

**Open letter from
a disillusioned
vet school grad**

Why one student's
letter blew up on
social media

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Research veterinarian files suit against University of Texas facility

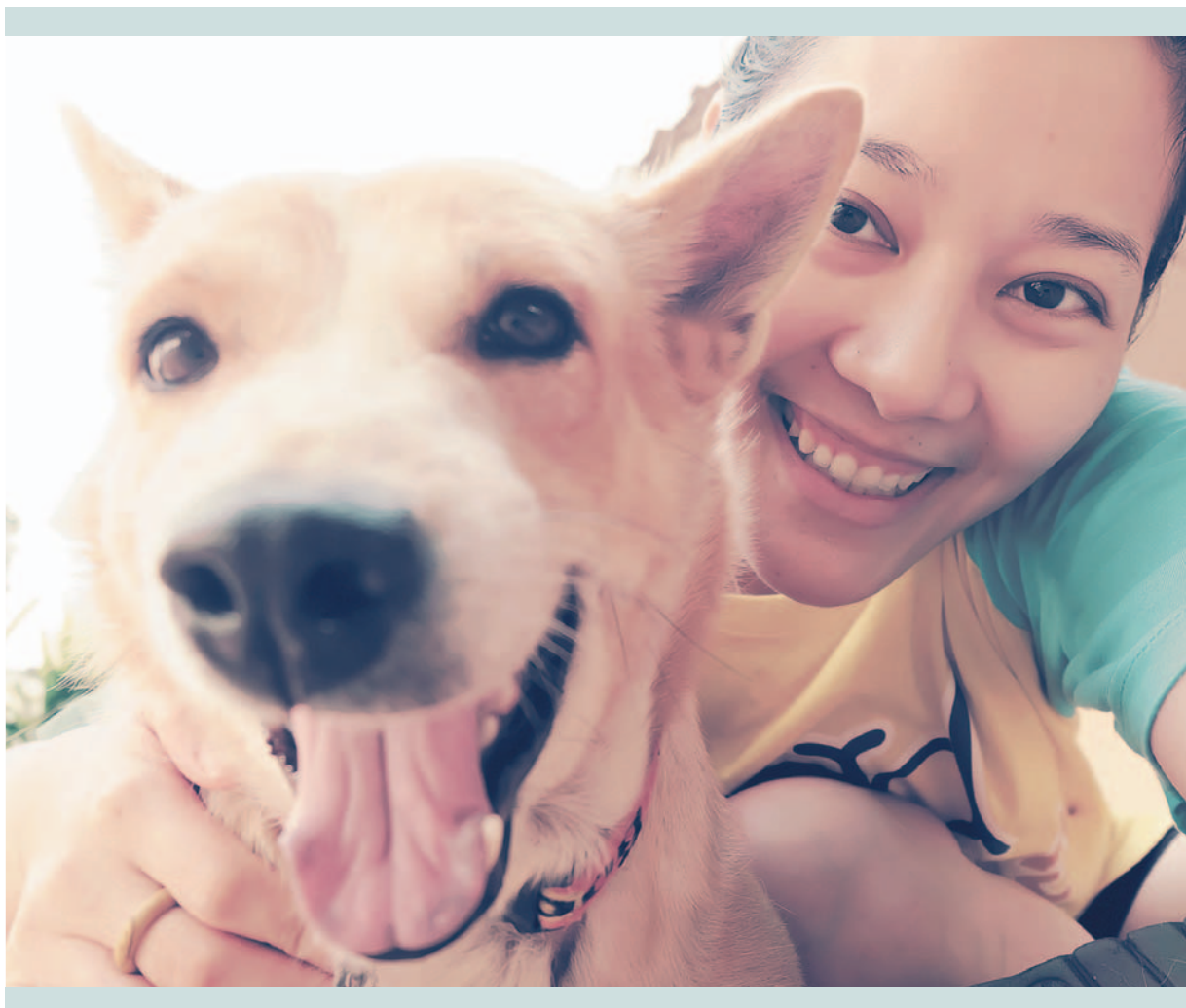
Dr. Brian Gordon says he
was wrongfully terminated
after speaking out against
cruelty to research animals.

By Hannah Wagle, Assistant Content Specialist

In March, Brian Gordon, DVM, DACLAM, filed suit against the University of Texas Medical Branch (UTMB) in Galveston, Texas, from which he claims he was wrongfully terminated in 2015 for speaking on behalf of “animals who cannot speak for themselves,” according to court documents. Gordon, who worked as an attending veterinarian caring for UTMB laboratory animals, claims he spoke out about monkeys being allowed to suffer and die without the help of euthanasia during biomedical research.

According to court documents, the research lab, which mainly focused on the testing of diseases such as Ebola and the Marburg virus, was supposed to follow a specific protocol in accordance with the Animal Welfare Act (AWA): “The animals were supposed to be humanely euthanized once their condition deteriorated to a certain degree,” the lawsuit states, “and researchers had specified that death was never supposed to be an endpoint.”

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The **CHANGING** pet owner

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Important Safety Information

As a class, cyclooxygenase inhibitory NSAIDs may be associated with gastrointestinal, kidney or liver side effects. These are usually mild, but may be serious. Pet owners should discontinue therapy and contact their veterinarian immediately if side effects occur. Evaluation for pre-existing conditions and regular monitoring are recommended for pets on any medication, including PREVICOX. Use with other NSAIDs, corticosteroids or nephrotoxic medication should be avoided. Refer to the Prescribing Information for complete details.

Merial is now part of Boehringer Ingelheim.



