are."

Following *U.S. News's* four-year schedule for surveying veterinary schools, the programs will be ranked again in 2019. **dvm360**

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FDA warns pet owners, veterinarians of NSAID toxicity from topical flurbiprofen

Three cats have died, others sickened after owners applied cream or lotion containing the anti-inflammatory drug.

The U.S. Food and Drug Administration (FDA) has issued a warning that even very small amounts of topical pain medication containing the nonsteroidal anti-inflammatory drug (NSAID) flurbiprofen can cause illness and death in pets. The agency encourages veterinarians who have patients who show signs of NSAID toxicity to ask their clients if anyone in the household has used topical medications containing flurbiprofen.

The FDA says it has received reports of cats in two households that became ill or died after their owners used topical medications containing flurbiprofen. "The pet owners had applied the cream or lotion to their own neck or feet, and not directly to the pet, and it is not known exactly how the cats became exposed to the medication," the FDA states in a release.

In one household, two cats developed kidney failure and recovered with veterinary care, according to the FDA. Two cats in a second household developed signs that included reluctance to eat, lethargy, vomiting, melena, anemia and dilute urine. Both died despite care. The FDA says a third cat in the household also died after the owner stopped using the medication. Necropsies on all three cats found evidence of NSAID toxicity.

Veterinarians should encourage clients to take precautions with flurbiprofen medications, the FDA says. It recommends that pet owners do the following to help reduce pet exposure:

- > Store medications away from pets.
- > Safely discard or clean any cloth or applicator that may retain medication and avoid leaving any residues of the medication on clothing, carpeting or furniture.

The FDA has not received reports of dogs or other pets becoming sick in relation to the use of these topical pain medications containing flurbiprofen; however, these animals may also be vulnerable to NSAID toxicity.

Adverse events can be reported to the FDA at fda.gov.dvm360



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Influenza resources

For more canine influenza information from the University of Wisconsin and a respiratory illness warning handout for clients from the Chicago Veterinary Emergency and Specialty Center, go to dvm360.com/influenza2015.



See Products360 on page 44 for information on IDEXX's H3N2 Influenza Virus RealPCR Test.

Canine influenza strikes Chicago, other cities across the Midwest

Outbreak caused by Asian virus, veterinary researchers say.

The canine influenza outbreak afflicting more than 1,300 dogs in Chicago left the usually abundant attendance at dog parks waning this spring as the virus spread throughout several midwestern states, including Illinois, Indiana, Iowa, Ohio and Wisconsin. Scientists at the University of Wisconsin and Cornell University have reported that the outbreak was caused by a different strain of the virus than first assumed.

Researchers at Cornell say the outbreak was caused by a virus closely related to Asian strains of influenza A H3N2, currently in wide circulation in southern Chinese and South Korean dog populations since identification in 2006. There is no evidence that it can be transmitted to humans, they say.

The outbreak in the Midwest was previously thought to be a result of the H3N8 strain of virus, which was identified in the U.S. dog population in 2004, according to a release from Cornell. The H3N2 virus had not been previously detected in North America.

The outbreak in Chicago suggests a recent introduction of the H3N2 virus from Asia, experts say.

In early May, Chicago Veterinary Emergency and Specialty Center reported that the number of cases being reported had slowed and the severity of cases had decreased to one-third of the level it was seeing at the height of the outbreak. But veterinarians wanted pet owners to keep in mind that the number of cases should be zero.

"We are seeing a gradual reduction in the numbers and severity of cases. But until we see a more significant reduction in the number of cases, we urge dog owners not to socialize their dogs," says Anne Cohen, DVM, board-eligible criticalist at Chicago Veterinary Emergency and Specialty Center. With the weather turning warm in Chicago, veterinarians worry that the pet-social city will have more pet owners out and about with their pets. This could lead to an uptick in cases.

At press time, researchers did not know if the currently available ca-

nine influenza vaccine would provide protection from the new H3N2 virus. It does protect against H3N8, they say, which is in circulation in some areas.

Both influenza strains can cause high fever, loss of appetite, coughing, nasal discharge and lethargy, researchers say. Symptoms may be more severe in cases caused by the H3N2 virus. Some infected dogs may not show symptoms at all. H3N2 has caused infection and respiratory illness in cats, according to experts at Cornell.

Researchers are advising veterinarians that samples from sick pets can be tested using a broadly targeted influenza A matrix reverse transcriptase-polymerase chain reaction assay (Rt-PCR). In addition, IDEXX has recently added a PCR test for H3N2 to its canine influenza panel (see "Elsewhere in dvm360," at left).

Preventive advice remains the same: Where the viruses are active, pet owners need to avoid places where dogs congregate, such as dog parks and grooming salons. [dvm360](http://dvm360.com)

Rabies cases up in Kansas, Colorado

Veterinary officials urge awareness about the disease to keep pets safe.

Veterinary officials in Kansas and Colorado are urging pet owners to make sure their pets are current on their rabies vaccinations after seeing an increase in positive cases through the first part of 2015. There is no cure for rabies after symptoms begin to show and it is nearly always fatal. Vaccination is one of the only preventive measures pet owners can take.

Kansas cases

Rolan Davis, MS, a diagnostician with the Kansas State Veterinary Diagnostic Laboratory (KSVDL) at Kansas State University, says there have been 28 positive cases of rabies in Kansas from January to March, compared with 10 in the same time period in 2014, according to a university release. The total number of cases submitted to the KSVDL rabies lab increased from 208

in 2014 to 248 in 2015, about a 20 percent increase for the first quarter of the year, though the number of positive cases grew at a higher rate.

Twenty-three of the positive cases involved skunks, three were cats, one was a cow and one was a fox. Davis says that while the increase in positive tests in skunks seems to be the concern currently, wild bats are also a common carrier of the virus, though they carry a different strain. The number of positive tests in that species will spike from time to time, just as it is doing for skunks now, according to the release.

"We are always cautious when reporting increased positive results because we don't want to 'cry wolf,'" says Mike Moore, DVM, project manager of KSVDL, in the release. "But one quarter into the year, we have thus far seen nearly three times more positives."

Colorado cases

Health department officials in the Denver, Colorado, area have also seen an increase in rabid skunk cases, according to a release from the Colorado Department of Agriculture and Tri-County Health Department. From January 1 to April 17, six cases of rabies have been confirmed in skunks in Arapahoe, Adams and Elbert counties, with five of the cases confirmed since March 4.

"These rabid skunks confirm that rabies is present in the eastern regions of these counties. Rabies can spread from skunks to other mammals and we are concerned about the increase in skunk activity this time of year," says John M. Douglas, Jr., MD, executive director of the area's Tri-County Health Department, in the release. [dvm360](http://dvm360.com)

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Leventa™ is contraindicated in dogs with thyrotoxicosis, acute myocardial infarction and uncorrected adrenal insufficiency. Use in pregnant bitches has not been evaluated. Overdosage can result in thyrotoxicosis. Administer with caution to animals with clinically significant heart disease, hypertension or other complications for which a sharply increased metabolic rate might prove hazardous.

Vetsulin® should not be used in dogs or cats known to have a systemic allergy to pork or pork products. Vetsulin is contraindicated during periods of hypoglycemia. Keep out of reach of children. As with all insulin products, careful patient monitoring for hypoglycemia and hyperglycemia is essential to attain and maintain adequate glycemic control and prevent associated complications. Over dosage can result in profound hypoglycemia and death. The safety and effectiveness of Vetsulin in puppies and kittens, breeding, pregnant, and lactating dogs and cats has not been evaluated. See prescribing information on adjacent page for full information regarding contraindications, warnings, and precautions.

Incurin™ is indicated for the control of estrogen-responsive urinary incontinence in ovariectomized dogs. The most common side effects associated with Incurin treatment under field conditions included loss of appetite, vomiting, excessive water drinking, and swollen vulva. The safety and effectiveness of Incurin Tablets have not been evaluated in dogs less than 1 year of age, intact female dogs, male dogs, dogs used for breeding, or lactating dogs. Incurin is contraindicated in dogs showing polyuria secondary to polydipsia, or in pregnant dogs. Please see full prescribing information on adjacent page for more details.

Leventa® (levothyroxine sodium)

Each mL of LEVENTA® (levothyroxine sodium, U.S.P) oral solution provides 1 mg synthetic crystalline levothyroxine sodium (L-thyroxine).

CAUTION

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

INDICATION

Thyroid replacement therapy in dogs with hypothyroidism. Hypothyroidism is the generalized metabolic disease resulting from deficiency of the thyroid hormones, L-thyroxine (T4) and triiodothyronine (T3). LEVENTA® oral solution will provide L-thyroxine (T4) as a substrate for the physiologic deiodination to triiodothyronine (T3). Administration of L-thyroxine (T4), identical to the L-thyroxine (T4) secreted endogenously by the normal thyroid gland, will result in complete physiologic thyroid replacement. L-thyroxine (T4) acts to stimulate metabolism, growth, development and differentiation of tissues. It increases the rate of energy exchange and the maturation rate of the epiphyses. The clinical diagnosis of hypothyroidism should be completed by evaluation of the thyroid hormone of the dog, i.e. measurement of serum levels of total (or preferably free) thyroxine (T4) and thyroid stimulating hormone (TSH). A low total (or free) T4 concentration combined with high TSH concentration is strongly suggestive for primary hypothyroidism.

PHARMACOLOGY

Levothyroxine sodium acts, as does endogenous L-thyroxine (T4), to stimulate metabolism, growth, development and differentiation of tissues. It increases the rate of energy exchange and the maturation rate of the epiphyses. Levothyroxine sodium is absorbed rapidly from the gastrointestinal tract after oral administration. Following absorption, the compound becomes bound to the serum alpha globulin fraction.

DOSAGE

The adequate dose rate has to be defined individually for each dog. Treatment should be initiated at a recommended dose rate of 20 µg L-thyroxine/kg once daily and re-evaluated every 4 weeks by monitoring T4 serum levels 4 to 6 hours posttreatment. According to the T4 levels, the veterinarian will decide to adjust the dose rate if needed. Once the dosage suitable to solve the hypothyroidism clinical and hormonal condition of the dog is determined (maintenance dosage), serum T4 levels 4 to 6 hours post-treatment should be checked every 6 months. The usual maintenance dosage 20 µg L-thyroxine/kg once daily.

ADMINISTRATION

Remove child resistant cap and insert oral dosing syringe into the plastic push-in adapter. Invert bottle and gently draw back syringe plunger to the desired dose. Return the bottle to the upright position and remove syringe. LEVENTA® oral solution may be given orally to dogs directly into the mouth or may be mixed with their food. If mixed with their food, consumption should be monitored. The conditions at treatment administration (time, relation to feeding, diet) should be standardized.

CONTRAINDICATIONS: L-thyroxine therapy is contraindicated in thyrotoxicosis, acute myocardial infarction and uncorrected adrenal insufficiency. Use in pregnant bitches has not been evaluated.

ADVERSE REACTIONS

There are no particular adverse reactions associated with L-thyroxine therapy at the recommended dosage levels. Overdosage will result in the signs of thyrotoxicosis listed under Precautions.

PRECAUTIONS

The effects of L-thyroxine therapy are slow to manifest. Overdosage of any thyroid drug may produce the signs and symptoms of thyrotoxicosis including, but not limited to: polydipsia, polyuria, polyphagia, reduced heat tolerance and hyperactivity or personality change. Administer with caution to animals with clinically significant heart disease, hypertension or other complications for which a sharply increased metabolic rate might prove hazardous.

INFORMATION FOR DOG OWNERS

Hypothyroidism in Dogs: Canine hypothyroidism is usually due to destruction of the thyroid gland. In most cases the cause is immune disease called lymphocytic thyroiditis; however, in some cases the cause of this destruction is unknown. In less than 10 percent of cases, hypothyroidism is secondary, due to a lack of thyroid stimulating hormone (TSH). TSH is produced by the pituitary gland in the brain. Lack of TSH can occur as a congenital disorder (birth defect) where there is a malformation of the pituitary gland, or as an acquired disorder in adult dogs due to the growth of a pituitary brain tumor.

Hypothyroidism usually occurs in middle-aged and older dogs although the condition will sometimes be seen in younger dogs of the larger breeds. Neutered animals of either sex are also frequently affected, regardless of age. The following clinical signs of hypothyroidism can be observed in dogs:

- **Metabolic signs:** lethargy; lack of endurance; increased sleeping; reduced interest, alertness and excitability; slow heart rate; weak heart beat and pulse; preference for warmth; low body temperature; cool skin; increased body weight.
- **Dermatologic (skin) signs:** flaking of skin (dandruff); thickening of skin; increased pigmentation of skin; puffy face; drooping of the upper eyelids; tragic facial expression; dry, coarse, thin or sparse coat; slow regrowth of hair after clipping; retarded turnover of hair.
- **Musculoskeletal signs:** stiff and slow movements, dragging of front feet, head tilt, disturbed balance, paralysis of one side of the face.
- **Reproductive signs:** shortening or absence of estrus (heat), lack of libido
- **Gastrointestinal signs:** dry feces, occasional diarrhea
- **Hematology and biochemistry signs:** high blood cholesterol (hypercholesterolemia), anemia.

HOW SUPPLIED

LEVENTA® oral solution (L-thyroxine 1 mg/mL) is available in 30 mL bottles closed with childproof caps. Each bottle is provided with a 1 mL dosing syringe to be used for administration.

STORAGE INFORMATION

Store refrigerated at 2- 8°C (37- 46° F), protect from light. After first opening, store in refrigerator (2-8°C) and use the product within six months.

KEEP OUT OF THE REACH OF CHILDREN.

FOR ANIMAL USE ONLY

Distributed by: Intervet Inc. Summit, NJ 07901
www.leventa.com 1-800-521-5767

Made in France

NADA 141-236, Approved by FDA

Vetsulin® (porcine insulin zinc suspension)

CAUTION

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

INDICATION

vetsulin® (porcine insulin zinc suspension) is indicated for the reduction of hyperglycemia and hyperglycemia-associated clinical signs in dogs and cats with diabetes mellitus. CONTRAINDICATIONS Dogs and cats known to have a systemic allergy to pork or pork products should not be treated with vetsulin®. vetsulin® is contraindicated during periods of hypoglycemia.

WARNINGS

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

Animal Safety: Owners should be advised to observe for signs of hypoglycemia (see Owner Information Sheet). Use of this product, even at established doses, has been associated with hypoglycemia. An animal with signs of hypoglycemia should be treated immediately. Glucose should be given orally or intravenously as dictated by clinical signs. Insulin should be temporarily withheld and, subsequently, the dosage should be adjusted, if indicated. Any change in insulin should be made cautiously and only under a veterinarian's supervision. Changes in insulin strength, manufacturer, type, species (animal, human) or method of manufacture (rDNA versus animal-source insulin) may result in the need for a change in dosage. Appropriate diagnostic tests should be performed to rule out endocrinopathies in pets that are difficult to regulate (e.g., hyperadrenocorticism in dogs and hyperthyroidism in cats).

PRECAUTIONS

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

Drug Interactions: In the US clinical effectiveness studies, dogs and cats received various medications while being treated with vetsulin® including antimicrobials, antivirals, antifungals, antihistamines, analgesics, anesthetics/tranquilizers, diuretics, bronchodilators, corticosteroids (cats), NSAIDs, thyroid hormone supplementation, hyperthyroid medication (methimazole), internal and external parasitides, anti-emetics, dermatological topical treatments and oral supplements, ophthalmic preparations containing antimicrobials and antiinflammatories, and various vaccines. No medication interactions were reported. This drug was not studied in dogs receiving corticosteroids.

Reproductive Safety: The safety and effectiveness of vetsulin® in breeding, pregnant, and lactating dogs and cats has not been evaluated.

Use in puppies and kittens: The safety and effectiveness of vetsulin® in puppies and kittens has not been evaluated.

ADVERSE REACTIONS

Dogs

In the field effectiveness and safety study, 66 dogs were treated with vetsulin®. Sixty-two dogs were included in the assessment of safety. Hypoglycemia (defined as blood glucose < 50 mg/dL) with or without associated clinical signs occurred in 35.5% (22/62) of the dogs at various times during the study. Clinical signs of hypoglycemia were generally mild in nature (described as weakness, lethargy, stumbling, falling down, and/or depression). Disorientation and collapse were reported less frequently and occurred in 16.1% (10/62) of the dogs. Two dogs had a seizure and one dog died during the seizure. Although never confirmed, the presumptive diagnosis was hypoglycemia-induced seizures. In the rest of the dogs, hypoglycemia resolved with appropriate therapy and adjustments in insulin dosage. Seven owners recorded the following observations about the injection site on the home monitoring forms: swollen, painful, sore, and a bleb under the skin. The following clinical observations occurred in the field study following treatment with vetsulin® and may be directly attributed to the drug or may be secondary to the diabetic state or other underlying conditions in the dogs: hematuria, vomiting, diarrhea, pancreatitis, non-specific hepatopathy/pancreatitis, development of cataracts, and urinary tract infections.

In a 21-day field safety and effectiveness study, 40 dogs, already well controlled on vetsulin®, were administered vetsulin® using a VetPen™ insulin pen loaded with a pre-filled 2.7 mL vetsulin® cartridge and 29 gauge/12 mm pen needles. All dogs enrolled in the study were evaluated for safety. Loss of diabetic control was reported in 10 dogs, 3 of which were withdrawn from the study. Four dogs' loss of control resolved after dose adjustment while still using the insulin pen. For the remaining 3 dogs, the loss of diabetic control was reported at the end of the study and outcome was not documented. Two dogs had injection site reactions: edema in one dog and two instances of crusting in another. Poor appetite and weight loss was reported in one dog.

Cats

In a field effectiveness and safety study, safety data was reported for 78 cats receiving vetsulin®. Hypoglycemia (defined as blood glucose < 50 mg/dL) was reported in 61 cats (88 total incidences). Fifteen of the occurrences (involving 13 cats) were associated with clinical signs described as lethargy, diarrhea, decreased appetite/anorexia, vomiting, and hypothermia. One cat had seizures following accidental overdosing by the owner and again during the subsequent dose adjustment period. The cat responded to supportive therapy and had no further hypoglycemic episodes. In all cases of hypoglycemia, the clinical signs resolved following symptomatic treatment and/or dose adjustment. Polyneuropathy was reported in 4 cats. Two injection site reactions were reported: one as a mildly thickened subcutaneous tissue reaction and the second as a mild bruising.