REFERENCES: 1. Pollmeier M, Toulemonde C, Fleishman C, Hanson PD. Clinical evaluation of firocoxib and carprofen for the treatment of dogs with osteoarthritis. *Vet Rec.* 2006;159(17):547-551. 2. Data on file at Merial.

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Previcox[®]
(firocoxib)

PUT RELIEF IN MOTION

ON THE COVER

The CHANGING pet owner

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CHEWABLE TABLETS

Brief Summary: Before using PREVICOX, please 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.

Indications: PREVICOX (firocoxib) Chewable Tablets are indicated for the control of pain and inflammation associated with osteoarthritis and for the control of postoperative pain and inflammation associated with soft-tissue and orthopedic surgery in dogs.

Contraindications: Dogs with known hypersensitivity to firocoxib should not receive PREVICOX.

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

For oral use in dogs only. Use of this product at doses above the recommended 2.27 mg/lb (5.0 mg/kg) in puppies less than seven months of age has been associated with serious adverse reactions, including death (see Animal Safety). Due to tablet sizes and scoring, dogs weighing less than 12.5 lb (5.7 kg) cannot be accurately dosed.

All dogs should undergo a thorough history and physical examination before the initiation of NSAID therapy. Appropriate laboratory testing to establish hematological and serum baseline data is recommended prior to and periodically during administration of any NSAID. **Owners should be advised to observe for signs of potential drug toxicity (see Adverse Reactions and Animal Safety) and be given a Client Information Sheet about PREVICOX Chewable Tablets.**

For technical assistance or to report suspected adverse events, call 1-877-217-3543. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDAVETS or <http://www.fda.gov/AnimalVeterinary/SafetyHealth>

Precautions: This product cannot be accurately dosed in dogs less than 12.5 pounds in body weight. Consider appropriate washout times when switching from one NSAID to another or when switching from corticosteroid use to NSAID use.

As a class, cyclooxygenase inhibitory NSAIDs may be associated with renal, gastrointestinal and hepatic toxicity. Sensitivity to drug-associated adverse events varies with the individual patient. Dogs that have experienced adverse reactions from one NSAID may experience adverse reactions from another NSAID. Patients at greatest risk for adverse events are those that are dehydrated, on concomitant diuretic therapy, or those with existing renal, cardiovascular, and/or hepatic dysfunction. Concurrent administration of potentially nephrotoxic drugs should be carefully approached and monitored. 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 produce gastrointestinal ulceration and/or gastrointestinal perforation, concomitant use of PREVICOX Chewable Tablets with other anti-inflammatory drugs, such as NSAIDs or corticosteroids, should be avoided. The concomitant use of protein-bound drugs with PREVICOX Chewable Tablets has not been studied in dogs. Commonly used protein-bound drugs include cardiac, anticonvulsant, and behavioral medications. The influence of concomitant drugs that may inhibit the metabolism of PREVICOX Chewable Tablets has not been evaluated. Drug compatibility should be monitored in patients requiring adjunctive therapy. If additional pain medication is needed after the daily dose of PREVICOX, a non-NSAID class of analgesic may be necessary. Appropriate monitoring procedures should be employed during all surgical procedures. Anesthetic drugs may affect renal perfusion, approach concomitant use of anesthetics and NSAIDs cautiously. The use of parenteral fluids during surgery should be considered to decrease potential renal complications when using NSAIDs perioperatively. The safe use of PREVICOX Chewable Tablets in pregnant, lactating or breeding dogs has not been evaluated.

Adverse Reactions:

Osteoarthritis: In controlled field studies, 128 dogs (ages 11 months to 15 years) were evaluated for safety when given PREVICOX Chewable Tablets at a dose of 2.27mg/lb (5.0 mg/kg) orally once daily for 30 days. The following adverse reactions were observed. Dogs may have experienced more than one of the observed adverse reactions during the study.

| Adverse Reactions Seen in U. S. Field Studies | | |
|---|------------------|------------------------|
| Adverse Reactions | PREVICOX (n=128) | Active Control (n=121) |
| Vomiting | 5 | 8 |
| Diarrhea | 1 | 10 |
| Decreased Appetite or Anorexia | 3 | 3 |
| Lethargy | 1 | 3 |
| Pain | 2 | 1 |
| Somnolence | 1 | 1 |
| Hyperactivity | 1 | 0 |

PREVICOX (firocoxib) Chewable Tablets were safely used during field studies concomitantly with other therapies, including vaccines, anthelmintics, and antibiotics.

Soft-tissue Surgery: In controlled field studies evaluating soft-tissue postoperative pain and inflammation, 258 dogs (ages 10.5 weeks to 16 years) were evaluated for safety when given PREVICOX Chewable Tablets at a dose of 2.27 mg/lb (5.0 mg/kg) orally approximately 2 hours prior to surgery and once daily thereafter for up to two days. The following adverse reactions were observed. Dogs may have experienced more than one of the observed reactions during the study.

| Adverse Reactions Seen in the Soft-tissue Surgery Postoperative Pain Field Studies | | |
|--|-------------------------|------------------------|
| Adverse Reactions | Firocoxib Group (n=127) | Control Group* (n=131) |
| Vomiting | 5 | 6 |
| Diarrhea | 1 | 1 |
| Bruising at Surgery Site | 1 | 1 |
| Respiratory Arrest | 1 | 0 |
| SQ Crepitus in Rear Leg and Flank | 1 | 0 |
| Swollen Paw | 1 | 0 |

*Sham-dosed (pilled)

Orthopedic Surgery: In a controlled field study evaluating orthopedic postoperative pain and inflammation, 226 dogs of various breeds, ranging in age from 1 to 11.9 years in the PREVICOX-treated groups and 0.7 to 17 years in the control group were evaluated for safety. Of the 226 dogs, 118 were given PREVICOX Chewable Tablets at a dose of 2.27 mg/lb (5.0 mg/kg) orally approximately 2 hours prior to surgery and once daily thereafter for a total of three days. The following adverse reactions were observed. Dogs may have experienced more than one of the observed reactions during the study.

| Adverse Reactions Seen in the Orthopedic Surgery Postoperative Pain Field Study | | |
|---|-------------------------|------------------------|
| Adverse Reactions | Firocoxib Group (n=118) | Control Group* (n=108) |
| Vomiting | 1 | 0 |
| Diarrhea | 2** | 1 |
| Bruising at Surgery Site | 2 | 3 |
| Inappetence/ Decreased Appetite | 1 | 2 |
| Pyrexia | 0 | 1 |
| Incision Swelling, Redness | 9 | 5 |
| Oozing Incision | 2 | 0 |

A case may be represented in more than one category.

*Sham-dosed (pilled).

**One dog had hemorrhagic gastroenteritis.

Post-Approval Experience (Rev. 2009): The following adverse reactions are based on post-approval adverse drug event reporting. The categories are listed in decreasing order of frequency by body system:

Gastrointestinal: Vomiting, anorexia, diarrhea, melena, gastrointestinal perforation, hematemesis, hematachezia, weight loss, gastrointestinal ulceration, peritonitis, abdominal pain, hypersalivation, nausea

Urinary: Elevated BUN, elevated creatinine, polydypsia, polyuria, hematuria, urinary incontinence, proteinuria, kidney failure, azotemia, urinary tract infection

Neurological/Behavioral/Special Sense: Depression/lethargy, ataxia, seizures, nervousness, confusion, weakness, hyperactivity, tremor, paresis, head tilt, nystagmus, mydriasis, aggression, uveitis

Hepatic: Elevated ALP, elevated ALT, elevated bilirubin, decreased albumin, elevated AST, icterus, decreased or increased total protein and globulin, pancreatitis, ascites, liver failure, decreased BUN

Hematological: Anemia, neutrophilia, thrombocytopenia, neutropenia

Cardiovascular/Respiratory: Tachypnea, dyspnea, tachycardia

Dermatologic/Immunologic: Pruritis, fever, alopecia, moist dermatitis, autoimmune hemolytic anemia, facial/muzzle edema, urticaria

In some situations, death has been reported as an outcome of the adverse events listed above.

For a complete listing of adverse reactions for firocoxib reported to the CVM see: <http://www.fda.gov/downloads/AnimalVeterinary/SafetyHealth/ProductSafetyInformation/UCM055407.pdf>

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

Effectiveness: Two hundred and forty-nine dogs of various breeds, ranging in age from 11 months to 20 years, and weighing 13 to 175 lbs, were randomly administered PREVICOX or an active control drug in two field studies. Dogs were assessed for lameness, pain on manipulation, range of motion, joint swelling, and overall improvement in a non-inferiority evaluation of PREVICOX compared with the active control. At the study's end, 87% of the owners rated PREVICOX-treated dogs as improved. Eighty-eight percent of dogs treated with PREVICOX were also judged improved by the veterinarians. Dogs treated with PREVICOX showed a level of improvement in veterinarian-assessed lameness, pain on palpation, range of motion, and owner-assessed improvement that was comparable to the active control. The level of improvement in PREVICOX-treated dogs in limb weight bearing on the force plate gait analysis assessment was comparable to the active control. In a separate field study, two hundred fifty-eight client-owned dogs of various breeds, ranging in age from 10.5 weeks to 16 years and weighing from 7 to 188 lbs, were randomly administered PREVICOX or a control (sham-dosed-pilled) for the control of postoperative pain and inflammation associated with soft-tissue surgical procedures such as abdominal surgery (e.g., ovariohysterectomy, abdominal cryptorchidectomy, splenectomy, cystotomy) or major external surgeries (e.g., mastectomy, skin tumor removal <8 cm). The study demonstrated that PREVICOX-treated dogs had significantly lower need for rescue medication than the control (sham-dosed-pilled) in controlling postoperative pain and inflammation associated with soft-surgery. A multi-center field study with 226 client-owned dogs of various breeds, and ranging in age from 1 to 11.9 years in the PREVICOX-treated groups and 0.7 to 17 years in the control group was conducted. Dogs were randomly assigned to either the PREVICOX or the control (sham-dosed-pilled) group for the control of postoperative pain and inflammation associated with orthopedic surgery. Surgery to repair a ruptured cruciate ligament included the following stabilization procedures: fabellar suture and/or imbrication, fibular head transposition, tibial plateau leveling osteotomy (TPLO), and 'over the top' technique. The study (n = 220 for effectiveness) demonstrated that PREVICOX-treated dogs had significantly lower need for rescue medication than the control (sham-dosed-pilled) in controlling postoperative pain and inflammation associated with orthopedic surgery.