The following clinical observations occurred in the field study following treatment with vetsulin® and may be directly attributed to the drug or may be secondary to the diabetic state or other underlying conditions in the cats: vomiting, lethargy, diarrhea, decreased appetite/anorexia, pancreatitis, dermal events, respiratory disease, urinary tract disorder, renal disease, dehydration, weight loss, polydipsia, polyuria, behavioral change, and ocular discharge/conjunctivitis. In a smaller field effectiveness and safety study, 14 cats were treated with vetsulin®. Hypoglycemia was reported in 6 cats (8 total occurrences). Lethargy not associated with hypoglycemia was reported in 4 cats (6 total occurrences). The following clinical observations occurred in the field study following treatment with vetsulin® and may be directly attributed to the drug or may be secondary to the diabetic state or other underlying conditions in the cats: foul odor to stool, diarrhea, dull coat, rapid, shallow breathing, stiff gait in rear, gallop rhythm, and pruritus with alopecia.

During the 1998–2007 period, the following adverse events in 50 cats treated with porcine insulin zinc suspension were reported to Intervet International and Intervet Inc: Death, seizures, lack of effectiveness/dysregulation, hypoglycemia, allergic or skin reaction, lethargy, vomiting/diarrhea, injection pain, hyperthermia, nystagmus, PU/PD, and abnormal behavior.

In a 21-day field safety and effectiveness study, 36 cats, already well controlled on vetsulin®, were administered vetsulin® using a VetPen™ insulin pen loaded with a pre-filled 2.7 mL vetsulin® cartridge and 29 gauge/12 mm pen needles. Loss of diabetic control was reported in three cats all of which resolved after dose adjustment while still using the insulin pen. Hypoglycemia was reported in one cat. The cat recovered with supportive care and dose adjustment.

To report suspected adverse drug experiences, call Merck at 1-800-224-5318. 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>

Use contents within 42 days of first puncture.

Additional information about vetsulin®, VetPen™, and diabetes mellitus can be found at www.vetsulin.com

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

Made in Germany 09/13

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NADA 141-325, Approved by FDA

Incurin™ (estriol) Tablets

For Oral Use in Dogs Only

CAUTION

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

INDICATION

INCURIN™ Tablets are indicated for the control of estrogen-responsive urinary incontinence in ovariohysterectomized female dogs.

CONTRAINDICATIONS

Animals showing polyuria-polydipsia should not be treated with INCURIN™ Tablets. The use of INCURIN™ Tablets is contraindicated during pregnancy.

WARNINGS

Human Warnings: Not for human use. Keep out of the reach of children. Women who are of child-bearing age or those who are breastfeeding should use caution when administering INCURIN™ Tablets. Wash your hands with soap and water after administration to avoid exposure to the drug. Consult a physician in case of accidental ingestion by humans. Animal Warnings: Some estrogens have been associated with bone marrow changes and an increased risk of mammary tumors. However, target animal safety study results and foreign post-market pharmacovigilance data for INCURIN™ Tablets have shown that estriol-treated dogs are at low risk for developing these conditions.

PRECAUTIONS

Evaluation of factors contributing to urinary incontinence should be considered prior of administration of INCURIN™ Tablets. Do not use with other estrogens. The concomitant use of INCURIN™ Tablets with other estrogens has not been evaluated. The concomitant use of INCURIN™ Tablets with glucocorticoids has not been evaluated. The use of INCURIN™ Tablets in dogs with liver disease has not been evaluated. The safe use of INCURIN™ Tablets has not been evaluated in intact female dogs, pregnant or lactating dogs, male dogs, and dogs less than 1 year of age.

ADVERSE REACTIONS

In the initial phase of a placebo-controlled field study conducted to determine effectiveness, 115 of 226 dogs were dosed with INCURIN™ Tablets orally at 2 mg per day for 14 days. Adverse reactions during the first study phase included primarily gastrointestinal and estrogenic effects. In the second phase of the field study, all dogs received treatment with INCURIN™ Tablets from Day 14 to Day 42; the drug dose was adjusted up or down (not to exceed 2 mg per day) at weekly intervals depending on whether urinary incontinence was controlled. Adverse reactions reported in dogs treated with INCURIN™ Tablets during the second study phase included gastrointestinal and estrogenic effects. Adverse reactions tended to lessen when dogs received lower drug doses. One dog that received 10 doses of estriol was removed due to suspected uterine stump pyometra. The relationship between this adverse reaction and INCURIN™ Tablets could not be determined. Extended-use studies continued after the field studies involving more than 300 dogs. Additional adverse reactions to those seen in the field studies included hyperpigmentation and lichenification of the vulva. Also, 3 dogs receiving INCURIN™ Tablets were euthanized due to aggressive behavior. Foreign market experience: Foreign post-market pharmacovigilance data for INCURIN™ Tablets were collected from the years 2000 through 2010 by Intervet, Inc. Approximately 20% of reported adverse events were for local or general alopecia. Vaginal hemorrhage, possible stump pyometra, an increase in epileptic seizures, and anemia, leukopenia, and thrombocytopenia were seen in 1 or more dogs. Other adverse events reported were similar to those seen during the US studies.

For technical assistance or to report suspected adverse reactions call Intervet at 1-800-224-5318. For a copy of the Material Safety Data Sheet (MSDS), call 1-800-770-8878.

Made in the Netherlands

INCURIN is the property of Intervet International B.V. or affiliated companies or licensors and is protected by copyrights, trademark and other intellectual property laws.
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Idaho VMA, humane society agree on means testing for nonprofit veterinary clients

Groups cooperate to reach deal that clarifies their roles and forestalls a legislative showdown. *By Matthew Kenwright*

After two years of negotiations with the Idaho Veterinary Medical Association (IVMA), the Idaho Humane Society has agreed to start means testing pet owners who seek out low-cost veterinary medical and surgical services through the humane society's facilities.

The agreement means the IVMA won't offer proposed legislation that would have limited nonprofit animal groups to provide medical and surgical services to low-income clients. The arrangement doesn't affect veterinary care offered within the shelter, the shelter adoption process or spay and neuter services, according to an IVMA release.

Pet owners seeking orthopedic services, wellness care, physical exams, preventive dentistry and vaccinations will have to fall below 75 percent of the median income in their county, according to the agreement. There are exceptions for emergency cases and referrals.

Jeff Rosenthal, DVM, the Idaho Humane Society's chief executive officer, tells *dvm360* that others in the veterinary community will receive

certain cases. "The agreement was probably the only one that the Idaho Humane Society could make in this situation," he says. "We'll continue to see anyone of any income group that needs help with an injury or illness of any kind, but we'll income-test those who come to us for routine vaccinations and wellness care or for prophylactic dentistry."

The Idaho Humane Society has operated a full-service veterinary clinic in Boise since 1984, when only five other practices were in the phone book, Rosenthal says. The IVMA launched its effort to limit the humane society's clientele after the nonprofit announced a plan to build a new, larger veterinary hospital near other practices, Rosenthal says.

Robert Pierce, DVM, IVMA board chairman, says Idaho residents are best served when nonprofits focus on low-income clients. "We are extremely pleased we have been able to come to an agreement," he says in an association release.

In explaining the agreement to his 600-plus statewide membership of

veterinarians, Pierce said the state needs nonprofit animal groups to stay focused on helping low-income families, as mandated by their charity charters, rather than duplicating services for the public at large. "Nonprofit animal groups are allowed very generous tax advantages and for excellent reasons: they spay and neuter pets for the general public, take care of strays and shelter animals, and help those lower-income families who cannot easily afford veterinary care," Pierce says. "We not only applaud their efforts, but we desperately need them to continue this mission. This agreement sets an important framework and precedent for the future all across our state."

Pierce concludes, "Neither the IVMA nor the [Idaho Humane Society] wants to fracture the long-term relationship between tax-paying veterinary businesses and nonprofit animal groups. This agreement clearly shows the dedication of both sides to define and recognize that we operate in two different arenas with two different areas of focus—and that we need each other." *dvm360*

IN BRIEF | News

FDA, drug companies addressing large animal fluid shortage with imports

The U.S. Food and Drug Administration (FDA) says it's working with drug companies to increase the availability of 3- to 5-liter bags of intravenous (IV) fluids intended for fluid therapy in large animals.

The current shortage has been triggered by several factors, according to a release from the FDA's Center for Veterinary Medicine, including increased demand and reduced manufacturing of the sizes most suitable for use in large animals.

Because of a shortage of IV fluids for use in both human and veterinary medicine, some manufacturers have focused on manufacturing the smaller sizes for humans and small animals, which has contributed to a decrease in the availability of the 3-liter and 5-liter sizes used in large animals.

To address the immediate need, the FDA says it will temporarily exercise enforcement discretion over the importation of large-volume IV solutions currently marketed in foreign

countries and labeled for use in those countries. Several companies are currently preparing to import 5-liter fluids into the United States.

The FDA says it's also working on a long-term plan to ensure continued availability of IV fluids, as well as ensuring that the products are produced and marketed in compliance with its regulations.

The agency plans to update its IV fluids shortages page as information becomes available. *dvm360*

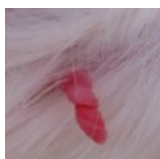
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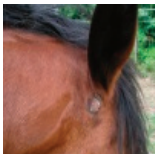
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More than half of U.S. dogs and cats remain overweight

Survey also identifies 'fat gap': Nearly all owners of overweight pets do not see excess weight. *By Julie Scheidegger*

Data collected in 2014 by the Association for Pet Obesity Prevention (APOP) found that 58 percent of U.S. cats and 53 percent of dogs were overweight. This presents a problem not only for more than half of the country's pets, but for the profession's efforts to educate clients about the health hazards associated with excess weight and to gain client compliance to manage that weight.

The past three years of APOP's National Pet Obesity Prevalence Survey show that the percentage of overweight pets is unchanged. However, among pets that are classified as overweight, the number that qualifies as clinically obese continues to grow—from 17 percent of dogs in 2013 to 18 percent in 2014, and 27 percent of cats in 2013 to 28 percent in 2014.

Furthermore, the data found that a "fat gap" persists in the minds of veterinary clients. Nearly all owners of overweight cats and dogs did not recognize their pets' excess weight. That discrepancy increased in 2014—90 percent of owners of overweight cats and 95 percent of owners of overweight dogs identified their pets as having a normal weight. In 2013, those percentages were 88 percent (cat owners) and 93 percent (dog owners).

"The sad truth is that most people can't identify an obese dog or cat," says Steve Budsberg, DVM, BS, MS, DACVS, veterinary orthopedic specialist and director of clinical research for the College of Veterinary Medicine at the University of Georgia. "Whenever their veterinarian tells them their pet needs to lose weight, they often can't believe it because they don't see it."

Excess weight and even obesity is obviously difficult for pet owners to

recognize—and it may be even more difficult to accept when a veterinarian suggests that a pet needs to lose weight. "No one wants to think their pet is overweight, and overcoming denial is our first battle," Ward says.

He says clients need to know—early on, not once a pet is obese—the importance of maintaining a healthy weight. Adhering to a veterinarian's recommended nutritional philosophy may be more appealing as a preventive measure when they understand what it takes to treat diseases like diabetes and arthritis. "There are real consequences for ignoring this," Ward says.

Ward contends that only 50 percent of pet owners say their veterinarian has talked to them about nutritional issues, but 75 percent say it would be extremely helpful. "Veterinarians think they don't want to hear it—they do. If we don't talk about it, they get it at the pet store," he says. "We're losing the conversation war."

To learn more about APOP or the 2014 study, go to petobesityprevention.org. **dvm360**



For clients

To share how regular exercise and better nutrition habits can be fun for pets and pet owners alike, go to dvm360.com/petmoving.

Few surprises atop VPI's TOP 10 list

Check out where dermatitis, dental disease fall on the annual ranking.

Based on the 1.1 million pet insurance claims submitted to Veterinary Pet Insurance (VPI), the following were the conditions that most affected the 500,000 pets covered by the insurance group.

Check out the common conditions and the average cost to treat them.

Top canine conditions

1. Atopic or other allergic dermatitis
Average cost: \$189
2. Otitis externa
Average cost: \$150
3. Benign skin neoplasia
Average cost: \$339
4. Pyoderma and/or hot spot
Average cost: \$118
5. Osteoarthritis
Average cost: \$293
6. Gastropathy
Average cost: \$268
7. Periodontitis/dental disease
Average cost: \$298
8. Enteropathy
Average cost: \$132
9. Cystitis or urinary tract infection
Average cost: \$274
10. Soft tissue trauma
Average cost: \$226

Top feline conditions

1. Feline cystitis or FLUTD
Average cost: \$425
2. Periodontitis/dental disease
Average cost: \$327
3. Chronic renal disease
Average cost: \$633
4. Gastropathy
Average cost: \$328
5. Hyperthyroidism
Average cost: \$396
6. Enteropathy
Average cost: \$185
7. Diabetes mellitus
Average cost: \$779
8. IBD or acquired lymphangiectasia
Average cost: \$365
9. Feline upper respiratory infection
Average cost: \$189
10. Lymphosarcoma or lymphoma
Average cost: \$1,959 [dvm360](#)



Resources

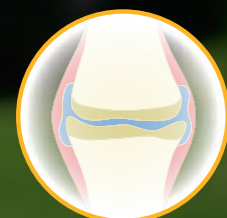
Go to [dvm360.com/VPItop10](#) for resources and information on many of the list's top dog and cat conditions.

» HIGH POTENCY PLAY

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Check out dvm360.com/scholarshipgrowth to see a bar graph on tuition and scholarship availability per student from 2004 to 2013 from AAVMC internal reports.

Veterinary schools work to grow scholarship endowments

But increasing tuition, class sizes keep funds per student virtually unchanged.

For nearly all veterinary students who will be taking on upwards of \$100,000 of student debt—no match for the seemingly paltry salaries of young veterinarians—leaders in academia believe scholarships may be the only way to bring down the increasing cost of veterinary education.

Executive Director of the Association of American Veterinary Medical Colleges (AAVMC) Andrew Maccabe, DVM, MPH, JD, says the cost of delivering a high-quality veterinary education is not going to decrease. At the same time, earning power for recent graduates, and their ability to repay educational debt, are not likely to quickly increase. “Given these realities, developing increased support for student scholarships is one of the most powerful strategies we have for addressing the educational debt problems facing academic veterinary medicine,” he says.

Recent announcements from a handful of veterinary schools—the University of Florida (UF), University of Missouri (MU), North Carolina State University and University of Pennsylvania, to name a few—suggest that universities are acting on that strategy. UF recently launched the Dean’s Scholarship Initiative, which aims to increase scholarship amounts annually by tenfold, eventually awarding \$5 million in scholarships each year. Within 10 years, the college expects to be subsidizing 50 percent of in-state veterinary

students’ tuition with scholarship funds.

MU’s College of Veterinary Medicine recently received \$2.5 million for scholarship endowment. NC State announced a \$16 million donation from the Randall B. Terry Charitable Foundation that allocates \$8 million to scholarships. “This will more than double the college’s student scholarship endowment, ensuring that the top prospects in the nation can learn and thrive at NC State,” NC State spokesperson David Green told *dvm360*.

This spring, Penn Vet launched the Commonwealth One Health Scholarship, which supports students with a passion for food animal medicine. “We saw this as a great way to support Pennsylvanians who want to work on Pennsylvania farm animals,” says Dean Joan Hendricks, VMD, PhD. The scholarship provides full tuition for four years and was awarded to two students in the class of 2019.

Administrators of the country’s veterinary schools realize the price of admission into even a beloved profession is a real barrier for some students. Some of the best and brightest may be choosing not to take on the financial challenges of becoming veterinarians. “The average starting salaries for veterinarians have not kept pace with the costs of providing a veterinary education,” says MU spokesperson Tracey Berry. “The more we can offer our students in scholarship support, the more they can minimize their student loan obligations.”

Scholarship stalemate

Maccabe says AAVMC data shows funds raised for scholarships have been increasing over the last decade, but the funds available per student has stayed constant because of the corresponding and steady increase in class sizes. According to AAVMC data, in 2013, average scholarship support per student was \$4,252. That’s less than it was in 2004. Within that decade, average tuition also increased more than \$10,000 for out-of-state students and more than \$7,000 for in-state students.

According to AVMA data, 53 percent of 2013 veterinary college graduates went into private clinical practice with the majority working in companion-animal-exclusive practice with a starting salary of \$69,712. Many other graduates—44 percent—went into advanced education in 2013. The majority took internships with an average starting salary of \$28,988.

Yet Maccabe is encouraged that colleges are increasing efforts to increase scholarship endowment. He says the AAVMC’s latest data shows the average scholarship endowment is about \$45 million—the largest being \$187 million, the smallest about \$7 million. “We applaud the work our member institutions are doing in this area,” Maccabe says. “Developing more philanthropic support for scholarships is critical and we hope to see this vital work become even more fruitful.” *dvm360*

Kansas State veterinary school names new dean

Dr. Tammy Beckham will join college Aug. 2, brings biosecurity expertise.

Kansas State University has announced that Tammy Beckham, DVM, PhD, will be the next dean of the College of Veterinary Medicine, according to a university release. Beckham will assume her post Aug. 2.

Beckham is currently director of the Institute for Infectious Animal Diseases (IIAD) at the Department of Homeland Security Center of Excellence in College Station, Texas. She’s led the IIAD’s efforts to perform research and develop products to defend the



Dr. Tammy Beckham

According to the release, Beckham is chair of the Foreign and Emerging Disease Committee of the United States Animal Health Association and has served on committees within animal health and veterinary diagnostics as-

nation from high-consequence foreign animal, emerging and zoonotic diseases since 2010.

She also has been an adjunct professor in the Department of Veterinary Pathobiology at Texas A&M University’s College of Veterinary Medicine and Biomedical Services. She has also served as the director of the Texas A&M Veterinary Medical Diagnostic Laboratory.

Beckham may prove crucial to overseeing the National Bio- and Agro-Defense Facility (NBAF), a biosafety-level-4 facility that is currently under construction at the Kansas State campus.

“It was very important for Kansas State to hire a dean of veterinary medicine with Dr. Beckham’s extensive experience in infectious disease and pathobiology,” says April Mason, PhD, provost and senior vice president of Kansas State University. “We anticipate she will be a very central part of planning Kansas State’s position as NBAF progresses.”

She succeeds Ralph Richardson, DVM, who served as dean since 1998. Richardson will transition to a faculty position. *dvm360*



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Avian influenza infects poultry flocks in 13 states

More than 21 million birds affected so far in commercial, backyard flocks.

Highly pathogenic avian influenza (HPAI)—or, more specifically, the novel H5N2 strain—has sickened or caused the culling of more than 21 million chickens, turkeys and pheasants in 13 states so far, according to the U.S. Department of Agriculture Animal and Plant Health Inspection Service (USDA-APHIS). The virus is thought to have entered the United States through the Pacific flyway, which runs from Alaska to western Mexico.