Animal Safety: In a targeted animal safety study, firocoxib was administered orally to healthy adult Beagle dogs (eight dogs per group) at 5, 15, and 25 mg/kg (1, 3, and 5 times the recommended total daily dose) for 180 days. At the indicated dose of 5 mg/kg, there were no treatment-related adverse events. Decreased appetite, vomiting, and diarrhea were seen in dogs in all dose groups, including unmedicated controls, although vomiting and diarrhea were seen more often in dogs in the 5X dose group. One dog in the 3X dose group was diagnosed with juvenile polyarthritis of unknown etiology after exhibiting recurrent episodes of vomiting and diarrhea, lethargy, pain, anorexia, ataxia, proprioceptive deficits, decreased albumin levels, decreased and then elevated platelet counts, increased bleeding times, and elevated liver enzymes. On histopathologic examination, a mild ileal ulcer was found in one 5X dog. This dog also had a decreased serum albumin which returned to normal by study completion. One control and three 5X dogs had focal areas of inflammation in the pylorus or small intestine. Vacuolization without inflammatory cell infiltrates was noted in the thalamic region of the brain in three control, one 3X, and three 5X dogs. Mean ALP was within the normal range for all groups but was greater in the 3X and 5X dose groups than in the control group. Transient decreases in serum albumin were seen in multiple animals in the 3X and 5X dose groups, and in one control animal. In a separate safety study, firocoxib was administered orally to healthy juvenile (10-13 weeks of age) Beagle dogs at 5, 15, and 25 mg/kg (1, 3, and 5 times the recommended total daily dose) for 180 days. At the indicated (1X) dose of 5 mg/kg, on histopathologic examination, three out of six dogs had minimal periportal hepatic fatty change. These animals showed no clinical signs and had no liver enzyme elevations. In the 3X dose group, one dog was euthanized because of poor clinical condition (Day 63). This dog also had a mildly decreased serum albumin. At study completion, out of five surviving and clinically normal 3X dogs, three had minimal periportal hepatic fatty change. Of twelve dogs in the 5X dose group, one died (Day 82) and three moribund dogs were euthanized (Days 38, 78, and 79) because of anorexia, poor weight gain, depression, and in one dog, vomiting. One of the euthanized dogs had ingested a rope toy. Two of these 5X dogs had mildly elevated liver enzymes. At necropsy all five of the dogs that died or were euthanized had moderate periportal or severe panzonal hepatic fatty change; two had duodenal ulceration; and two had pancreatic edema. Of two other clinically normal 5X dogs (out of four euthanized as comparators to the clinically affected dogs), one had slight and one had moderate periportal hepatic fatty change. Drug treatment was discontinued for four dogs in the 5X group. These dogs survived the remaining 14 weeks of the study. On average, the dogs in the 3X and 5X dose groups did not gain as much weight as control dogs. Rate of weight gain was measured (instead of weight loss) because these were young growing dogs. Thalamic vacuolation was seen in three of six dogs in the 3X dose group, five of twelve dogs in the 5X dose group, and to a lesser degree in two unmedicated controls. Diarrhea was seen in all dose groups, including unmedicated controls. In a separate dose tolerance safety study involving a total of six dogs (two control dogs and four treated dogs), firocoxib was administered to four healthy adult Beagle dogs at 50 mg/kg (ten times the recommended daily dose) for twenty-two days. All dogs survived to the end of the study. Three of the four treated dogs developed small intestinal erosion or ulceration. Treated dogs that developed small intestinal erosion or ulceration had a higher incidence of vomiting, diarrhea, and decreased food consumption than control dogs. One of these dogs had severe duodenal ulceration, with hepatic fatty change and associated vomiting, diarrhea, anorexia, weight loss, ketonuria, and mild elevations in AST and ALT. All four treated dogs exhibited progressively decreasing serum albumin that, with the exception of one dog that developed hypoalbuminemia, remained within normal range. Mild weight loss also occurred in the treated group. One of the two control dogs and three of the four treated dogs exhibited transient increases in ALP that remained within normal range.

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Dani McVety, DVM
Lap of Love Veterinary Hospice

Continuing education that inspires.

“This was my first year speaking for (and attending) the CVCs and frankly, I’m blown away. Every part of both the Virginia Beach and KC events was well organized, well attended, personal, and simply fun. They didn’t seem too big, too small, they were perfect. It was very exciting to see the engagement your team is inspiring in the profession. Even the “doodles” are inspiring!” — Dani McVety, DVM

Register now, or learn more at
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Kansas City, Aug. 25-28 | **San Diego**, Dec. 7-10 | **Virginia Beach**, May 17-20, 2018



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DIRECTOR'S CUT | Kristi Reimer Fender

Exploring the canine brain

Dognition helps pet owners understand—and bond with—their dogs.

Recently a number of us who work on [dvm360](http://dvm360.com) and associated publications have been immersed in an experience called Dognition. Dognition is a program (see dognition.com) that purports to test a dog's personality and cognitive abilities and assign it to one of a number of profiles: Charmer, Socialite, Maverick, Stargazer and so on. The tests were developed under the leadership of Brian Hare, PhD, director of the Duke Canine Cognition Center, and the program has some published scientific results to back up its legitimacy.

As a recent dog owner (and a self-proclaimed cat person/non-dog person until I married into dog ownership), I was intrigued and decided to join the group participating in Dognition as part of an editorial project on pet enrichment. Maybe I'd learn something that would help me become a better dog mom.

What I learned is that asking a dog to solve problems with his brain—even if he's highly motivated by the treat being used as incentive—is exhausting for both dog and owner. Having been warned by some colleagues who did all two and a half hours testing at once and found it grueling, my husband and I decided to break up the experience over a number of days. Even so, Alvin was more than ready to be done after 30 to 45 minutes of problem-solving (or the absence thereof), and so were we.

I also learned that it's really fun to have a structured way to interact with your dog. We spend time regularly going through Alvin's training repertoire and attempting to expand it (with mixed results), but this was much more involved and gave us more insights into how his brain works. One finding: When Alvin focuses, he can usually figure out the

right answer (although Dognition insists with every data point that there is no "right" answer). But getting him to maintain his focus even for 30 seconds is tough. Closing the doors to the room and not letting anyone walk through helped a lot. Another surprise: I thought any dog would be able to find a simply hidden treat (under a cup or sheet of paper, for example) based on smell. But Dognition says no, despite dogs' excellent sense of smell, they actually rely on other cues in these situations. And darn if they're not right!

In the end I learned that Alvin is a Socialite (not surprising given his ecstasy when anyone new shows up), cunning (it took him less than two seconds to take that treat when our backs were turned) and an all-around exceptional dog. We didn't need a test to tell us that, but when the experts in canine cognition tell you so, you take it! **dvm360**

3 things

pet owners want you to know



A wildly innovative session at all three CVC shows this year puts pet owners in a room on camera with a classroom of attendees listening to their exam room and practice experiences. Here's what we learned in the first go.

If you could sit and listen to pet owners talk amongst themselves, what would you learn? And if you could ask them questions, what would you want to know? Why (and when) they consult Dr. Google? How much price-shopping goes on? Whether they're getting ready to jump ship from your practice and take their money down the road?

Well, answers to those questions were big takeaways for Brian Conrad, CVPM, who moderated "Ask the pet owner: A LIVE panel and learning session" as well as discussed the panelists' answers with a roomful of CVC attendees. Here's the quick list:

> **Pet owners talk to Dr. Google like crazy—after the visit.** Once the doctor's given some guidance on what a problem could be, then they want to know more—lots more—and the internet is there for them.

> **Pet owners price-shop—even the loyal ones**

who love you. Panelists at CVC who had nothing but glowing words for their veterinarian and veterinary team still acknowledged asking friends for other places to buy ongoing products for their pets' health.

> **Pet owners are loyal to doctors—not the practice.** Some practices—especially multi-location chains—focus on the strength of their brand, their customer service and their consistent experience more than the relationship a pet owner builds with an individual veterinarian. Well, these veterinary clients weren't having it.

If you want to see Brian Conrad ask a brand-new set of pet owners the tough questions and hear individual stories to inspire you from folks who appreciate the work you do, sit in on the next panels at the next CVC (Hint: It's in Kansas City, August 25 to 28.) Ready to register now? Go to thecvc.com/register.



NAVTA seeks national veterinary nurse credential

NAVTA's Veterinary Nurse Initiative Coalition will pursue legislative amendments in all 50 states.

The National Association of Veterinary Technicians in America (NAVTA) board of directors has created a coalition that will seek legislation in all 50 states establishing a credential of registered veterinary nurse (RVN). The new credential would be a substitute for the titles of registered veterinary technician (RVT), licensed veterinary technician (LVT), certified veterinary technician (CVT) and licensed veterinary medical technician (LVMT).

The Veterinary Nurse Initiative Coalition is currently defining its legislative strategy and targeting 2018 to begin initial legislation reform efforts, according to a NAVTA release. Along with a single title used nationwide, the association is also looking to unify credentialing requirements and scope of practice.

The title change and standardization of requirements will help the profes-

sion gain better recognition, increased job mobility and elevated practice standards, says Kara M. Burns, MS, MEd, LVT, VTS (nutrition), president-elect of NAVTA. "All of this will lead to better patient care and consumer protection," she says in the release.

The Veterinary Nurse Initiative Coalition will work with the American Veterinary Medical Association, American Association of Veterinary State Boards, industry and professional organizations, and legislators to create common terminology, policies and procedures. These will be made to ease the burden on individual states and associations in governing credentials, NAVTA states. The initiative will start with several states in 2018 and then continue to work with any other state interested in the change.

Coalition member Heather Prendergast, BS, RVT, CVPM, SPHR, says, "Our

goal is to reduce and remove the confusion associated with the designations for a veterinary technician. ... Once a single designation is established, each state will be able to align with a standardized credential for the profession."

Kenichiro Yagi, MS, RVT, VTS (ECC, SAIM), another member of the coalition, says the process of evolving from "veterinary technician" to "veterinary nurse" began last year with extensive research on the legality of the name change and the level of industry support, as well as a review of the current credentialing. The process could take several years, Yagi says, because of the need to ensure alignment and support at the national and local level from a legislative, industry and individual perspective.

To learn more about the Veterinary Nurse Initiative, email vetnurse@navta.net. [dvm360](#)



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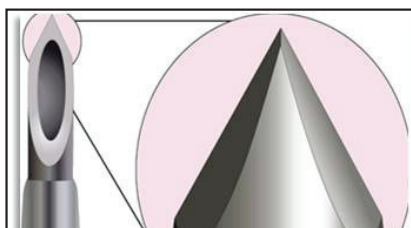
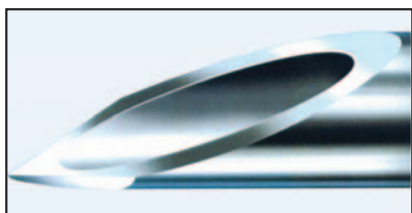


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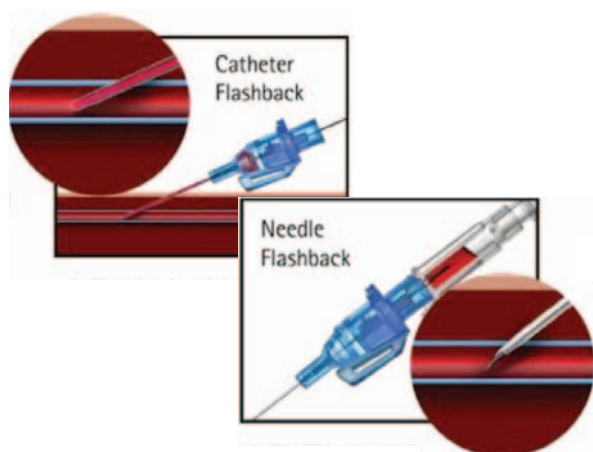
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FDA warns about risk of possible accidental overdose of dogs treated with Sileo

The drug, manufactured by Zoetis, is used to treat cases of noise aversion in dogs.