The H5N2 virus was first detected in Washington state in mid-December 2014. Since then it has spread to Arkansas, California, Iowa, Idaho, Kansas, Minnesota, Missouri, Montana, North Dakota, Oregon, South Dakota and Wisconsin. Two other strains, H5N8 and H5N1, have also been found in the Pacific flyway.

Some of the hardest-hit states, Iowa, Minnesota and Wisconsin, have declared states of emergency in response to the outbreaks. In addition, the government has approved the use of \$330 million in emergency funds to help contain the outbreak, according to Reuters.

Four flyways exist across the United States and serve as travel corridors for migratory birds. One factor influencing the spread of the virus are the large concentrations of virus-carrying migratory waterfowl settling in the hardest-hit areas, like the Mississippi flyway, increasing the likelihood of transmission, says Tim Baszler, DVM, PhD, veterinary pathology professor and director of Washington State University's Washington Animal Disease Diagnostic Laboratory (WADDL), in a university release. WADDL was the

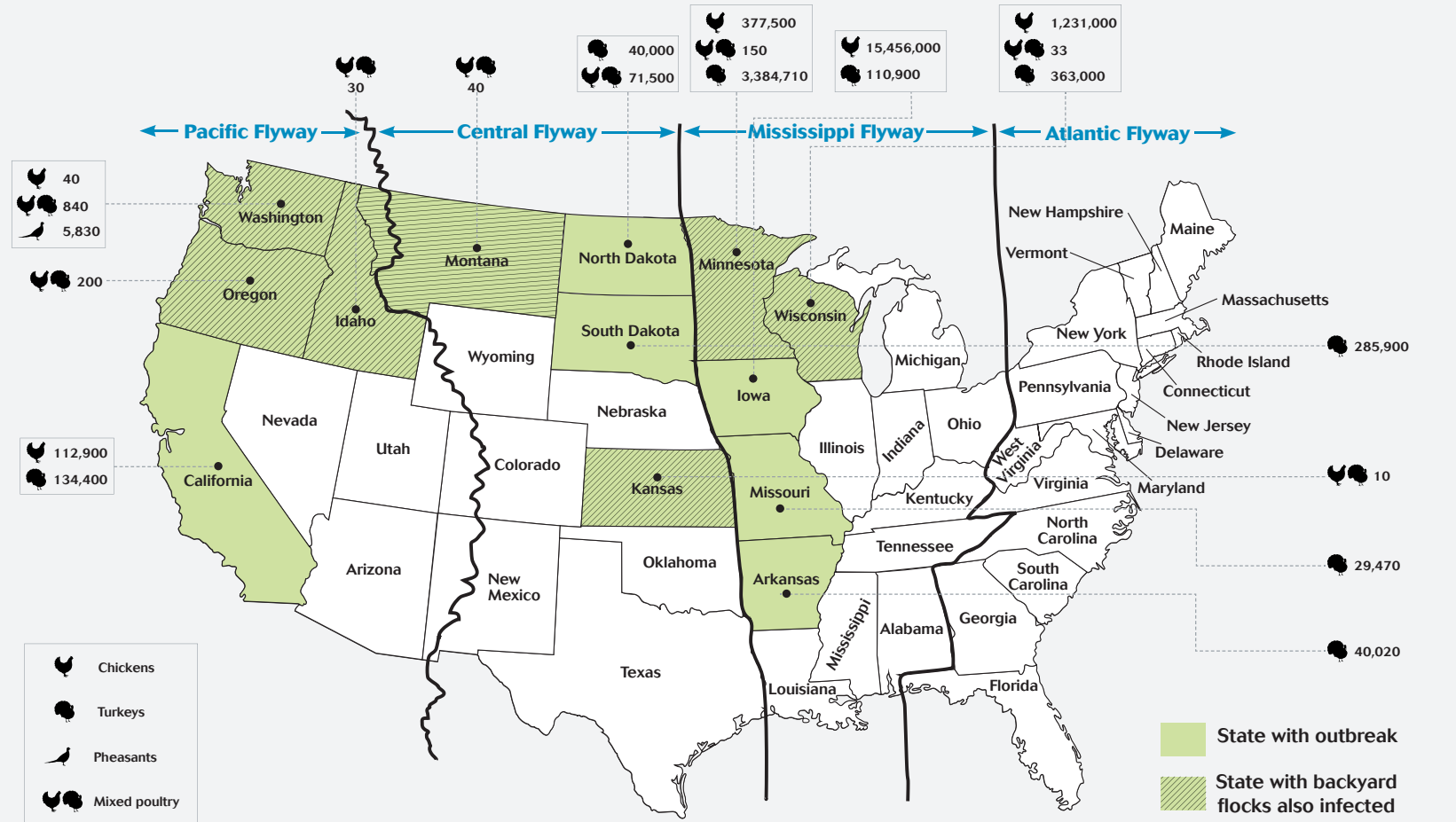
first U.S. facility to detect the virus.

Wild birds are able to carry the virus without getting sick, so it travels relatively silently until it makes contact with domestic birds, says Rocio Crespo, DVM, MS, DVSc, DACPV, associate professor of microbiology and pathology at Washington State's College of Veterinary Medicine and chief of the WADDL avian health and food safety branch.

The highly infectious virus spreads rapidly in flocks through the droppings and oral secretions of sick birds. In efforts to respond to the spread the USDA-APHIS follows five steps to assess and contain the virus, according to its website: quarantine, eradicate, monitor region, disinfect and test. See the map below for detailed information about the infections in each state. [dvm360](#)

Avian flu outbreak

As of May 4, the total number of domestic birds affected was 21,644,473. Numbers are expected to increase as pending infections are confirmed.



SOURCE: USDA ANIMAL AND PLANT HEALTH INSPECTION SERVICE

Trupanion digs into data about marijuana claims

As the drug becomes a household topic, veterinarians are getting more questions about how it might affect pets.

With cannabis-infused pet products coming into the market and the recent legalization of recreational marijuana use in Alaska and Oregon, pet owners have been turning to their veterinarians with questions about its use in pets. Trupanion looked through its database of claims to find out how marijuana, either intended for people or pets, is affecting cats and dogs.

Trupanion's veterinary analysts found that cats aren't particularly interested in marijuana. Dogs, however, have rolled in it, ingested it, and are much more likely to grab a marijuana-infused food off the countertop. Not surprisingly, the most marijuana-related claims per capita come from the two states that first legalized recreational marijuana: Washington and California, Trupanion says. Those states have three times more marijuana toxicity claims than the average number in other U.S. states.

The company has paid more than \$78,000 in suspected marijuana toxicity claims, and in 2014 alone it paid more than \$20,000 specifically in confirmed marijuana toxicity cases. According to the release, the average marijuana toxicity case costs about \$525 dollars to treat. Trupanion covers medicinal marijuana when recommended by a veterinarian. Most of the pets whose owners submitted medical marijuana claims were using the products in tandem with cancer treatments. [dvm360](#)



Marijuana for pets?

Find out what veterinary toxicologist Dr. Justine Lee says about the unknowns of the drug at dvm360.com/marijuanatox.



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¹ Reference on file, Bayer HealthCare, Animal Health.

² Reference on file, Bayer HealthCare, Animal Health.

³ Mueller RS, Bergvall K, Bensignor E, et al. (2012). A review of topical therapy for skin infections with bacteria and yeast. *Vet Dermatology*. 23:330-341.

* Studies were performed using Malaseb® Concentrate Rinse (0.2% Miconazole and 0.2% Chlorhexidine); *Staphylococcus pseudintermedius* (also known as *Staphylococcus intermedius*), *Pseudomonas aeruginosa*, *Malassezia pachydermatis*; The clinical significance of *in vitro* data has not been determined.

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COLORADO

CSU veterinarians rehabilitate ailing African lion

Specialists treat Guero's broken neck, damaged teeth.

Colorado State University (CSU) veterinary experts recently treated an African lion from Mexico to alleviate pain from his extensive neck injuries and significant dental problems.

It's believed that the 15-year-old lion, Guero, broke his neck almost three years ago because his cage gate was similar to a guillotine, according to a CSU press release. Guero's owner surrendered him to an animal rescue group in Pachuca, Mexico, and the lion was airlifted to Colorado in April. He was cared for by veterinarians specializing in neurology, exotic animal medicine, small animal surgery, anesthesiology and dentistry.

Magnetic resonance imaging (MRI) spotted Guero's healed neck fracture and chronic disc disease,

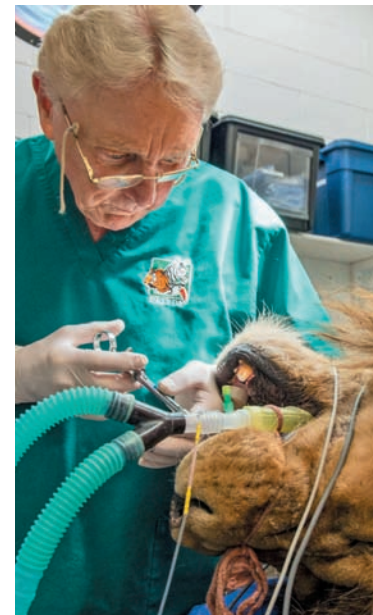
which limited his movement and inflicted chronic pain, CSU experts say. Guero's prospects for surviving surgery and recovery were slim, so steroids were recommended.

The lion also suffered from broken teeth, gum disease and exposed roots—problems that were attributed to chewing on cage bars.

Drills and cleaning equipment relieved some of his pain experienced during eating, and Guero will

undergo root-canal surgery.

The lion will spend the rest of his life at Wild Animal Sanctuary in Keenesburg, Colorado, according to CSU. "We think he'll most likely live another three to five years, but even if it's a year he lives, we're going to make sure that he's comfortable and happy—good food, soft ground, some grass to play on and some fresh air to breathe," says Rebecca Miceli, director of animal care at the sanctuary. "That's our hope." [dvm360](#)



>>> **Left:** Guero is taken for an MRI by the team of specialists. **Right:** Peter Emily, DDS, Hon. AVDC, treats Guero's significant teeth problems.

State ROUNDUP

A look at the world of animal health

Maine

A state representative in Maine has introduced legislation to create a veterinary school in the state.

Rep. John Martin, D-Maine, believes students are leaving the state to pursue DVM degrees, according to the *St. John Valley Times*. Tufts University is the sole veterinary program in New England, Martin says.

Maine uses the Maine Veterinary Medicine Loan Program to incentiv-

ize students to return and care for livestock in an underserved area.

Washington, D.C.

The U.S. Congress is debating legislation that would protect the pets belonging to domestic violence victims.

The Pet and Women Safety (PAWS) Act of 2015 was introduced by Reps. Katherine Clark (D-Massachusetts) and Ileana Ros-Lehtinen (R-Florida). Research suggests that at least one-

fourth of domestic violence victims don't leave abusive relationships because of a pet's safety, according to a release from Clark. The bill proposes to create a grant program to offer shelter for victims' pets. Only 3 percent of domestic violence shelters can house pets, Clark says.

The American Veterinary Medical Association (AVMA) and the Humane Society of the United States support the proposed legislation. [dvm360](#)



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

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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)

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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.

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

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Radiologist: Imaging of awake patients is a matter of ethics

Emergencies, heart failure cases, airway disease patients can all benefit from CT without anesthesia, expert says.

One of the most exciting new forms of respiratory imaging is the use of multiple-slice computed tomography (CT), says Robert O'Brien, DVM, MS, DACVR, professor at the University of Illinois College of Veterinary Medicine, who spoke at CVC Washington, D.C., this year. Multislice CT provides extremely rapid imaging, which opens the door to imaging awake veterinary patients on an emergency basis.

What's more, O'Brien says, the veterinary profession is ethically obligated to make use of advancing technology for the well-being of patients.

"I am very controversial in the American College of Veterinary Radiology," O'Brien told his CVC audience. "My peers do things the same way—everybody gets anesthetized, everybody gets the same dose of contrast, everybody gets treated the same way they've always been treated. I have real ethical problems with that. There's a better way to do it."

O'Brien's better way is to forego anesthesia whenever possible. "In 80 percent of my cases we use no general anesthesia," he says. This is particularly valuable in cases where anesthesia is medically contraindicated, such as feline congestive heart failure, in



>>> Dr. Robert O'Brien of the University of Illinois, shown here with his cat Michael, developed a motion-limiting device called the VetMouseTrap that maintains an oxygen-rich environment and enables speedy acquisition of CT scans.

functional airway diseases that are obscured by the presence of an endotracheal tube or positive air pressure, or in emergency patients where time is of the essence in reaching a diagnosis and commencing treatment.

"You lower morbidity by getting rid of anesthesia. You lower the financial burden. You get better imaging because the lungs are moving and breathing normally," O'Brien says. "I'm more than happy to put up with a little motion to get things to look like what they really look like while the animal is out in the world."

In order to obtain these CT images quickly and safely, clinicians need to limit the patient's motion and maintain an oxygen-rich environment, O'Brien says. "There should be no sacrifice in morbidity to the patient," he says.

To that end, O'Brien has developed a device called the VetMouseTrap—available for sale, but veterinarians can also build one themselves, O'Brien says. According to the University of Illinois website, the VetMouseTrap is a Plexiglas tube with a removable top and foam padding in the bottom that limits patients' motion, keeping them in a neutral sternal position so the clinician can conduct the CT scan. The VetMouseTrap is fastened to the

"You lower morbidity by getting rid of anesthesia. You lower the financial burden. You get better imaging because the lungs are moving and breathing normally."

*—Dr. Robert O'Brien,
Veterinary radiologist,
University of Illinois*

CT table with Velcro straps. O'Brien's team can obtain most CT scans in 10 seconds or less using the device.

O'Brien says that CT is becoming more common in general practice. When he provides teleradiology services to veterinarians, most of the images he sees are coming from general practices. "CT is coming soon to a neighborhood near you, if it's not already there. So it's good to be aware of what CT can do" he says. "With awake CT, the world is wide open to be imaged." **dvm360**

Imaging interest?

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Ticks will be a menace in 2015, CAPC predicts

> Continued from the cover

CAPC release. “But different tick species are active at different times of the year, including in the cooler months. For example, adult black-legged or deer ticks, which transmit the agent of Lyme disease and other infections, are actually most active during the fall and winter months. When this longer activity is considered together with the increased geographic distribution, parasites, particularly ticks, are a year-round concern.”

Because spring and early summer are traditionally thought of as the start of flea and tick season by pet owners, CAPC is encouraging veterinary practitioners to reach out to their clients now to discuss the importance of parasite control for their pets.

For 2015, CAPC predicts the following risks for parasite-related diseases:

> **Lyme disease** is a high threat once again this year in the New England and Mid-Atlantic states, and it continues to spread westward with a higher-than-average risk forecast for the Upper Ohio Valley area and the Pacific Northwest.

> **Ehrlichiosis**, another potentially fatal disease of dogs most common in the South, also appears to be a threat as far north as New England, as well as in far-reaching areas such as California and the Southern Plains states.

> **Anaplasmosis** is poised to be highly active in the Great Lakes states,



>>> Many tick species like to hang out in areas with long grass and quest for their next blood meal.

and New England could have an especially challenging year.

> **Heartworm disease**, a potentially fatal disease transmitted by mosquitoes, remains a consistent threat to the health of dogs and cats in the warmer Sunbelt states. The forecast also predicts a higher-than-normal threat of heartworm infection in Iowa, Minnesota and Wisconsin.

In addition to these forecasts, CAPC

offers parasite prevalence data that localizes reported parasitic disease activity to the county level. In recently conducted research, CAPC found that pet owners want to know about parasite risks immediately. A 2014 study by CAPC and Bayer polled 2,000 pet owners and found that 90 percent want to be notified of a high incidence of parasites in their area; two-thirds want to know this information immediately from their veterinarian. In addition, 89 percent of pet owners said they were likely to make an appointment to get their pets tested based on the risk.

There are more than 175 million pet dogs and cats in the United States. However, only 60 percent of dogs are protected for parasite-transmitted diseases like Lyme borreliosis and heartworm disease, CAPC says. For cats, it's fewer than four in 10. In many cases, pets serve as sentinels for tick-borne disease in humans.

“It is imperative that practitioners and pet owners work together and take the necessary preventive measures that not only safeguard the health of dogs and cats, but also can protect the whole family,” Little says.

CAPC offers educational tools and information for both veterinarians and pet owners on its two websites: capcvet.org, a veterinary-focused site, and petsandparasites.org for consumers. A CAPC App is available in the iTunes App Store. **dvm360**

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Blue Buffalo admits its pet food contained poultry byproducts

Nestlé Purina has legally locked horns with competitor over alleged false claims and false advertising, says customers deserve apology.

Blue Buffalo has admitted in federal court that a “substantial” and “material” portion of its pet food contained poultry byproduct meal, according to a release distributed by Nestlé Purina, which sued Blue Buffalo a year ago for false advertising.

After Blue Buffalo’s advertising claims were brought to the attention of the National Advertising Division (NAD), in early 2014 NAD encouraged Blue Buffalo to modify its advertising claims, concluding that ads were falsely disparaging to competitors. This included the “True Blue Test,” which NAD said conveyed the message that competing “big-name” pet food companies were deceiving consumers. This prompted Nestlé Purina to send samples of Blue Buffalo for analysis. As cited in the lawsuit, tests showed the presence of poultry byproduct meal in nine out of 10 Blue Buffalo pet food products.

A year to the day after Nestlé Purina brought its false advertising lawsuit, Blue Buffalo admitted the presence of byproducts in its food, prompting Purina spokesperson Keith Schopp to issue a statement: “Through a \$50 million annual advertising campaign that flooded airwaves and pet food aisles alike, Blue Buffalo told consumers over and over, emphatically and without qualification, that its products never contain poultry byproduct meal.”

As of press time, Blue Buffalo had not returned *dvm360*’s requests for comment, but on its website its FAQ page continued to claim that “Blue pet food contains no chicken or poultry-by-product meals.”

Blue Buffalo also has a lawsuit pending against Purina. It has alleged in a countersuit that Purina engaged in “a sophisticated and carefully orchestrated advertising campaign ... that falsely attacks Blue Buffalo’s honesty and the quality of its products.”

Now, Blue Buffalo is planning to file an amended complaint with the court naming its ingredient suppliers as defendants, according to Purina’s release.

“Blue Buffalo told consumers over and over that its products never contain poultry byproduct meal. ... Only when faced with undeniable evidence has Blue Buffalo admitted the truth.”