The United States Food and Drug Administration (FDA) is warning veterinarians and dog owners about the risk of accidental overdose to dogs treated with Sileo, according to an agency release. Sileo (dexmedetomidine oromucosal gel), manufactured by Zoetis, is a prescription gel given to dogs by mouth to treat noise aversion (signs related to anxiety or fear due to noise).

The drug is packaged in an oral dosing syringe with a ring-stop mechanism on the plunger that must be “dialed” and locked into place in order to set the proper dose for the dog. Overdose can result if the ring stop isn’t fully locked. The FDA stresses it’s very important that the person administering the product understands how to operate the syringe correctly before giving the product to the dog.

Zoetis began marketing Sileo in May 2016. Since then the FDA has received 28 reports involving overdoses in dogs due to the ring-stop mechanism not properly locking at the intended dose. In some cases, the release states, the entire contents of the dosing syringe were administered to the dog. In 15 out of 28 cases, dogs experienced clinical signs of overdose, which include lethargy, sedation, sleepiness, slow heart rate, loss of consciousness, shallow or slow breathing, trouble breathing, impaired

balance or incoordination, low blood pressure and muscle tremors. No deaths have been reported as result of an overdose.

At this time, the agency has not determined if the overdoses were due to improper use of the ring stop. Veterinarians and pet owners should be aware of the possibility of accidental overdose if the Sileo syringe isn’t properly locked before dosing. The FDA strongly encourages veterinarians and their teams to provide education in proper operation of the syringe and the potential signs of overdose to dog owners before dispensing the drug. It’s also important to advise pet owners to contact their veterinarian if they see any of these signs.

In a statement, the manufacturer says, “We at Zoetis take these reports seriously. The health and well-being of animals is our highest priority. As with any prescription medication, it is important for pet owners to fully review the instructions to ensure proper administration to a pet. So that dogs fully benefit from Sileo, we encourage veterinarians to discuss with pet owners how to use the syringe and administer Sileo. We also encourage pet owners to review the step-by-step dosing instructions that are included in the Sileo package and the instructional videos available online on the Sileo product website (www.sileodogus.com).” **dvm360**



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Canine influenza strikes the Southeast: Another outbreak?

Veterinarians and pet owners should monitor patients for signs of respiratory disease, isolate affected animals.

By Kathryn Primm, DVM

Here we go again—canine influenza is back in the headlines. H3N2, the same viral strain identified in a March 2015 outbreak in the Chicago area, seems to have gone south for the summer: This time it's hitting the southeastern United States, especially Georgia and Florida so far.

Two years ago the virus swept through Chicago-area animal shelters, making dogs sick with fever, coughing, sneezing and other respiratory signs. Many of these dogs experienced decreased appetite and some even progressed to secondary pneumonia. The virus is highly contagious, and dogs seem to be able to spread it even before they are clinically ill.

In early June, the American Kennel Club (AKC) issued a statement to all dog show exhibitors in the Southeast warning that there were reports of sick dogs from Georgia and Florida dog shows. The AKC recommended that if a dog seemed at all ill, it should not be exposed to other dogs and should see a veterinarian concerning the possibility of influenza.

The North Carolina Veterinary Medical Association also warned dog show participants about the outbreak because the dog show rotation was scheduled to place potentially exposed dogs in that state next.

The University of Florida has confirmed that this current outbreak of influenza is strain H3N2. The College of Veterinary Medicine in early June positively confirmed seven dogs as being infected, and several other suspected cases were pending identifica-

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APOQUEL® (oclacitinib tablet) and CONVENIA® (cefovecin sodium) A Winning Duo for Canine Skin Disease

A case study: First-line defense against canine pruritus with secondary pyoderma

Almost 70 percent of dog owners said their dog has experienced scratching, itching or other listed* symptoms in the past year,¹ according to an online survey conducted by Harris Poll and commissioned by Zoetis in 2015. As a veterinary professional, you probably aren't surprised by this number, which is consistent with industry analyses showing that skin allergies are the top medical condition prompting canine veterinary visits.^{2,3}

Yet, millions of dogs suffering from skin allergies never see a veterinarian for treatment. Many of their owners, instead, try to diagnose the condition themselves and seek relief with over-the-counter remedies that often don't work. This enables the itching to progress and cause further damage. In fact, research shows that up to 66 percent of dogs with atopic dermatitis have a concurrent yeast or bacterial skin infection.⁴

The escalation of itch can create sleepless nights and an aversion to playing or going for walks, significantly affecting the dogs' quality of life and disrupting the close bond with their families.

An example: Allergic itch and secondary pyoderma

Gunner, a playful 12-year-old Golden Retriever, is an example of how devastating pruritus accompanied by secondary pyoderma can be. Whitney Stringman, Gunner's owner, noticed he was scratching intensely. Gunner's condition escalated to a large hot spot in a matter of days, so Stringman took him to Dr. John Hutchens, a veterinarian at Westmoreland & Slappey Animal Hospital in Perry, Georgia.