*—Keith Schopp,
Purina spokesman*

Bill Bishop, founder and chairman of Blue Buffalo, has said the company didn’t know it was receiving byproducts. He issued a letter to customers last fall explaining that one of its suppliers had mislabeled some ingredients, shipping poultry byproduct meal to Blue Buffalo instead of 100 percent chicken meal. Bishop assured customers that the company had stopped doing business with that manufacturer.

Schopp says blaming the supplier isn’t a satisfactory response. “A manufacturer is responsible for knowing what’s in its product, and a simple audit of its supply chain would have revealed what we discovered after reviewing the documentation,” he says.

“Only when faced with undeniable evidence from the lawsuit has Blue Buffalo admitted the truth to the court: a ‘substantial’ and ‘material’ portion of Blue Buffalo pet food sold over the past several years contained poultry byproduct meal,” Schopp continues. “It is unclear to us if or when this practice stopped, or whether any Blue Buffalo pet food containing byproduct meal is still on store shelves.”

Schopp asserts that Blue Buffalo owes consumers an apology for false statements. He also calls for the Purina competitor to prove that no mislabeled products remain in the market. **dvm360**



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A case for specialists in veterinary medicine

Blurring lines between specialists and less-trained generalists demands reckoning. *By Mark Davis, DVM, DACVS, CCRP*

I've watched the evolution of veterinary medicine for over 21 years. Most of that time has been spent as a board-certified small animal surgeon, but since most of my practice is mobile and I own a small animal general practice with my wife, I believe I've had a unique perspective, a bird's-eye view.

When I started my surgical residency in 1995, there was a clear and defined difference between specialists and general practitioners. There seemed to be a healthy level of mutual respect between the two groups and a collegiality that served the client and patient to an exceptional level. Of course there were practitioners who had by choice or necessity picked up plates, pins and wires in an effort to alleviate pet suffering, but for the most part, it wasn't a huge issue.

In the early 2000s, there was an unprecedented expansion in the number of companies offering surgical equipment. It became clear to the suppliers that the real market wasn't specialists but the other 80 percent of veterinarians who were also eligible to

he introduces the idea of the "10,000-hour rule." It dictates that it takes 10,000 hours to become an accomplished master at a particular skill. Examples include Bill Gates, Mozart and the Beatles, driving home the idea that skill and mastery come only from an intense period of repetitive action. Let's apply the 10,000-hour rule to veterinary surgery and compare the general practitioner to the board-certified surgeon.

The surgeon has completed a three-year residency laser-focused on surgery. If that resident commits 60 hours a week to surgery—and taking into account time off for research and out rotations—a surgical resident will spend about 7,000 hours during his or her residency focused on surgery. Also, if that newly minted surgeon spends 40 hours a week in a specialty practice committed to surgery, it'll take at least another year and a half to reach the 10,000-hour mark. That's a total of four and a half years to gain mastery. If we limit our discussion of hours to those spent strictly at the surgery table, then

erinarian and use its representative arm, the American Board of Veterinary Specialists, to increase the awareness of the value of specialists to the pet-owning public. It has, in my opinion, done more to oppress the visibility of specialists than it has to enhance it.

2. State veterinary boards. They have the power to help enact legislation designed to protect pets and pet owners. Until these governing bodies see the value of specialists and the need to promote referral in the name of pet welfare, we can expect to see this discussion swirling about for years.

3. Manufacturers and corporate conglomerates. These are the groups who sell the ways and means to perform advanced procedures. It's time for these companies to back specialists.

4. Specialty colleges and members. We're neither the beginning nor the end of this horrific chain, but we're an essential cog in the wheel that's running our profession off the rails. We've chosen to call ourselves specialists while trying to prove that what we do isn't really that special. Why would it be special if I can teach anyone how to do it in a couple of hours or days?

The colleges have failed to promote the role of specialists. They turn a blind eye to the weekend-warrior mentality that blurs the line between mastery and mere knowledge transfer.

I still believe we can have a collegial and collaborative relationship between specialists and general practitioners. It begins with the acceptance that there's a difference between specialists and general practitioners.

It's followed by communication that promotes the health and well-being of the patient, protects the interests of the client and serves the profession going forward. **dvm360**

Mark Davis, DVM, DACVS, CCRP, is with Northwest Veterinary Surgery Inc., a mobile small animal referral surgical practice serving the Puget Sound area and western Washington state.

It's a hypocrisy for which I have yet to find words that the very specialists who would take money hand-over-fist to teach a specialty procedure to a general practitioner in a few hours' time are the same who will tell a resident they aren't capable of performing the same procedures for years.

do these procedures. Never mind that their training would take place over hours or days compared with years for specialists—this was capitalism.

It's a hypocrisy for which I have yet to find words that the very specialists who would take money hand-over-fist to teach a specialty procedure to a general practitioner in a few hours' time are the same who will tell a resident they aren't capable of performing the same procedures for years. It may also be dangerous to the patients whom we've vowed to protect.

In Malcolm Gladwell's book *Outliers*,

the number of years adds up.

How long will it take for the general practitioner who spends his or her surgery time in between the other pressing issues in the course of a busy day? Does it take three times longer? Five times longer? Factor in the idea of service to our clients and patients and imagine how they might best be served.

I have looked long and hard for the origins of this problem, and my search has led me to four possible causes:

1. The American Veterinary Medical Association (AVMA). It's failed to modernize its view of the vet-



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²Kruger JM, Lulich JP, Merrills J, et al. *Proceedings*. American College of Veterinary Internal Medicine Forum 2013.
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The profession of no return

With high student debt and low starting salaries, investing in a veterinary education has a poor return on investment.

Ron and Junior joke around quietly in the small café as they wait for Aaron to join their regular Tuesday lunch. Ron is parts manager at a local Chevrolet dealer, while Junior teaches and coaches girls' basketball at the local high school. Aaron is the CEO at the local hospital. The three men are buddies who go way back.

Ron looks at his watch. "Twelve minutes past noon—Aaron's right on time." Just then their friend appears with a frazzled look.

"What's up, Mister Big?" Junior asks with a grin.

"Same stuff as usual," Aaron replies. "Things are fair. Molly's home from veterinary school. She finished up this year and has a pretty good job about an hour from here."

"Congrats!" Ron and Junior say, loud enough to turn heads at the diner.

The waitress takes their orders and the boys begin to jaw. Finally, Aaron speaks half under his breath: "The only problem is that Molly has about \$180,000 in student loans."

"That shouldn't be a problem in the long run. Vets make a lot of money," says Ron. Junior nods.

Aaron exhales slowly. "She'll be working as an equine vet starting out at \$47,000 a year. She has to pay \$1,350 per month on her loan starting next January," he says.

Ron and Junior don't say much more during lunch. Aaron has to leave early for a board meeting.

After Aaron leaves, Ron looks at Junior. "You know my youngest daughter, Sandi, has an associate's degree. She was making that much when she started as an x-ray technician working at Aaron's hospital."

Consider the investment

The American Veterinary Medical Association (AVMA) has finally made it official, confirming what a lot of veterinarians suspected all along—veterinary medicine from a financial standpoint is not a good investment. This is the dramatic conclusion from the Veterinary Economics Division of the AVMA. The article "Estimating the financial return on a veterinary education," which appeared in the Feb. 15 issue of JAVMA, is a shocker.¹

Using standard financial calculations of net present value—the value of something today amortized into the future—and return on investment, the

article shows clearly that veterinary medicine, especially in the private clinical sector, has little or no return financially when you take into account the huge investment in time, money and loss of wages during veterinary school. What makes matters worse is that the average data is skewed due to the fact the veterinarians in industry make significantly more income (and benefits) than the poor veterinarians slugging it out in the trenches.

So what makes us do it? Well, as the article points out, there's more to a profession than making a living. The non-utilitarian aspects of our job are powerful: working with and helping animals and their owners is very appealing indeed. This is what attracts most people to our profession in the

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first place. In fact, the pull of veterinary school is so strong that most aspiring veterinarians won't let anything get in their way until they reach their goal. Money in the form of loans is simply Monopoly money—that is, until the day of reckoning when the bills are due and there's not enough money left at the end of the paycheck.

The word may be getting out. Enrollment is not down, but the number of qualified applicants who apply to veterinary school is falling. This trend is not confined to veterinary medicine. The cost of all graduate school education has been climbing at a rapid rate since 2008, and other medical professions are definitely feeling the heat.

Most professional students in other medical fields have similar loan commitments. The salvation for them is that they're "subsidized" during their future professional careers at some level by federal dollars through federally mandated programs and insurance. Thus salaries and benefits continue to rise for these professions. On the other hand, dentists and veterinarians receive very little in the way of insurance and federal support.

Return on investment

The return on investment problem has to do with low veterinary salaries during the course of a long career. The average veterinary income across all segments and all age groups is \$98,000 per year. The following professions currently outperform veterinary medicine: podiatrists (\$137,000), pharmacists (\$118,000), optometrists (\$113,000)

and, finally, dentists (\$166,000) per year.²

Like veterinarians, dentists rely very little on insurance. Unlike veterinarians, they make their income on procedures and are not afraid to charge for them. This is something veterinary medicine has never learned to do. Despite the best efforts of economists and consultants for the past 20 years, the profession is caught in a constant game of financial catch-up that has reached critical mass. The debt-to-income ratio continues to rise at an untenable rate.³

This AVMA study reveals another crack in the foundation of wonderful but reeling profession. Unless we charge appropriately for medical and surgical advances that properly reflect the reality of our training and investment, our young graduates may be doomed to fall out of the middle class altogether. **dvm360**

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3. Mike Dicks, PhD. Truth or trash? Examining debt-to-income ratios for new veterinarians. *dvm360* magazine, 2015; 46, 3. veterinarynews.dvm360.com/debt-income-ratios-flawed-measure-veterinary-earning-potential.

Dr. David Lane owns and manages two practices in southern Illinois. He has a master's degree in agricultural economics and is a consultant, speaker and author of numerous practice-management articles. He can be reached at davidlane1948@yahoo.com.



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AVAILABLE NOW

THE DILEMMA | Marc Rosenberg, VMD



Holistic headache

What is a veterinarian's obligation to a client who insists on natural therapies?

Gina Hull exercised every day along with Hans, her German shepherd, and she prided herself on their fitness. Now 7 years old, Hans was slowing down, and it was most noticeable when they jogged. So she paid a visit to Dr. Longo, Hans' longtime veterinarian.

Ms. Hull liked Dr. Longo's philosophy—he used a natural approach to her pet's medical care whenever possible. She did not like preservatives in her food or the unnecessary use of prescription drugs, and she required the same approach to Hans' care and treatment.

>>> Hans, a 7-year-old German shepherd, was starting to slow down while jogging with his owner—who initially said she wanted natural treatments for his arthritis.



Photos: Kerri Slomcenski, DVM

One and done.

In a U.S. efficacy study, 86% of dogs needed only one injection to resolve their skin infection.¹

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10 days post-injection

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Three-year-old mixed breed diagnosed with facial moist dermatitis treated with CONVENIA 8 mg/kg

IMPORTANT SAFETY INFORMATION: People with known hypersensitivity to penicillin or cephalosporins should avoid exposure to CONVENIA. Do not use in dogs or cats with a history of allergic reactions to penicillins or cephalosporins. Side effects for both dogs and cats include vomiting, diarrhea, decreased appetite/anorexia and lethargy. See Brief Summary of full Prescribing Information on page XX.

¹Six R, Cherni J, Chesebrough R, et al. Efficacy and safety of cefovecin in treating bacterial folliculitis, abscesses, or infected wounds in dogs. *J Am Vet Med Assoc.* 2008;233(3): 433-9.

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See brief summary on page 32

Brief Summary of Prescribing Information

convenia®
(cefovecin sodium)

Antimicrobial for Subcutaneous Injection in Dogs and Cats Only

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

INDICATIONS:

Dogs

CONVENIA is indicated for the treatment of skin infections (secondary superficial pyoderma, abscesses, and wounds) in dogs caused by susceptible strains of *Staphylococcus intermedius* and *Streptococcus canis* (Group G).

Cats

CONVENIA is indicated for the treatment of skin infections (wounds and abscesses) in cats caused by susceptible strains of *Pasteurella multocida*.

CONTRAINDICATIONS: CONVENIA is contraindicated in dogs and cats with known allergy to cefovecin or to β-lactam (penicillins and cephalosporins) group antimicrobials. Anaphylaxis has been reported with the use of this product in foreign market experience. If an allergic reaction or anaphylaxis occurs, CONVENIA should not be administered again and appropriate therapy should be instituted. Anaphylaxis may require treatment with epinephrine and other emergency measures, including oxygen, intravenous fluids, intravenous antihistamine, corticosteroids, and airway management, as clinically indicated. Adverse reactions may require prolonged treatment due to the prolonged systemic drug clearance (65 days).

WARNINGS: Not for use in humans. Keep this and all drugs out of reach of children. Consult a physician in case of accidental human exposure. For subcutaneous use in dogs and cats only. Antimicrobial drugs, including penicillins and cephalosporins, can cause allergic reactions in sensitized individuals. To minimize the possibility of allergic reactions, those handling such antimicrobials, including cefovecin, are advised to avoid direct contact of the product with the skin and mucous membranes.

PRECAUTIONS: Prescribing antibacterial drugs in the absence of a proven or strongly suspected bacterial infection is unlikely to provide benefit to treated animals and may increase the risk of the development of drug-resistant animal pathogens.

The safe use of CONVENIA in dogs or cats less than 4 months of age and in breeding or lactating animals has not been determined. Safety has not been established for IM or IV administration. The long-term effects on injection sites have not been determined. CONVENIA is slowly eliminated from the body, approximately 65 days is needed to eliminate 97% of the administered dose from the body. Animals experiencing an adverse reaction may need to be monitored for this duration.

CONVENIA has been shown in an experimental *in vitro* system to result in an increase in free concentrations of carprofen, furosemide, doxycycline, and ketoconazole. Concurrent use of these or other drugs that have a high degree of protein-binding (e.g. NSAIDs, propofol, cardiac, anticonvulsant, and behavioral medications) may compete with cefovecin-binding and cause adverse reactions.

Positive direct Coombs’ test results and false positive reactions for glucose in the urine have been reported during treatment with some cephalosporin antimicrobials. Cephalosporin antimicrobials may also cause falsely elevated urine protein determinations. Some antimicrobials, including cephalosporins, can cause lowered albumin values due to interference with certain testing methods.

Occasionally, cephalosporins and NSAIDs have been associated with myelotoxicity, thereby creating a toxic neutropenia⁴. Other hematological reactions seen with cephalosporins include neutropenia, anemia, hypoprothrombinemia, thrombocytopenia, prolonged prothrombin time (PT) and partial thromboplastin time (PTT), platelet dysfunction and transient increases in serum aminotransferases.

ADVERSE REACTIONS:

Dogs

A total of 320 dogs, ranging in age from 8 weeks to 19 years, were included in a field study safety analysis. Adverse reactions reported in dogs treated with CONVENIA and the active control are summarized in Table 2.

Table 2: Number of Dogs* with Adverse Reactions Reported During the Field Study with CONVENIA.

Adverse Reaction	CONVENIA (n=157)	Active Control (n=163)
Lethargy	2	7
Anorexia/Decreased Appetite	5	8
Vomiting	6	12
Diarrhea	6	7
Blood in Feces	1	2
Dehydration	0	1
Flatulence	1	0
Increased Borborygmi	1	0

*Some dogs may have experienced more than one adverse reaction or more than one occurrence of the same adverse reaction during the study.

Mild to moderate elevations in serum γ-glutamyl trans-ferase or serum alanine aminotransferase were noted post-treatment in several of the CONVENIA-treated dogs. No clinical abnormalities were noted with these findings.

One CONVENIA-treated dog in a separate field study experienced diarrhea post-treatment lasting 4 weeks. The diarrhea resolved.

Cats

A total of 291 cats, ranging in age from 2.4 months (1 cat) to 21 years, were included in the field study safety analysis. Adverse reactions reported in cats treated with CONVENIA and the active control are summarized in Table 3.

Table 3: Number of Cats* with Adverse Reactions Reported During the Field Study with CONVENIA.

Adverse Reaction	CONVENIA (n=157)	Active Control (n=163)
Vomiting	10	14
Diarrhea	7	26
Anorexia/Decreased Appetite	6	6
Lethargy	6	6
Hyper/Acting Strange	1	1
Inappropriate Urination	1	0

*Some cats may have experienced more than one adverse reaction or more than one occurrence of the same adverse reaction during the study.

Four CONVENIA cases had mildly elevated post-study ALT (1 case was elevated pre-study). No clinical abnormalities were noted with these findings.

Twenty-four CONVENIA cases had normal pre-study BUN values and elevated post-study BUN values (37–39 mg/dL post-study). There were 6 CONVENIA cases with normal pre- and mildly to moderately elevated post-study creatinine values. Two of these cases also had an elevated post-study BUN. No clinical abnormalities were noted with these findings.

One CONVENIA-treated cat in a separate field study experienced diarrhea post-treatment lasting 42 days. The diarrhea resolved.

FOREIGN MARKET EXPERIENCE: The following adverse events were reported voluntarily during post-approval use of the product in dogs and cats in foreign markets: death, tremors/ataxia, seizures, anaphylaxis, acute pulmonary edema, facial edema, injection site reactions (alopecia, scabs, necrosis, and erythema), hemolytic anemia, salivation, pruritus, lethargy, vomiting, diarrhea, and inappetence.

For a copy of the Material Safety Data Sheet, (MSDS) or to report a suspected adverse reaction call Zoetis Inc. at 1-888-963-8471.

STORAGE INFORMATION:

Store the powder and the reconstituted product in the original carton, refrigerated at 2° to 8° C (36° to 46° F). **Use the entire contents of the vial within 56 days of reconstitution.** PROTECT FROM LIGHT. After each use it is important to return the unused portion back to the refrigerator in the original carton. As with other cephalosporins, the color of the solution may vary from clear to amber at reconstitution and may darken over time. If stored as recommended, solution color does not adversely affect potency.

HOW SUPPLIED:

CONVENIA is available as a 10 mL multi-use vial containing 800 milligrams of cefovecin as a lyophilized cake.

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THE DILEMMA | Marc Rosenberg, VMD

Dr. Longo evaluated Hans and took a full set of pelvic and lumbar radiographs. The results revealed fairly advanced bilateral degenerative joint disease of both hips and significant lumbar spinal spondylosis. He explained that this was the reason Hans was lagging behind during jogging and that the dog was probably experiencing significant discomfort.

Dr. Longo recommended an all-natural diet with a glucosamine additive incorporated into the food. He also started Hans on a daily dose of glucosamine-chondroitin tablets. In addition, he advised Ms. Hull to pick up some omega-3 fatty acid capsules for Hans and scheduled a series of cold laser treatment sessions to help decrease the inflammation and discomfort in Hans’ hip joints. Ms. Hull was not happy with Hans’ aging issues, but she was happy she could help him.

Five weeks into the new holistic protocol, Hans was still lagging behind while jogging with his owner. Ms. Hull perceived a minor improvement, but she was unhappy with the dog’s overall progress. So she made an appointment with a veterinary orthopedist at a nearby specialty facility.

The doctor examined Hans and reviewed his radiographs. She concluded that the holistic care was helpful but could be combined with prescription medication in a complementary approach. After running a general blood profile, she prescribed an NSAID for Hans to use in conjunction with his supplements and laser. She mentioned that these natural therapies were supported by anecdotal endorsements, while the prescription medicine had been proven effective by mainstream testing. Finally, she told Ms. Hull to not worry about negative side effects with her all-natural treatments because she wasn’t aware of any risks.

Within four days of adding the NSAID to the holistic protocol, Hans was almost restored to his younger self. Ms. Hull was happy but also a bit disillusioned—why hadn’t Dr. Longo prescribed this medication as part of Hans’ therapy? She contacted Dr. Longo

Ms. Hull was upset after considering Han’s suffering and his immediate response to the new medication. She filed a complaint against Dr. Longo for mistreating Hans’ painful arthritis condition.

and asked. He said he believed that Hans would respond to holistic therapy and would not suffer from any side effects.

Ms. Hull was upset after considering Han’s suffering and his immediate response to the new medication. She filed a complaint against Dr. Longo for mistreating Hans’ painful arthritis condition. Dr. Longo retorted that Ms. Hull used his services specifically because he took a natural approach to medication and treatment. He said he was diligent, caring and certainly not negligent with the treatment.

Do you agree with Dr. Longo, or is Ms. Hull justified?

Rosenberg’s response

I agree with the client in this case. Holistic treatment is appropriate only after a full-disclosure discussion with pet owners. Clients should be advised that non-FDA-approved treatments, while potentially helpful, are not the accepted standard of care. Once pet owners understand these parameters, they can make an informed decision. Dr. Longo knew that Ms. Hull had a naturalistic medical philosophy, but he was still obligated to explain all of the treatment options. He didn’t do this and fell short of his obligation to the patient and client. **dvm360**

Dr. Marc Rosenberg is director of the Voorhees Veterinary Center in Voorhees, New Jersey. 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.



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Do your team members need a **contract**?

Simple practice policy may not protect you from employees out to damage your business.

Over the years I've focused on the most obvious aspect of noncompete covenants—they prohibit a doctor who leaves a practice from engaging in competitive activity within a certain geographical distance for a defined period of time. But I haven't paid as much attention to the other provisions these agreements typically contain: restrictions against soliciting employees of the practice after they leave, disclosing business information to third parties and disparaging the practice verbally or in writing to third parties.

Generally, veterinarians understand that the hiring away (or poaching) of a doctor from another practice is very easy to prove. Consequently, they rarely bother trying to do it. Purloining client and patient information may

technical staff. Before you know it, she's texting all your other receptionists, saying her new job has better hours and a friendlier bunch of LVTs—so “you guys should get over here and fill out an application!”

➤ Tommy the kennel guy is tight with the rescue and shelter community. When his sloppy work at your practice stands in the way of his getting an annual raise, he quits and heads to one of your competitors. Shortly thereafter, none of the local adoption programs will recommend your hospital for new-pet exams or sick visits. Tommy has told everybody “what really goes on” at your clinic.

➤ Any of the above-mentioned folks quits after an argument with you or your manager. Suddenly Instagram, Twitter and Facebook are awash in comments and testimonials describing what a terrible practice you run.

➤ As an alternative, any one of the above-mentioned folks quits for a new job, but only after copying client lists and medical records of everyone she knows so the new practice can contact them to solicit their business.

While some hospitals have vague and unenforceable policies covering these sorts of threats, most don't expressly prohibit this kind of activity at all. And in an age of exploding social media, the damage that can be caused by a team member who engages in these behaviors has never been greater. One possible solution is to have your team members sign a “contract” of sorts.

Pro-contract arguments

A contract can protect you against cyber attacks, promote a zero-tolerance stance on negative post-employment behavior and can emphasize a thief's legal liability.

➤ Today, with the explosive growth of cyber-opinion outlets, anyone can almost instantly write a virtual book about your business. Hence, it would be nice to have some degree of legal protection against false, negative posts that can easily impact both your practice goodwill and your ability to recruit high-quality employees.

➤ If a current employee interviews elsewhere in anticipation of departing your clinic, it will be good for the new potential employer to be aware that your hospital's ex-employees are legally prohibited from stealing away coworkers and clients. A signed contract with hourly workers tells the world that your practice does not tolerate that behavior.

➤ Your contract can be crafted to make team members aware that walking off with client records opens the thief to major liability. This includes not just liability to you under the covenant but liability to state regulators. Personal and proprietary information is protected by a number of state laws. So even if an employee isn't afraid of what you might do, a nonpoaching agreement might scare him or her out of records theft for fear of criminal liability.

Contract cons

You may want to consider when drafting your contract that courts have expanded the concept of consideration in many employment contracts and these agreements might not be enforceable. Also, a contract may scare off potential employees.

➤ In order to have an enforceable agreement, there must be “fair and adequate consideration.” This means that in order to enforce the rights of one party, both sides must be giving up something of comparable value.

Recently, more courts have been denying enforcement of DVM associate noncompete agreements, citing too great a disparity in consideration. For example, a veterinarian works for six months, then leaves a practice under burden of a three-year noncompete clause—this is not a “fair and adequate” balance of value. When it comes to team members, a court could view a nonsolicitation or nonpoaching agreement as excessive in light of the minimal consideration of a \$10-per-hour job with no guaranteed term.

➤ Candidates for any sort of job are often inherently reluctant to sign any sort of contract. Therefore, if your agreement is complicated or difficult to understand, good potential workers could be scared away by the idea of having to sign something legal just to get a routine hourly job.

Of course, you can tell new hires as well as existing hourly employees that you have adopted a policy that requires all workers, not just DVMs, to sign a nonsolicitation, nondisparagement or noncompetition agreement. But as with most things that seem simple, there are hidden complexities to consider. Once you've weighed the pros and cons, only you can decide whether a team member contract is right for your practice. **dvm360**

Dr. Allen is president of Associates in Veterinary Law. E-mail info@veterinarylaw.com.

In an age of exploding social media, the damage that can be caused by a team member who engages in negative behaviors has never been greater.

occur in rare cases, but most practice owners who hire an associate recognize that a battle with another practice is more trouble than it's worth. Finally, most veterinarians recognize that if they start spreading gossip or defamatory statements about a former employer, they not only sound profoundly unprofessional, they invite a lawsuit from the offended party.

None of this applies with your hourly support team members.

What if?

In most clinics, there isn't much standing in the way of a receptionist, veterinary technician or assistant engaging in the sorts of behaviors most doctors' contracts expressly forbid. Consider these scenarios—all of which have actually happened to your colleagues when their disenchanted noncontract employees quit or were terminated.

➤ Suzie the treatment assistant becomes friendly with one of your associates. She leaves for a higher-paying position at a competing clinic and tells her old pal, “My new place is considering adding another vet; why don't you introduce yourself to my boss and sell him on hiring you—it'll be like old times!”

➤ Betty the receptionist heads down the street because she can't get along with the

Awwww

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How to predict veterinary compensation

You don't need a crystal ball to forecast what a particular veterinarian will make, but you will need to dust off your statistical analysis skills.

Most people don't realize that the employment of economic concepts is an innate human behavior. They may not know the terminology, but people have nonetheless engaged in economic behaviors from the beginning of human existence. For example, a Stone Age hunter-gatherer who elected to spend effort to acquire a certain amount of food made choices based on the effort necessary to acquire this food.

To this end, for thousands of years humans collectively hunted the largest animals because they provided

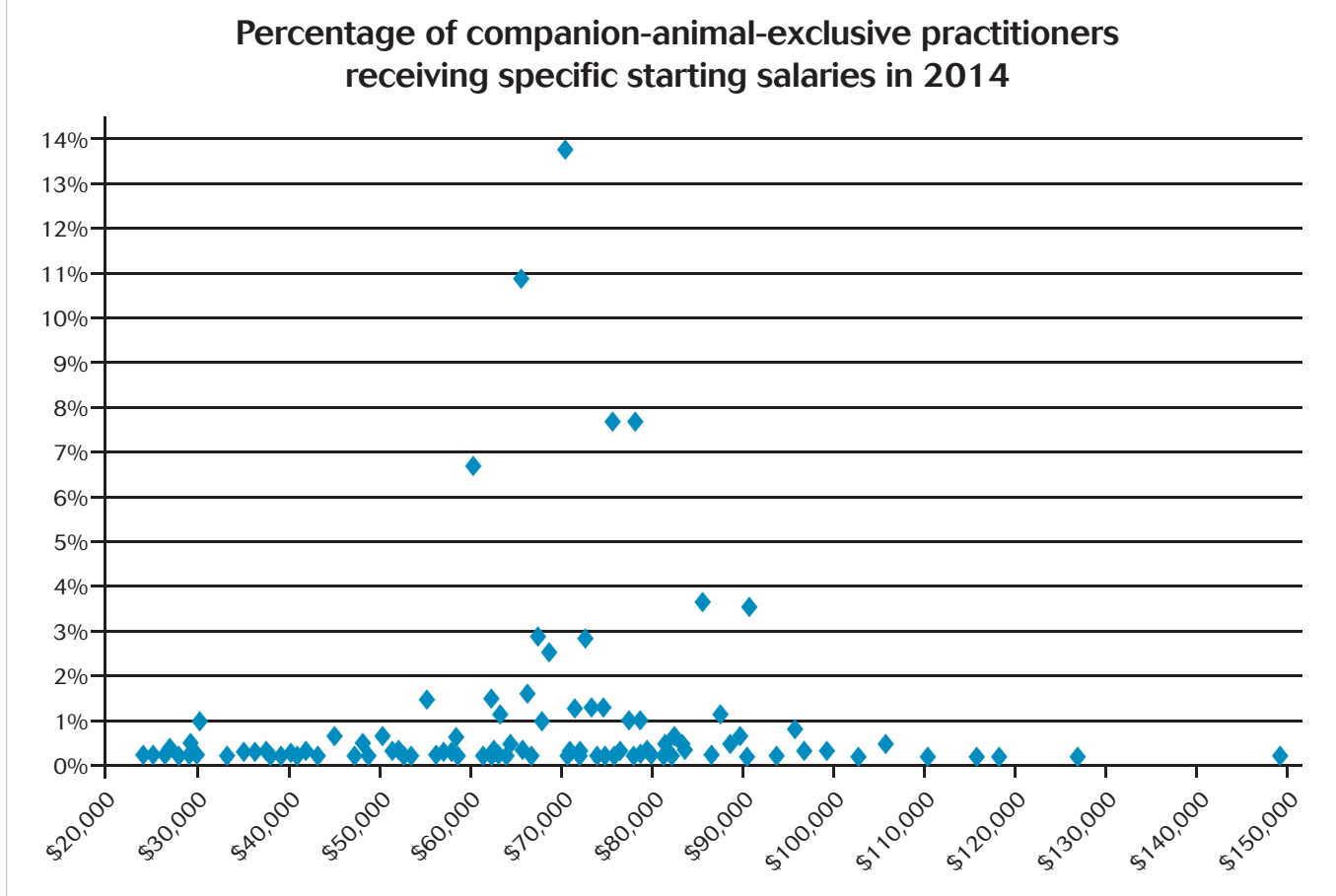
the greatest return on investment: considerably less effort was required for a group of 20 to obtain a large 1,000-pound animal than it was for each individual to hunt multiple small animals such as rabbits. Technology (in this case weapons) eventually replaced the labor, and here we are today.

Humans are continuously making choices about how to spend their time to receive optimal benefits. They are constantly revealing their preferences, and their collective actions create market demand. Demand is the willingness of an individual to pay for

a specific quantity of a good or service with specific characteristics. This demand provides a relationship between quantity and price—the quantities demanded by individuals in the market and the price they are willing to pay. If the market is robust, then the quantity of goods or services available are all purchased at the price the consumer is willing to pay.

One such relatively robust market is the market for veterinarians. Contrary to popular belief, unemployment in veterinary medicine is less than the natural rate of unemployment. What's

TABLE 1



Source: AVMA Veterinary Economics Division



Loxicom[®] (meloxicam)

1.5 mg/mL Oral Suspension

Keep Your Patients Running Back To You

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

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



Loxicom Injection
ALSO AVAILABLE!



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

*Source: Bayer Veterinary Care Usage Study III, 2013

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

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Norbrook[®]

See brief summary on page 38

TABLE 2

Factors affecting the income of new veterinarians

Basic information	B	Significance
Constant	-3311740.914	0.000
Year of survey	1682.893	0.000
Age	61.547	0.011
Gender: F= 1, M=0	-2438.909	0.000
Anticipated hours per week	-124.378	0.000
DVM debt	0.008	0.000
Region (first digit of zip code)		
Region 0	1682.764	0.000
Region 1	2591.826	0.000
Region 2	1464.594	0.000
Region 3	0	
Region 4	-86.063	0.789
Region 5	-1239.19	0.001
Region 6	-576.13	0.093
Region 7	1162.839	0.000
Region 8	2027.233	0.000
Region 9	3898.581	0.000
Outside of the U.S.	1174.299	0.221
Additional degrees held		
Admitted to DVM program before degree earned	-198.844	0.427
Bachelor's degree	0	
Master's degree	239.129	0.469
Doctorated degree	-1125.78	0.250
Other professional degree (MD, JD, etc.)	775.935	0.623
Other degree	-1300.84	0.224
Private practice		
Food animal (exclusive)	1155.72	0.039
Food animal (predominant)	-2676.25	0.000
Mixed practice	-4085.009	0.000
Companion animal (exclusive)	0	
Companion animal (predominant)	-1442.35	0.000
Equine	-18163.2	0.000
Public practice		
Federal government	-3674.6	0.014
Uniformed services	-1329.69	0.030
College or university	-25639.1	0.000
State or local government	-10293	0.001
Industry	6772.092	0.000
Not-for-profit	-9791.77	0.000

Source: AVMA Veterinary Economics Division

more, most veterinarians want to work fewer hours than they currently do. Across the profession, nearly 1,000 more veterinarians would be needed for current members to reduce the hours they work (along with their current compensation) to the level of hours they would optimally prefer. Thus, veterinarians are, on average, fully employed at a wage they are willing to accept in an active market.

As with any average (or mean), there are data points above and below—some veterinarians are earning a lower salary while others are earning more. The most important information is not the average itself but the factors that cause the difference between the mean wage and an individual wage in any given year and the factors that affect year-to-year changes in the average.

First, let's explore differences in income within the same year. (We'll address year-to-year differences in income in the July issue of *dvm360*.)

Consider the starting salaries of new veterinarians who find work as companion-animal-exclusive practitioners in 2014. Table 1 (page 36) shows the percentage of new veterinarians in this employment type by starting salary. The average starting salary for this practice type was \$69,638 in 2014.

You'll notice that there's a wide range of starting salaries: from a low of \$24,000 per annum up to a high of \$148,000. For companion-animal-exclusive practitioners in 2014, the most frequently reported salary at 13.6 percent of the sample was \$70,000 per annum. This was followed by 10.8 percent of the sample reporting anticipated earnings of \$65,000 per annum.

While the average salary for a companion-animal-exclusive practitioner in 2014 was \$69,638, that does not mean that any individual new veterinarian was actually paid this exact salary. Again, the key question is this: How do we explain why the salaries of individual veterinarians are greater or less than the mean?

For that we turn to statistical analysis, which lets us measure the relationship between starting salary and a number of different factors. And the factors found to explain the difference between mean salary and individual salary are as follows: practice type, additional degrees held, location of job, age, gender, anticipated work hours per week and DVM debt incurred.

Table 2 contains a regression analysis

Loxicom® (meloxicam)

1.5 mg/mL Oral Suspension

Non-steroidal anti-inflammatory drug for oral use in dogs only

Warning: Repeated use of meloxicam in cats has been associated with acute renal failure and death. Do not administer additional injectable or oral meloxicam to cats. See Contraindications, Warnings, and Precautions for detailed information.

Brief Summary: Before using Loxicom Oral Suspension, consult the product insert, a summary of which follows.

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

Description: Meloxicam is a non-steroidal anti-inflammatory drug (NSAID) of the oxicam class.

Indications: Loxicom Oral Suspension is indicated for the control of pain and inflammation associated with osteoarthritis in dogs.

Contraindications: Dogs with known hypersensitivity to meloxicam should not receive Loxicom Oral Suspension. **Do not use Loxicom Oral Suspension in cats. Acute renal failure and death have been associated with the use of meloxicam in cats.**

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 oral use in dogs only.** As with any NSAID all dogs should undergo a thorough history and physical examination before the initiation of NSAID therapy. Appropriate laboratory testing to establish hematological and serum biochemical baseline data is recommended prior to and periodically during administration. To report suspected adverse reactions, to obtain a Material Safety Data Sheet, or for technical assistance, call Norbrook at 1-866-591-5777.

Precautions: The safe use of Loxicom Oral Suspension in dogs younger than 6 months of age, dogs used for breeding, or in

pregnant or lactating dogs has not been evaluated. 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. Patients at greatest risk for renal toxicity are those that are dehydrated, on concomitant diuretic therapy, or those with existing renal, cardiovascular, and/or hepatic dysfunction. Concurrent administration of potentially nephrotoxic drugs should be carefully approached. NSAIDs may inhibit the prostaglandins that 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. Since NSAIDs possess the potential to induce gastrointestinal ulcerations and/or perforations, concomitant use with other anti-inflammatory drugs, such as NSAIDs or corticosteroids, should be avoided or closely monitored. The use of concomitantly protein-bound drugs with Loxicom Oral Suspension 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 Loxicom Oral Suspension has not been evaluated. Drug compatibility should be monitored in patients requiring adjunctive therapy.