Dr. Hutchens knew that quickly treating both the severe allergic itch and the secondary pyoderma was crucial to helping Gunner

— and to relieving his client's distress. That's why he turned to APOQUEL® (oclacitinib tablet) for Gunner's allergic itch and CONVENIA® (cefovecin sodium) for Gunner's pyoderma.

"Because of the severity of Gunner's case, I took no chances with our treatment and gave Gunner his first dose of APOQUEL while he was still in my office," Dr. Hutchens said. "CONVENIA was a great option for Gunner's hot spots because of the high rate of treatment success with only one injection; also, Whitney wouldn't have to worry about administering an antibiotic at home."

After the veterinary visit, Stringman felt confident in the treatment plan when she saw the rapid results.

"Once I left the clinic knowing Gunner had received the first dose of APOQUEL and the CONVENIA injection — and saw the relief in Gunner — I felt relief myself," she said.

APOQUEL and CONVENIA are the new standard of care, in my opinion. With the anti-itch therapy as well as the antibiotic therapy, you're taking care of both conditions at the same time very effectively and quickly.

— John Hutchens, DVM

Stringman reported that within hours, Gunner wasn't chewing or scratching as much. He was back to playing with his family and acting like himself again.

Because of what Dr. Hutchens experienced with Gunner and other cases, he now relies on these medications as his first-line treatment for dogs with acute and seasonal allergies that present with secondary pyoderma.

Creating real-world success with a winning duo

"APOQUEL and CONVENIA are the new standard of care, in my opinion," Dr. Hutchens said. "With the anti-itch therapy as well as the antibiotic therapy, you're taking care of both conditions at the same time very effectively and quickly."

APOQUEL, the first game-changing treatment for canine allergic itch in more than a decade, is uniquely targeted to stop itch with minimal negative



To quickly relieve Gunner's suffering from severe allergic itch and secondary pyoderma, Dr. Hutchens prescribed APOQUEL and CONVENIA.



SUNDAYS PHOTOGRAPHY/SHUTTERSTOCK.COM

tion at press time. The University of Georgia’s Athens Veterinary Diagnostics Laboratory identified two cases of canine influenza, but the strain had not been subtyped. Another Georgia lab positively confirmed one case of H3N2 during this outbreak so far.

By mid-June, canine influenza had been reported in a number of other states besides Florida and Georgia. Local media outlets reported that the disease was affecting dogs in North and South Carolina, Tennessee, Kentucky, Texas and Illinois, and other states were on alert for the virus.

One veterinarian says these reports aren’t telling the whole story. Richard Hawkes, DVM, of Moorehead, North

Carolina, participates in dog shows and says he knows of more than 300 dogs that became ill in association with AKC events in Florida in mid- to late May. He himself had 10 dogs become sick, he says, one of which died in early June. A PCR test confirmed the presence of H3N2, Hawkes says.

During the 2015 outbreak, one study looked at the duration of shedding of active virus in order to guide isolation protocols for infected dogs. Dogs were shown to shed the virus for 20 to 24 days after infection.¹ Spread of the virus was slowed significantly when shelters implemented a 21-day isolation protocol, so owners of infected dogs should plan for extended isolation.

But isolation is only a part of disease containment. Vaccination can also play a role in stopping disease transmission dogs. Dogs considered to be at highest risk are those that participate in social activities or encounter groups of other dogs: boarding and grooming facilities, dog parks, dog shows and shelters are all potential venues for transmission.

“Dogs at risk should be vaccinated at least yearly with both influenza strains, H3N8 and H3N2,” says Ronald Schultz, PhD, professor of pathological sciences at the University of Wisconsin School of Veterinary Medicine, in a release from Merck Animal Health, which offers a canine influenza vaccine. (Zoetis also manufactures a vaccine.)

Here are a few tips for veterinarians and pet owners:

- Any dog showing signs of respiratory disease should see a veterinarian as soon as possible.
- Veterinarians with patients that may travel, especially into or out of the southeastern United States, should consider offering a canine influenza vaccine.
- Any dog that resides in (or has recently traveled to) the Southeast should be closely observed for signs of respiratory disease.
- Any dog that becomes ill with canine influenza should be isolated for at least 21 days after illness to limit virus spread. **dvm360**

Reference

1. Newbury S, Godhardt-Cooper J, Poulsen KP, et al. Prolonged intermittent virus shedding during an outbreak of canine influenza A H3N2 virus infection in dogs in three Chicago area shelters: 16 cases (March to May 2015). *J Am Vet Med Assoc* 2016;248:1022-1026.

impact on immune functions. It inhibits the function of a variety of pruritogenic and proinflammatory allergic cytokines that are dependent on JAK1 and JAK3 enzyme activity.⁵

While APOQUEL stops the itch at the source so you can provide fast relief to patients as you diagnose the underlying cause of the pruritus, CONVENIA works quickly to resolve the infection with sustained antibacterial drug concentrations that last for 14 days.^{**} In a clinical study, 86 percent of dogs needed one injection.⁶

Together, APOQUEL and CONVENIA allow the dog and the pet owner to get back to their life together — and reinforce their trust in the outstanding care you and your clinic team provide during each and every visit.

An opportunity: Educating clients about the itch cycle

Today, we not only understand more about the canine itch cycle, but veterinarians also have access to treatment options to make a vital difference for Gunner and other dogs. Armed with these resources, there is no better time to bring itch to the forefront of your discussions with pet owners.

These conversations help clients understand the importance of providing itch relief with APOQUEL before scratching causes further damage. However, if a secondary pyoderma is present, you can turn to CONVENIA to deliver first-time treatment success.