Adverse Reactions: Field safety was evaluated in 306 dogs. Based on the results of two studies, GI abnormalities (vomiting, soft stools, diarrhea, and inappetence) were the most common adverse reactions associated with the administration of meloxicam. Of the dogs that took meloxicam (n=157), forty experienced vomiting, nineteen experienced diarrhea/soft stool, five experienced inappetence, and one each experienced bloody stool, bleeding gums after dental procedure, lethargy/swollen carpus, and epiphora. Of the dogs that took the placebo (n=149), twenty-three experienced vomiting, eleven experienced diarrhea/soft stool, and one experienced inappetence. In foreign suspected adverse drug reaction (SADR) reporting over a 9 year period, incidences of adverse reactions related to meloxicam administration included: auto-immune hemolytic anemia (1 dog), thrombocytopenia (1 dog), polyarthritis (1 dog), nursing puppy lethargy (1 dog), and pyoderma (1 dog).

Effectiveness: The effectiveness of meloxicam was demonstrated in two field studies involving a total of 277 dogs representing various breeds, between six months and sixteen years of age, all diagnosed with osteoarthritis. Both of the placebo-controlled, masked studies were conducted for 14 days. All dogs received 0.2 mg/kg on day 1. All dogs were maintained on 0.1 mg/kg oral meloxicam from days 2 through 14 of both studies. Parameters evaluated by veterinarians included lameness, weight-bearing, pain on palpation, and overall improvement. Parameters assessed by owners included mobility, ability to rise, limping, and overall improvement. In the first field study (n=109), dogs showed clinical improvement with statistical significance after 14 days of meloxicam treatment for all parameters. In the second field study (n=48), dogs receiving meloxicam showed a clinical improvement after 14 days of therapy for all parameters; however, statistical significance was demonstrated only for the overall investigator evaluation on day 7, and for the owner evaluation on day 14.

How Supplied: Loxicom Oral Suspension 1.5 mg/mL: 10, 32 and 100 mL bottles with small and large dosing syringes.

Storage: Store at controlled room temperature 68-77°F (20-25°C). Excursions permitted between 59°F and 86°F (15°C and 30°C). Brief exposure to temperature up to 104° F (40°C) may be tolerated provided the mean kinetic temperature does not exceed 77°F (25°C); however such exposure should be minimized.

Made in the UK.

Manufactured by:

Norbrook Laboratories Limited
Newry, BT35 6PU, Co. Down, Northern Ireland

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of those factors. (Warning: high-level math ahead—hang in there for the practical application.) In the table, a level of statistical significance less than 0.05 suggests a 95 percent probability that a factor's coefficient (B) is statistically different from zero and, thus, the factor affects starting salaries. The plus or minus sign in front of the factor value indicates whether the factor is associated with a starting income greater than (+) or less than (-) the mean. Summing the (squared) differences between the individual incomes and the mean income is a measure of the total difference (variance). Using all of these factors explains 71.4 percent of this total difference. The remaining difference is likely due to the individual characteristics of each employer or employee.

Using Table 2, we can estimate the expected starting salaries in different situations for new veterinary graduates. For example, suppose I want to know what a 29-year-old female mixed-animal practitioner with \$125,000 in DVM debt and a bachelor's degree could, on average, expect to make in the state of New York working 40 hours a week. Starting with the constant (-3311740.914), I would add the value for the year of the survey (1682.893) times the survey year (2014), add the gender adjustment for female (-2438.909), add the practice type adjustment (-4085.009) and add the state adjustment (2591.826). Then I add DVM educational debt ($125,000 \times 0.008$), the product of age (29×61.547) and the product of hours worked per week (40×-124.378). I arrive at a mean starting salary of \$71,483.239 for this particular type of practitioner. Here it is laid out numerically:

Constant:	-3311740.914
Year of survey:	$+(1682.893 \times 2014)$
Gender adjustment:	-2438.909
Practice type adjustment:	-4085.009
State adjustment:	+2591.826
DVM debt:	$+(125,000 \times 0.008)$
Age:	$+(29 \times 61.547)$
Weekly hours:	$+(40 \times -124.378)$
	\$71,483.239

Notice we did not add any value corresponding to the fact that this practitioner has a bachelor's degree. Similarly, we would not have added a value for region if computing the expected wage in Region 3 or for a companion-animal-exclusive veterinarian. That's because these are already accounted for in the

constant term. Any other factor not listed in the table is also accounted for in the constant term. (You'll see this table again in future communications from the AVMA.)

So there you have it: the not-so-magical but still-slightly-challenging way to predict veterinary compensation. Using this information, new graduates can make informed decisions about how

to maximize their earnings—or accept that certain choices will correspond with a lower income. [dvm360](#)



Dr. Mike Dicks,
director of
the AVMA's

Veterinary Economics Division, holds
a doctorate in agricultural economics
from the University of Missouri.

Balance Restored...

Introducing the New Canine Unicompartmental Elbow (CUE) Arthroplasty System

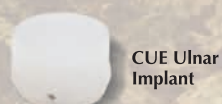
An innovative and reproducible technique for functional resurfacing of the canine elbow. Minimal instrumentation and high quality implants make the CUE a viable choice for treating medial compartment disease (MCD).

Benefits:

- Unicompartmental
- Bone-sparing
- Luxation not required
- Cementless
- Limb alignment not a factor
- Safe with low morbidity
- Innovative technique, implants and instrumentation
- Supported by *ex vivo* research and prospective clinical trial



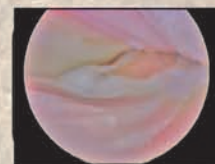
CUE Humeral Implant



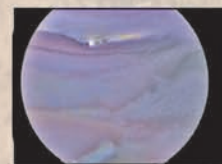
CUE Ulnar Implant



Post-op cranial-caudal radiograph showing CUE implants in place



Arthroscopic image of severe MCD



Arthroscopic image of CUE 7 months post-op



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The Veterinary Confessionals Project

This growing effort allows veterinary professionals to express themselves freely—without being judged. *By dvm360 staff*

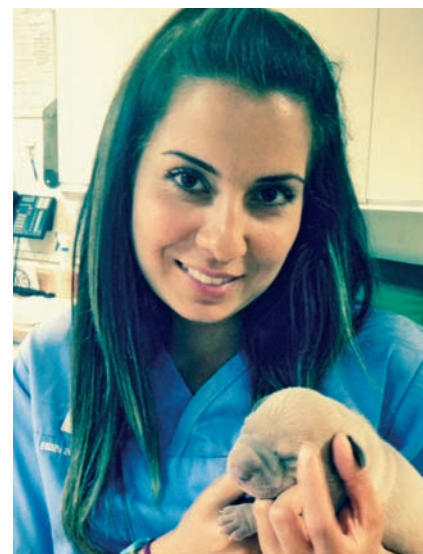
Secrets, by their nature, have power. They have a strange ability to both grant and consume emotional energy. What if veterinarians could share secrets about their professional struggles and find comfort in seeing that they were not alone? Early last year, as a senior veterinary student at Massey University in New Zealand, Hilal Dogan, BVSc, saw the benefits of introducing a PostSecret-style website to the veterinary community.

Dogan found inspiration in Frank

Warren's PostSecret project, which launched in January 2004. Warren's idea was that anyone could anonymously mail his or her secret to him in the form of a postcard. The secret could be anything: betrayal, fear, regret, desire, confession or a childhood humiliation. The postcard concept has allowed people to creatively share their inner thoughts through various forms of art and writing. Eleven years later, Post Secret is still going strong (visit the site at postsecret.com), helping

people through struggles with depression, abuse, eating disorders and even with contemplation of suicide.

Dogan looked at creating a similar site that could give veterinary professionals an opportunity to express their worries anonymously. "Especially with growing awareness of high burn-out and suicide



>>> Hilal Dogan, the New Zealand veterinary student who founded the Vet Confessionals Project.

rates in the profession, it seemed important to try and implement more ways of helping the veterinary community," she says. With the help of fellow veterinary student Corey Regnerus and the support of the Health and Counseling Services department at the university, Dogan successfully pitched the idea of "Vet Confessionals" to the dean of the Massey Institute of Veterinary, Animal and Biomedical Sciences (IVABS).

When the project launched at

My brother
committed
suicide 2 years ago...
I struggle with depression
every day.

I don't like dogs as much as
I did before I became a vet. By
the end of the day, I am so tired of
being jumped on, slobbered on, peed on,
and covered with fur that I barely
even greet my auncdy. I still love
him and think he's the best dog
in the world, but sometimes
I just don't want him in my face
begging to be petted after I have
been dealing with dogs all day.
Also I dream about quitting my
job and opening a cupcake bakery in
Hawaii.

I WISH I WAS
CAT



I WORK SO
MUCH THAT I
bring my daughter with
me to conventions and
her it's a mini vacation
She's Not buying

smart is...

BROAD COVERAGE IN A SOFT CHEWABLE

Protection against six parasites instead of only three.

**sentinel
spectrum**
(milbemycin oxime • lufenuron • praziquantel)



HEARTWORMS



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**TO ORDER, CALL YOUR DISTRIBUTOR REPRESENTATIVE OR CALL YOUR
VIRBAC REPRESENTATIVE AT 1-844-4-VIRBAC (1-844-484-7222).**

Dogs should be tested for heartworm prior to use. Mild hypersensitivity reactions have been noted in some dogs carrying a high number of circulating microfilariae. Treatment with fewer than 6 monthly doses after the last exposure to mosquitoes may not provide complete heartworm protection. Please see full product label for more information or visit www.virbacvet.com.

See brief summary on page 42

Shaping the future of animal health



* *A. caninum*.

** Prevents flea eggs from hatching; is not an adulticide.



See more secrets

To read these cards and others, visit dvm360.com/vetsecrets. To post your own secret, go to dvm360.com/vetconfessionals-submission.



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

Indications
SENTINEL® SPECTRUM® (milbemycin oxime/lufenuron/praziquantel) is indicated for the prevention of heartworm disease caused by *Dirofilaria immitis*; for the prevention and control of flea populations (*Ctenocephalides felis*); and for the treatment and control of adult roundworm (*Toxocara canis*, *Toxascaris leonina*), adult hookworm (*Ancylostoma caninum*), adult whipworm (*Trichuris vulpis*), and adult tapeworm (*Taenia pisiformis*, *Echinococcus multilocularis* and *Echinococcus granulosus*) infections in dogs and puppies two pounds of body weight or greater and six weeks of age and older.

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.

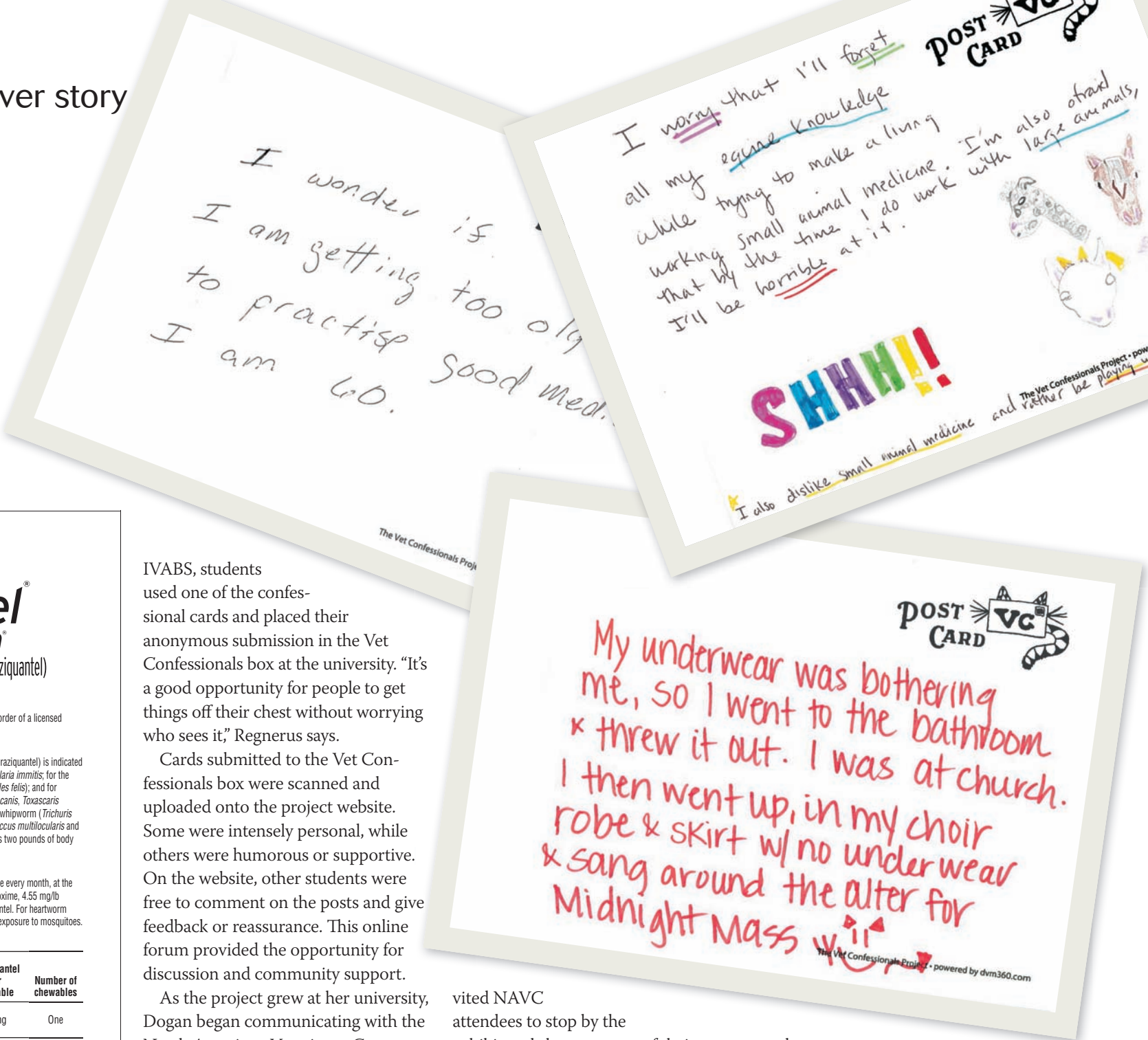
The safety of SENTINEL SPECTRUM has not been evaluated in dogs used for breeding or in lactating females. Studies have been performed with milbemycin oxime and lufenuron alone.

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.

To report suspected adverse drug events, contact Novartis Animal Health at 800-637-0281 or the FDA at 1-888-FDA-VETS.

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NAH/SSC/BS/1
1/14



IVABS, students used one of the confessional cards and placed their anonymous submission in the Vet Confessionals box at the university. “It’s a good opportunity for people to get things off their chest without worrying who sees it,” Regnerus says.

Cards submitted to the Vet Confessionals box were scanned and uploaded onto the project website. Some were intensely personal, while others were humorous or supportive. On the website, other students were free to comment on the posts and give feedback or reassurance. This online forum provided the opportunity for discussion and community support.

As the project grew at her university, Dogan began communicating with the North American Veterinary Community (NAVC) about setting up an art exhibit featuring her fellow students’ postcard submissions at the NAVC Conference in January 2015. With the support of NAVC, Massey University and the New Zealand Veterinary Association, the exhibit became a reality in January, when Dogan and her team in-

vited NAVC attendees to stop by the exhibit and share a secret of their own. Conference attendees submitted more than 150 postcards that week. Building on that success, Dogan and her team joined forces with dvm360.com, the online portal for dvm360 and its sister publications, *Veterinary Economics*, *Veterinary Medicine* and *Firstline*. As part of this partnership, veterinarians

and team members can now post their “secrets” on dvm360.com (visit dvm360.com/vetconfessionals-submission). In addition, the Vet Confessionals team will be appearing at the CVC and other veterinary conferences, setting up art exhibits and inviting attendees to submit secrets of their own. Secrets will be posted anonymously on dvm360.com.

Dogan and the Vet Confessionals team are thrilled with the support they have received from dvm360.com and other organizations.

“I have no doubt this support will continue to grow,” Dogan says. “My dream is to get more of what’s behind closed doors out into the open and available for discussion. As veterinary professionals, we are held to high standards. Our profession is extremely rewarding but can at times be extremely stressful. The anonymity of this project allows people to freely express themselves, without being judged, and encourages creativity. In the end, my hope is to bring solidarity to the global veterinary community—and possibly even to the healthcare community as a whole.” **dvm360**



>>> An attendee at CVC Washington, D.C., browses the secrets posted on the Vet Confessionals board.

MEDICINE | Dermatology

Don't make these common mistakes in your dermatology workups

In a busy veterinary clinic, it's easy to make your best educated guess and move on when presented with what seem to be simple dermatologic diagnoses. But not so fast—many conditions can have similar presentations. *By Alice M. Jeromin, RPh, DVM, DACVD*

We have all been mystified by some clinical presentations of various dermatologic diseases. There isn't one of us who hasn't opened a dermatology book and looked to see if a picture of what we're seeing matches. The problem is, in dermatology a patient can have several manifestations of the same disease, and the same disease can look different among various breeds.

After almost 25 years as a boarded veterinary dermatologist I'd like to think I've learned a thing or two that I can pass on to help you sort out what you're seeing. The following are a few tips about differential diagnoses for diagnosing similar-looking diseases and some pearls of wisdom that I have found helpful.

Don't forget demodicosis of the feet

Let's start with feet. One of the most forgotten and undiagnosed foot problems is *Demodex* species infection of the feet, or demodectic pododermatitis. Demodicosis is one of the most common reasons for recurrent yeast or bacterial pododermatitis, yet it's frequently missed. Instead, if yeast or bacteria are found on skin smears, a skin scraping is often neglected (Figures 1A and 1B). Don't stop at just performing cytology of the feet and nail beds—be sure to do deep skin scrapings of the affected areas.

Sometimes the initial presentation is with just one foot affected. I have had patients that have always favored one foot since very young and were

never checked for demodicosis—it was assumed they were allergic since they licked the foot. Years later, this can grow into generalized demodi-

cosis if corticosteroids continue to be prescribed because it is thought that the patient is allergic. Be sure to rule out demodicosis before starting *any*



>>>**Figure 1A.** *Demodex* species mites affecting the feet of a dog with secondary bacterial and yeast pododermatitis.
>>>**Figure 1B.** Demodicosis in an English bulldog being treated as a bacterial pododermatitis. Don't forget to scrape the feet!

ENDOCRINOLOGY **M5**
Updates on canine Cushing's disease and diabetes mellitus

dvm360.com/medicine
Find interactive cases, expert answers to your clinical questions, journal article summaries, and much more



>>>**Figure 2.** The chin of a young English bulldog with *Demodex* species mites and deep pyoderma. This can be mistaken for juvenile cellulitis (puppy strangles).
>>>**Figure 3.** Adult *Demodex* species mites seen on an ear smear in oil under the microscope.
>>>**Figure 4.** Acantholytic cells on cytologic examination of a pustule from a patient with pemphigus foliaceus (modified Wright's stain; oil immersion).

corticosteroids as they will reduce the inflammation but incite the demodicosis even more. Remember, not all dogs that lick their feet are allergic.

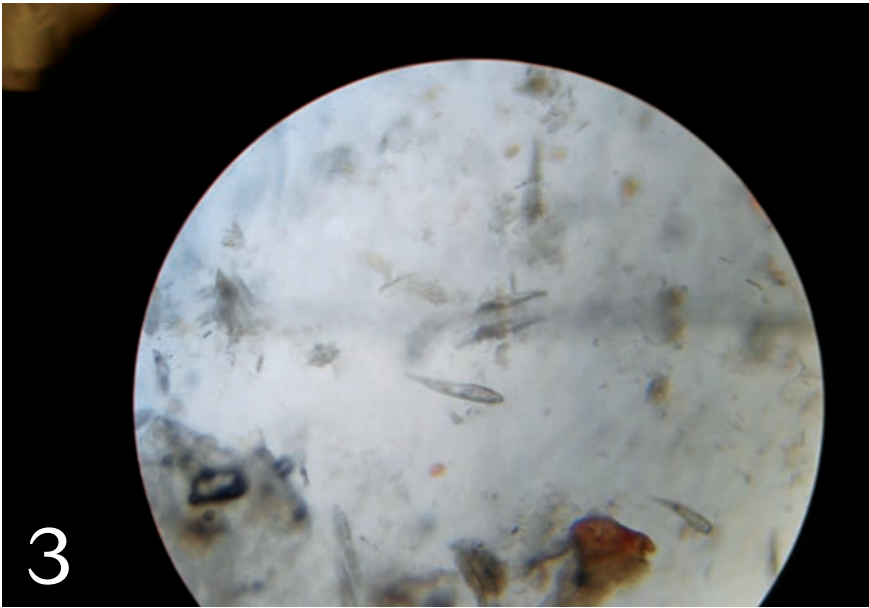
Is it juvenile cellulitis or demodicosis?

As mentioned above about missing the diagnosis of demodicosis of the feet, in young dogs with suspected juvenile cellulitis, be sure and scrape for *Demodex* species mites first before starting the traditional corticosteroid and antibiotic therapy used for suspected juvenile cellulitis. Both diseases may result in lymphadenopathy, deep pyoderma and swelling of the periocular area and muzzle (Figure 2). A mistake would be to not check for *Demodex* species mites and start treatment because of the above clinical signs in a young dog. Scrapings take only a few seconds and can make the difference between diagnosing the correct disease or, in the case of demodicosis, perpetuating a potentially fatal disease.

And don't forget demodicosis of the ears

When diagnosing otitis, remember when performing ear smears for yeast or bacteria to also perform ear smears in oil in dogs and cats. Otitis caused by *Otodectes* species and especially *Demodex* species may be missed if smears are not checked in oil (Figure 3). As with demodicosis of the feet, if you find yeast on smears or cytology, then make sure to dig deeper by doing smears in oil to look for demodectic otitis.

Ear smears in oil need to be performed on all patients with otitis, especially those with generalized



demodicosis that you think may have resolved their skin lesions. Sometimes demodectic otitis tends to linger despite resolution in other parts of the body, and practitioners may forget to monitor ear smears.

Rule out dermatophytosis before treating for pemphigus foliaceus

Clinically and histologically, pemphigus foliaceus and dermatophytosis have many similarities. Acantholytic cells are one of the histologic characteristics of pemphigus foliaceus in a skin biopsy (Figure 4), but dermatophytosis can also produce acantholytic cells. Since these two diseases are treated totally differently—one with immunosuppressives, the other with antifungals—it is important to rule out dermatophytosis before starting corticosteroids or other immunosuppressives for pemphigus foliaceus.

Special stains used on the skin

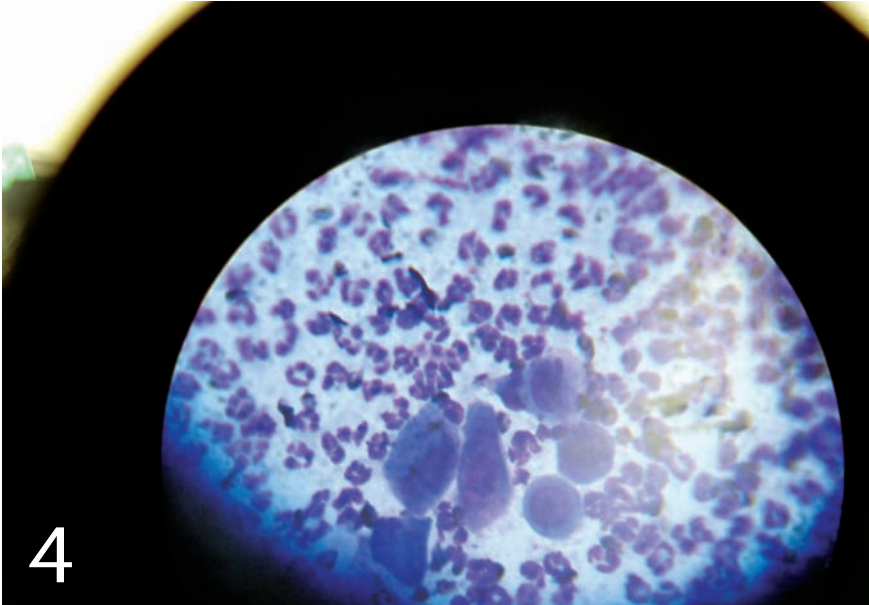
biopsy samples can help rule out dermatophytes, but a fungal culture is important to include in your workup when you are diagnosing pemphigus foliaceus (Figures 5 and 6). It would be deleterious to use immunosuppressives in a patient with dermatophytosis as its immunity is already compromised. Also consider the public health ramifications of missing a diagnosis of dermatophytosis. If you are not an expert at reading your own fungal cultures, submit them to the laboratory. This is what we do at my office as I want to be confident we have ruled out dermatophytes and are not dealing with a fungal contaminant.

Treat pyodermas like pyodermas

When you have a first-time bacterial pyoderma in a young dog (Figure 7), treat it as a pyoderma—don't assume that the dog is allergic and add corticosteroids. Some dogs with

Quick tip for the ears

All ear drops should be administered at room temperature. One study showed that in any species—people included—cold ear drops should not be instilled in the ear since vertigo, nausea or vomiting may result. So if certain ear preparations need to be refrigerated, bring them to room temperature before administration.





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pyoderma are pruritic, while others are not. Allergy should be considered once the pyoderma has been properly treated and if pruritus remains. *Properly treated* means antibiotics were administered until total clearing of the lesions, plus an additional week, as well as weekly antibacterial bathing.

Some dogs are so corticosteroid-sensitive that even a tiny dose will negate the effect of the antibiotic. If you need to prescribe something for the pruritus, either use an antihistamine, topical water-based corticosteroid conditioner (nothing stronger than a 1% preparation—and some owners overuse even this) or more frequent bathing. Also, when using cefpodoxime or amoxicillin-clavulanic acid for pyoderma, both medications tend to work best at the high end of the dosage range (10 mg/kg once a day for cefpodoxime; 13.75 mg/kg t.i.d. for amoxicillin-clavulanic acid). When using cephalexin, remember that it can take 21 days for optimal doses to get into the circulation feeding the skin and to treat the patient until the lesions are gone, plus an additional week past clearing. This should be explained to owners.

Don't mistake epitheliotropic lymphoma for pyoderma

Epitheliotropic lymphoma can present with three different manifestations: erythema and scaling, nodular or tumor stage. The first two manifestations are often mistaken for a bacterial pyoderma. These patients will frequently have a history of different antibiotics being prescribed without success (and sometimes a corticosteroid dose that will alleviate any associated inflammation). In an older dog, particularly a golden retriever or boxer, if antibiotics (whether dosed empirically or based on culture and sensitivity results) are not improving your patient's lesions, perform skin biopsies to rule out skin lymphoma.

When cytologic examination of the lesions is performed in-house, it usually provides a clue, showing numerous lymphocytes that are not normally seen in cytology of a bacterial pyoderma. A skin biopsy is then indicated to confirm the diagnosis. Also in the erythemic presentation of epitheliotropic lymphoma, the generalized erythema is more of a raspberry color than the traditional pink or red that sometimes accompanies a pyoderma (Figure 8).

Final thoughts

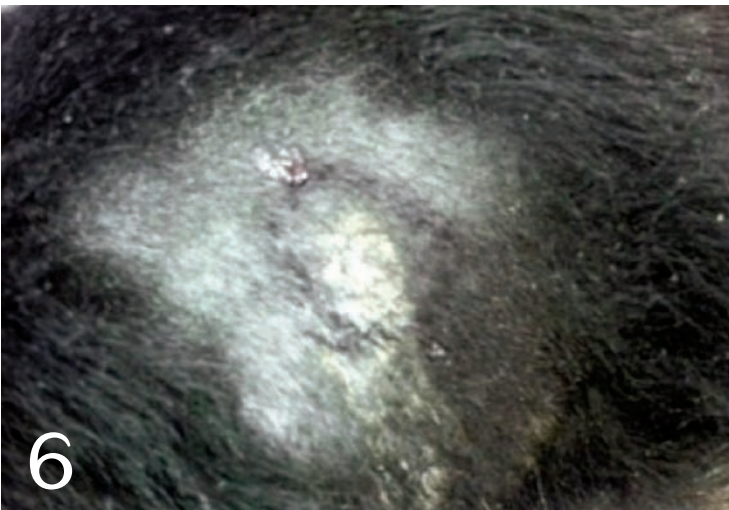
I sincerely hope the above suggestions and tips will help in your daily practice. Basically, it is a good idea to perform skin scrapings, combings, ear smears and ear smears in oil in every dermatology patient and to perform a cytologic examination of any skin masses that may be present. All of these procedures take very little time to perform, yet they can yield important diagnostic and therapeutic information. **dvm360**

Suggested reading

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>>>Figure 5. A poodle with lesions consistent with pemphigus foliaceus.
>>>Figure 6. A dermatophytosis lesion on the trunk of a dog infected with *Microsporum canis*.
>>>Figure 7. Bacterial pyoderma lesions on the trunk of a dog.
>>>Figure 8. A golden retriever with epitheliotropic lymphoma. Note the raspberry-colored erythema.



New studies in internal medicine: **ENDOCRINOLOGY**

Investigating the best way to monitor dogs with hyperadrenocorticism and whether fructosamine concentrations can be used to monitor glycemic control in diabetic patients.

By Anthony P. Carr,
Dr. med. vet., DACVIM

A wide variety of research is being done on diseases that affect small animals. Often research is initially presented as a spoken or poster abstract at specialty meetings. This research may or may not be published later on. Sometimes the science isn't good enough, while at other times there isn't great interest in going on to write a full article. As such, abstracts always need to be considered less solid evidence than a published paper. Nonetheless, they often represent the true cutting edge of medicine.

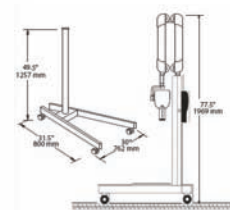
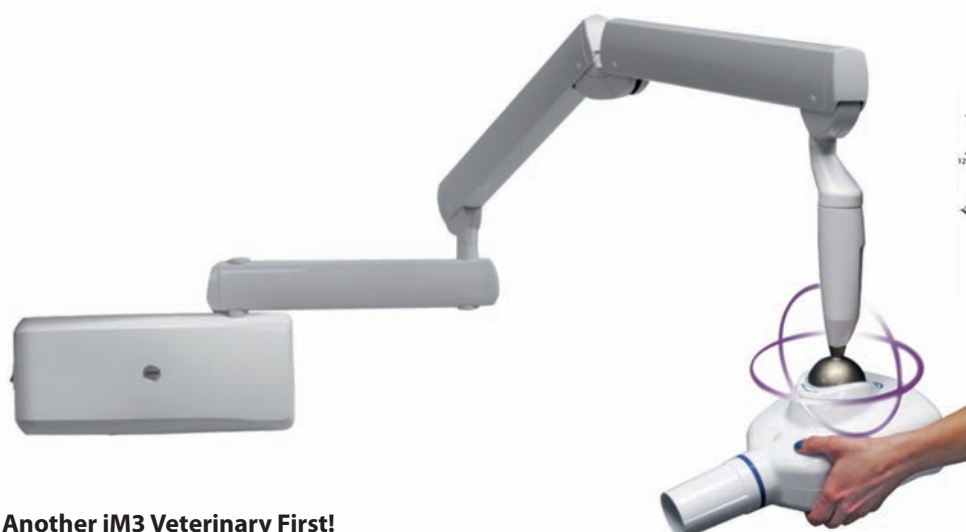
At the 2014 American College of Veterinary Internal Medicine (ACVIM) Forum in Nashville, much new research was presented in the realm of veterinary endocrinology. Here is the latest on two diseases that likely affect many of your patients—hyperadrenocorticism and diabetes mellitus.

Canine Cushing's disease

Hyperadrenocorticism is a common endocrinopathy in older dogs. Clinical signs are variable. Some may be distressing to the owner such as polyuria/polydipsia, polyphagia, panting, a pot-bellied appearance and hair loss, though these are rarely of concern medically. On the other hand, medically significant issues can occur such as proteinuria, changes to renal morphology, hypertension, hypoxemia and a thrombotic tendency. Mitotane used to be the predominant form of treatment, but trilostane has taken its place in many instances. Survival with either medication has been found to be similar. As with any therapy, it is important to understand how to monitor therapy.

Testing a lower dose of ACTH. Some of the newest research on hyperadrenocorticism was presented at the 2014 ACVIM Forum. One project of interest

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was to look at the dosage of synthetic ACTH we use, cosyntropin.¹ After the significant price increase in cosyntropin, the cost of an ACTH stimulation test skyrocketed. Although a gel is available, the synthetic cosyntropin is preferred. The cost of ACTH can be minimized by using only 5 µg/kg rather than the previously recommended dose of an entire 250 µg vial no matter the patient's size.

In my pharmacy we reconstitute a vial and make five aliquots, which we freeze and thaw as we need, using one aliquot per 10 kg. This multicenter research trial was to determine whether a dose of 1 µg/kg was as effective as 5 µg/kg in patients suspected of having hyperadrenocorticism or in patients being treated with trilostane or mitotane. The cosyntropin was given intravenously, and blood samples were collected before and one hour after administration. Initially, the 1-µg/kg dose was given, and four hours later the 5-µg/kg dose was administered in dogs receiving mitotane or suspected of having hyperadrenocorticism. In dogs receiving trilostane, the different dosages were given on sequential days to allow timing at four to six hours after trilostane administration.

The study involved 46 dogs—26 suspected of having hyperadrenocorticism, with 12 being treated with mitotane and eight being treated with

trilostane. Statistical analysis showed no significant differences in the cortisol concentrations found based on dosage. This means that a 1-µg/kg dose of cosyntropin is effective for monitoring treatment of hyperadrenocorticism as well as for diagnosing this disease. As a result, one vial of cosyntropin will be able to test many more patients than we have previously assumed. This lowers the cost of ACTH considerably, making the main cost of an ACTH stimulation test the cost of the cortisol assays.

Cortisol concentrations for monitoring therapy. When treating a patient with hyperadrenocorticism, periodic monitoring is paramount regardless of whether mitotane or trilostane is being used. Monitoring is important to determine whether dosage adjustments are needed to better control the disease or to prevent excessive adrenal gland suppression. The cost of the ACTH stimulation test has spurred interest in ways to minimize the need for this test.

A publication looked at the utility of baseline cortisol concentrations to correctly assess treatment status in dogs being treated with trilostane.² The abstract from the article states that baseline concentrations above or equal to 1.3 µg/dl were 98% able to rule out excessive suppression, whereas values below or equal to 2.9 µg/dl correctly excluded inadequate control in 95% of dogs tested.

This sounds great and would suggest that baseline cortisol concentrations are a fantastic way to monitor these patients. When you look at the data in more detail, however, you find out that although concentrations above or equal to 1.3 µg/dl are effective when all dogs were looked at, it in fact missed 23% of the dogs that were being overly suppressed. The same applies for the 2.9 µg/dl cutoff; 17% of the poorly controlled dogs were misclassified. In addition, only 37% of the baseline cortisol concentrations were in this reference range that allowed classification. As such, the use of baseline cortisol concentrations seems questionable in most cases.

Another group of researchers performed a similar study and also concluded that the baseline cortisol concentration was not an adequate way to monitor therapy in dogs being treated for hyperadrenocorticism with trilostane.³ They did find that a cortisol

concentration above 4.4 µg/dl predicted a poorly controlled dog. Their methodology was different, however, in that they performed their ACTH stimulation tests two to four hours after administration of trilostane, so this cut-off value can only be used when performing the test in this fashion. From these studies, it appears that currently we cannot avoid the ACTH stimulation test for monitoring biochemical success of therapy.

Monitoring beyond ACTH stimulation. When monitoring a patient, there is of course the adage that you don't treat the laboratory work, you treat the patient. An abstract presented at the European College of Veterinary Internal Medicine meeting in Liverpool in 2013 looked at monitoring not just from a laboratory testing point of view.⁴ The study encompassed 25 dogs that were being treated with trilostane. In addition to performing an ACTH stimulation test and standard laboratory tests, the researchers also had the owners fill out a questionnaire regarding the severity of clinical signs.

They found that there was no correlation between baseline or stimulated cortisol concentration and clinical signs or standard laboratory results. These results are important for us as clinicians to keep in mind when using trilostane. Dosage adjustments with trilostane should not be based solely on the results of the ACTH stimulation test. They should be based on the owner's perception of the clinical signs. If the ACTH stimulation test suggests poor control but the owner notes that clinical signs are absent, it is questionable if the trilostane dosage should be increased. Alternatively, if the ACTH stimulation test shows good control but clinical signs are still present, therapy needs to be adjusted, such as increasing the dosage or going to twice daily dosing.

Of course it is also important for us as veterinarians to monitor for those clinical changes that the owner cannot determine such as blood pressure and proteinuria. This doesn't mean we avoid doing an ACTH stimulation test. We still need this test to be sure that we are not suppressing the adrenal gland excessively.

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especially cats. It can be challenging to get reliable blood glucose curve results in the clinic, which complicates making treatment adjustments. In some cases in-home glucose monitoring can be used in the place of in-clinic monitoring, but this isn't possible in all cases. Fructosamine is a commonly used laboratory test that should indicate glycemic control over longer periods of time. In people, it gives an idea of glycemic control over the last two to three weeks. Since it is a single blood draw, it is tempting to use this parameter as a way to determine whether glycemic control is good.

Fructosamine in cats. Until recently we did not know the kinetics of fructosamine in cats. A study infused cats with dextrose to achieve long-term hyperglycemia.⁵ This study showed that it takes about five days for fructosamine to increase when severe hyperglycemia was induced (29 mmol/L, or 522 mg/dl) and about 20 days for maximal values to be reached. After the infusion was stopped, it took six days to return to baseline. In cats in which moderate hyperglycemia (17 mmol/L, or 310 mg/dl) was induced, the fructosamine concentration was often in the reference range, and values returned to baseline in two days.

This suggests that in cats fructosamine gives an indication of glycemic control over the last week at most and only if marked hyperglycemia is present. An earlier study had looked at ways to monitor clinical glycemic control based on various laboratory and clinical test results.⁶ This study found fructosamine to only be somewhat indicative of glycemic control. The study found that urine glucose, water intake and mean blood glucose determined from a 24-hour blood glucose curve were the best predictors of glycemic status.

Fructosamine in dogs. In dogs there is little published on the utility of fructosamine to determine whether glycemic control is adequate in dogs. One study showed that clinical signs and fructosamine did not correlate well, mainly because of significant overlap in fructosamine concentrations between the well- and poorly regulated diabetics.⁷ Research presented at the 2014 ACVIM Forum looked at diabetic dogs (some at initial diagnosis, some receiving insulin treatment), dogs with diabetic ketoacidosis and healthy dogs.⁸ The treated dogs were categorized as compensated or noncompensated based on clinical findings and owners' assessments of their pets.

Fructosamine was higher in all diabetic categories compared with the healthy control dogs. The dogs were categorized based on the fructosamine concentration:

- > 8.3% were in the normal range (300 to 350 mg/dl)
- > 11.9% had excellent glycemic control (350 to 400 mg/dl)
- > 14.3% had good glycemic control (400 to 450 mg/dl)
- > 14.3% had fair control (450 to 500 mg/dl)
- > 51.2% had poor control (> 500 mg/dl).

Almost all treated dogs (95%) were considered to have poor control, although 70.8% were compensated based on owner perception and physical examination findings. One dog

in this group did have good glycemic control based on the fructosamine concentration but was considered noncompensated clinically as it was symptomatic for diabetes at the time of examination.

It appears that in dogs fructosamine also does not accurately reflect clinical status. As such, this assay is poor at determining whether changes in insulin therapy are needed. A very low value in a patient with signs of hypoglycemia or a low blood glucose concentration on a glucose curve would be a good indicator that the insulin dosage should be reduced. Fructosamine can be assayed in conjunction with other tests including urinalysis and a blood glucose curve as another piece of the puzzle. On its own, it has little value in guiding insulin therapy.

As with hyperadrenocorticism, it is vital to get an excellent history and perform a thorough physical examination since these are much more useful in guiding therapy than the results of laboratory testing. It is good to know that veterinarians and good clinical judgment cannot be replaced by a machine just yet. **dvm360**

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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-isoxazoly]-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*), and Lone Star tick (*Amblyomma americanum*) 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 >94% effectiveness against *Dermacentor variabilis* and *Ixodes scapularis*, 48 hours post-infestation, and against *Amblyomma americanum* 72 hours post-infestation, 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 chemistry, 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.

NADA 141-406, Approved by FDA

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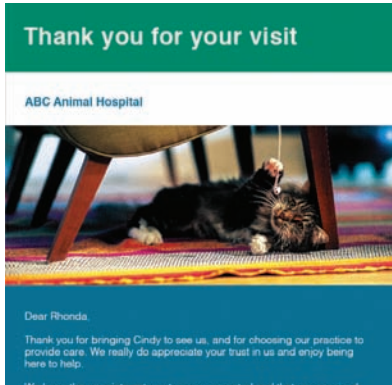
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IDEXX Laboratories

New test for H3N2

IDEXX Laboratories has released a new test for the detection of H3N2. After the recent outbreak on canine influenza in the Chicago area, IDEXX reports that it immediately began research and development and within four weeks had produced and validated a test. The result was the H3N2 Influenza Virus RealPCR Test, which allows for rapid, specific testing for the strain. IDEXX has added the new test to its existing IDEXX Comprehensive Canine Respiratory Disease (CRD) RealPCR panels at no additional cost to customers. It also can be purchased as a standalone test. *For fastest response visit idexx.com/canineh3n2*



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Norbrook Laboratories

Generic canine osteoarthritis drug

Norbrook Laboratories has announced the FDA-CVM approval of Loxicom (meloxicam) 1.5mg/ml Oral Suspensions for dogs. Loxicom is indicated for the control of pain and inflammation associated with canine osteoarthritis. It is available in an oral liquid form to titrate to the lowest dose regardless of a dog's size and weight and is available in 10-ml, 32-ml and 100-ml bottles. Loxicom Suspension contains the same active ingredient and is bioequivalent to Metacam (meloxicam), but in a 1.5 mg/ml formulation. *For fastest response visit norbrook.com or call (913) 599-5777*



LafeberVet 2.0

Improved client website

LafeberVet, an online resource for avian, herpetological and exotic mammal medicine for the veterinary professional and wildlife rehabilitator, has created a better website with improved navigation and search function. The site includes new content such as step-by-step illustrated guides, webinars, information sheets and article series. This ever-growing online library of exotic animal medicine includes videos, articles, client education material, forms, questionnaires and much more. *For fastest response visit lafeber.com/vet*



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See brief summary on page 44



¹Data on File at Merial.

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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.



Advanced Veterinary Ultrasound
Ultrasound services

Advanced Ultrasound Electronics has formed a new division, Advanced Veterinary Ultrasound (AVU). AVU was developed as a company specifically devoted to meet the growing ultrasound parts, probes, service, repair and preventive maintenance needs of the veterinary community. Advanced Ultrasound Electronics has been a leader in the human ultrasound repair, service and refurbishing market since 2001. Together, these companies offer new and refurbished system sales, a large inventory of new and refurbished parts, in-house technical repair services and a trained field service staff. For fastest response visit advancedveterinaryultrasound.com or call (866) 620-2831



Brakke Consulting/
Trone Brand Energy
Pharmaceutical
market study

Brakke Consulting and Trone Brand Energy announce the publication of a new report documenting the changes in the pharmaceutical buying behavior of pet owners. The comprehensive Pet Pharmaceutical Market Study includes quantitative surveys of U.S. pet owners, companion animal veterinarians and pharmacists. The study also contains qualitative interviews with key industry stakeholders, together giving a predictable picture of the future. For fastest response contact David B. Goodnight, DVM, MBA, (830) 285-1259, dgoodnight@brakkeconsulting.com



Merial
Expanded tick
control label

Merial has received approval from the U.S. Food and Drug Administration (FDA) to add a label claim to NexGard (afoxolaner) for the treatment and control of Brown dog tick (*Rhipicephalus sanguineus*) infestations. In addition to Brown dog ticks, NexGard also helps protect against black-legged (deer) ticks (*Ixodes scapularis*), lone star ticks (*Amblyomma americanum*) and American dog ticks (*Dermacentor variabilis*). For fastest response visit merial.com



Hill's Pet Nutrition
Combination
therapeutic diet

Hill's Pet Nutrition introduces Hill's Prescription Diet Metabolic + Mobility Canine and Metabolic + Urinary Feline, nutritional solutions to help treat common concurrent health conditions. Metabolic + Mobility Canine is based on the nutrition of Hill's Prescription Diet Metabolic combined with Prescription Diet j/d's ability to help dogs walk, run and jump more easily. Metabolic + Urinary Feline combines Metabolic with Prescription Diet c/d Multicare's effect of dissolving struvite stones and reducing the recurrence of feline idiopathic cystitis (FIC) signs. For fastest response visit hillspet.com



Virbac
Generic parasite
preventive

Virbac has launched Ectoadvance Plus, a monthly topical application with active ingredients fipronil and (s)-methoprene. Fipronil disrupts the central nervous system of fleas and ticks, including those that may transmit Lyme disease, and (s)-methoprene is an insect growth regulator that inhibits flea eggs and larvae. For fastest response visit virbacvet.com



Kinetic Vet
Dermatologic wipes

Kinetic Vet announces the immediate availability of Equishield IBH Wipes, enabling equine veterinarians and horse owners to topically manage allergic dermatitis caused by insect bite hypersensitivity. The wipes are available through a Kinetic Vet distributor. For fastest response call (877) 786-9882 or visit kineticvet.com



Zoetis
Redesigned
dewormer applicators

Zoetis has released newly designed applicators for Quest (moxidectin) and Quest Plus (moxidectin-praziquantel) gel. The products are now available in a shorter and wider applicator tubes that better fit into the user's hand and offer an ergonomic finger grip on the plunger. For fastest response visit zoetisus.com



Vetrimax
Dermatologic shampoo

Vetrimax Products introduces Command Shampoo, a deep cleansing and nondrying, antimicrobial shampoo to help relieve symptoms associated with atopic dermatitis in animals. The shampoo is formulated with sodium hypochlorite and salicylic acid. For fastest response visit vetrimaxproducts.com

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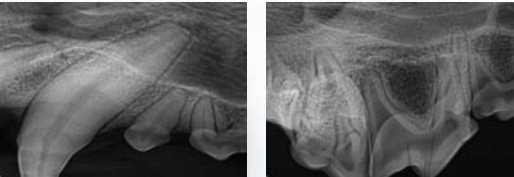


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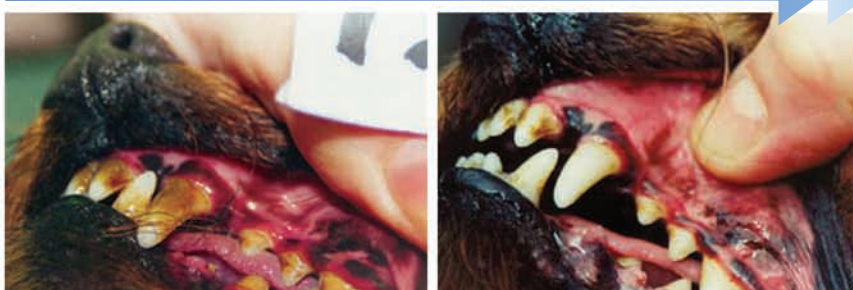
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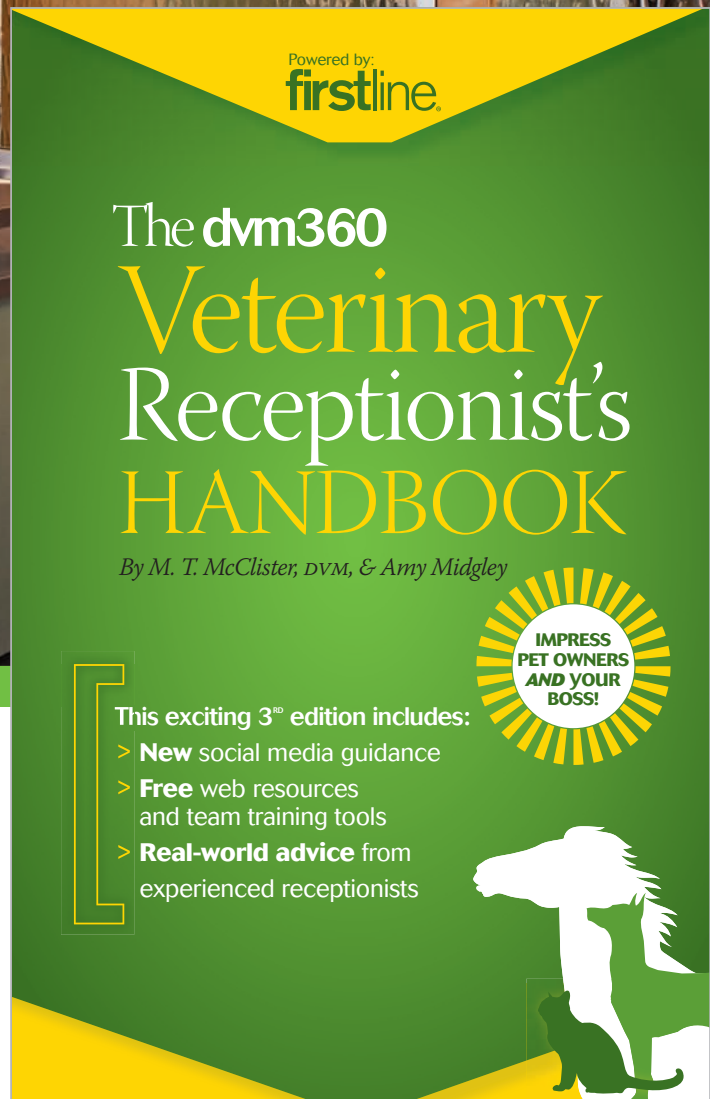


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August 26-28

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



August 28-31

CVC Kansas City
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December 3-6

CVC San Diego
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National and international meetings

June 27

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Microscopic Small
Animal Hematology
Raleigh, NC
(919) 513-6366
cvm.ncsu.edu/con-ted/acaw.html

(941) 276-9141

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

(970) 297-1273

csu-cvmb.colostate.edu/academics/clin-sci/veterinary-communication/Pages/frank-workshops.aspx

& Radiology for
the Veterinarian
and Technician
Raleigh, NC

(970) 297-1273
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June 27-28

Communication Coaching Skills Workshop
Fort Collins, CO
(970) 297-1273
cvmb.colostate.edu/clinsci/ce/products/70-veterinary-communication-coaching.aspx

July 19

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

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 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 26-28

Veterinary Economics Hospital Design Conference
Kansas City, MO
(800) 255-6864 ext 6
thecvc.com/hdconf

June 28

Veterinary Dentistry & Radiology for the Veterinarian and Technician
Denver, CO

August 05-08

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

August 13-16

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

August 25-31

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

August 28-31

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

September 04-06

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

Local and regional meetings

June 17-21

Southeast Veterinary Conference
Hilton Head, SC
(800) 441-7228
scav.org/events/sevc/index.htm

Conference

Long Beach, CA
(800) 655-2862
cvma.net

(530) 752-3905

vetmed.ucdavis.edu/ce/

Bozeman, MT
(406) 447-4259
mtvma.org

September 19-20

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

June 18-19

Vermont VMA Summer CE Conference
Burlington, VT
(802) 878-6888
vtvets.org

June 21-23

Montana Veterinary Medical Association Summer Meeting
Big Sky, MT
(406) 447-4259
mtvma.org

September 02

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

September 09

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

September 22-23

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

June 18-21

Pacific Veterinary

July 25-26

UC Davis 8th Annual Back to School Seminar
Davis, CA

September 03-04

Montana Veterinary Medical Association Fall Symposium

September 17-18

Iowa VMA 133rd Annual Meeting
Ames, IA
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iowavma.org

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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STAMPEDE | Bo Brock, DVM



The *trials* of a horse whisperer

You may not know what the animal is thinking, but you are certainly smarter than its owners. Just don't tell them that.

Twenty-five years of practicing veterinary medicine has revealed a tremendous amount about the human-animal bond to me. I don't know what animals are truly thinking—and no one else does either—but some people think they know everything about the subject.

I can spot these people the second they get out of their pickup. They've been watching television and think they're animal psychologists and want to tell me how to handle animals at the veterinary clinic.

One couple had a horse—they didn't need a horse, but they had one.

This horse got out of the trailer with a happy look on her face and offered a mild whinny greeting to the other horses at the clinic. I welcomed the owners to their appointment and patted ol' Lucy on the forehead. She gave me a horse smile and we ambled to the clinic.

The owners began telling me all about the events in the last year of the life of Lucy and brought me up to date on all her health issues. Today she was here just for vaccinations and a checkup on a minor crack in her hoof.

They proceeded to tell me what Lucy was thinking. What she thought about cloudy days, what she thought about the birds that roosted in the tree beside the barn, that she liked the red trailer better than the blue one because red is her favorite color. She didn't like to be ridden so they stopped doing that years ago and, finally, they assured me she absolutely hated to be vaccinated.

Great. I've been down this road many times trying to vaccinate a needle-shy horse, but this one taught me a lesson I'll never forget.

I filled the syringes and headed over to Lucy to start the scary task. The

couple was distracted at the door of the clinic talking to another client about someone they all knew.

I walked up to Lucy and wiped an area on the neck for the first of three injections she would be getting for her vaccinations. Much to my surprise, she took it like a champ. I moved to another spot and wiped this area also, gave the injection, and again no problem at all.

I was beginning to think it was my lucky day as I walked around to the other side of the horse to give the last injection. This side made me visible to the couple as they stood in the doorway. They hadn't seen me give the two previous injections, so they assumed that this was the first one the horse was going to get.

When they saw me approach, they began hollering from across the clinic, "Whoa, Lucy ... *Whoa*, baby ... Easy ... *Easy!*" They repeated this phrase with a tone that made every horse in the clinic look around like something terrible was about to happen. Let me ask you something: If the only time you heard the words "Whoa ... easy ... " someone stuck a needle in you to give a vaccination, what would your response to "Whoa ... easy ... " be?

When sweet ol' Lucy heard these words, she tightened up like a little kid about to get a spanking. Her eyes got huge and her ears went into hyper-motion mode trying to pinpoint where the impending assault was coming from.

The only time Lucy ever heard those words with that tone, something bad was about to happen. Suddenly she turned mean. She'd already had two shots without so much as a blink. I hadn't even approached her with the third shot, and the formerly kind-eyed Lucy was having a come-apart.

The couple continued hollering until they got close enough to reach out and touch Lucy. Then the wife started talking baby talk and the husband started lecturing me about how to approach a horse and what needed to be said to calm it prior to the injection. He said he was appalled by my lack of knowledge of horse handling and psychology.

He began rubbing the now frantic horse and talking baby talk in unison with his wife. The wife looked at me with a stern expression and exclaimed, "See how distraught she is now? She was perfectly happy until she saw you come at her unexpectedly with those syringes. You have to explain to her what you are about to do before you come running at her with a needle! Do you know anything about horses?"

The man took the vaccine-filled syringe from me, put it up to the horse's nose, let her smell it and explained that it was for her own good.

The wife got out a pouch of horse treats, gave her one at a time and continued to say "Whoa" over and over. Lucy never calmed down; she just ate the treats and looked around like maybe there was a bear outside the door.

After a good 15 minutes of vaccine foreplay, I was finally allowed to give the last shot. The wife asked where the other two injections were. When I explained that I had already given both of them prior to the horse psychology lecture, her expression went blank and she locked eyes with her husband, who was equally stunned.

I don't know what animals are thinking. But I do know this—a lot of them are smarter than their owners. **dvm360**

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

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