Seeing Gunner’s rapid relief reinforced Whitney Stringman’s confidence in Dr. Hutchens’ treatment plan, which featured APOQUEL and CONVENIA.

To see Gunner’s story, watch videos about other APOQUEL cases and download in-clinic educational resources, visit apoquelexperience.com/dvm360.

At convenia.com, you will find clinical case studies and videos showing what veterinarians and pet owners are saying about CONVENIA.



APOQUEL IMPORTANT SAFETY INFORMATION:

Do not use APOQUEL in dogs less than 12 months of age or those with serious infections. APOQUEL may increase the chances of developing serious infections, and may cause existing parasitic skin infestations or pre-existing cancers to get worse. APOQUEL has not been tested in dogs receiving some medications including some commonly used to treat skin conditions such as corticosteroids and cyclosporines. Do not use in breeding, pregnant, or lactating dogs. Most common side effects are vomiting and diarrhea. APOQUEL has been used safely with many common medications including parasiticides, antibiotics and vaccines. See Brief Summary of full Prescribing Information on page 12 .

CONVENIA 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 20.

*Sixty-nine percent of dog owners said their dog has experienced scratching or itching, licking of feet/paws, head shaking/ear rubbing, rubbing on carpet or furniture, or biting/chewing in the last year.

**In clinical studies, a single injection of CONVENIA was clinically equivalent to a 14-day antibiotic regimen.

References:

¹Survey Methodology: This survey was conducted online within the United States by Harris Poll on behalf of Zoetis from March 30 - April 26, 2015, among 4,052 adults ages 18 and older (among which, 1,665 are dog owners). This online survey is not based on a probability sample and, therefore, no estimate of theoretical sampling error can be calculated. For complete survey methodology, including weighting variables, contact Lindsey Goodman at lgoodman@archermalmco.com.

²Most common medical conditions for dogs and cats. Nationwide. <http://www.prnewswire.com/news-releases/most-common-medical-conditions-for-dogs-and-cats-300418097.html>. Accessed March 13, 2017.

³Nationwide reveals the 10 most common medical conditions for dogs and cats. Nationwide. <https://press8.petinsurance.com/articles/2016/march/nationwide-reveals-the-10-most-common-medical-conditions-for-dogs-and-cats>. Accessed March 13, 2017.

⁴Bizikova P, Santoro D, Marsella R, Nuttall T, Eisenschenk MN, Pucheu-Haston, CM. Review: Clinical and histological manifestations of canine atopic dermatitis. *Vet Dermatol*. 2015;26(2):79-e24.

⁵Gonzales AJ, Bowman JW, Fici GJ, Zhang M, Mann DW, Mitten-Fry M. Oclacitinib (Apoquel®) is a novel Janus kinase inhibitor with activity against cytokines involved in allergy. *J Vet Pharmacol Ther*. 2014;37(4):317-324.

⁶Six 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):433-439.



Mizzou dean steps down, accepts post at St. George's

After leading MU for 10 years, Neil Olson replaces retiring Timothy Ogilvie in Granada.

Neil C. Olson, DVM, PhD, has announced he is leaving his position as dean of the University of Missouri's (MU) College of Veterinary Medicine to take over as dean of the School of Veterinary Medicine at St. George's University (SGU) in St. George's, Grenada, according

to press releases from both universities. Olson will take over on August 15 from St. George's current dean, Timothy Ogilvie, MSc, LL.D, DACVIM, who held the position for three years and is retiring.

Olson will oversee the School of Veterinary Medicine's academic units,

centers and initiatives, while providing leadership for the planning, development, implementation, assessment, and improvement of all of the school's programs, policies and infrastructure, the SGU release states. In addition, he will lead more than 100 faculty and staff at the university and will

also represent the university among the 48 other veterinary schools accredited by the American Veterinary Medical Association



Dr. Neil Olsen

Council on Education.

"I am honored to continue the great work that my predecessor, Dr. Ogilvie, has already laid out," Olson says in the release. "I hope to keep building upon our numerous partnerships with other institutions across the world to recruit and train the best veterinarians. I'm also excited to continue developing our curriculum so that veterinary students can take advantage of the unique global environment that Grenada has to offer."

Olson was dean of the College of Veterinary Medicine at the University of Missouri for 10 years, and the MU release notes that during that time he oversaw several notable achievements, including:

- > establishing the Veterinary Health Center in Wentzville, Missouri
- > growing the college's endowment
- > increasing enrollment
- > implementing improvements to facilities and diagnostic imaging capabilities
- > earning full accreditation from the AVMA Council on Education
- > receiving full accreditation from the American Association of Veterinary Laboratory Diagnosticians for the Veterinary Medical Diagnostic Laboratory, the MU release notes.

Prior to joining MU, Olson spent almost 25 years at North Carolina State University's College of Veterinary Medicine in a variety of administrative and professional roles. Olson received his DVM degree from the University of Minnesota and completed his PhD in physiology from Michigan State University.

The University of Missouri provost and interim chancellor, Garnett Stokes, has announced that Carolyn Henry, DVM, MS, DACVIM (oncology), will serve as the interim dean of the College of Veterinary Medicine, beginning August 1, according to an MU release. A national search for a permanent dean will begin in the fall. **dvm360**

apoquel®

(oclacitinib tablet)

3.6 mg

5.4 mg

16 mg

Brief Summary of Prescribing Information

For oral use in dogs only

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

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

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

Dosing Chart

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

Warnings:

APOQUEL is not for use in dogs less than 12 months of age (see **Animal Safety**).

APOQUEL is not for use in dogs with serious infections.

APOQUEL may increase susceptibility to infection, including demodicosis, and exacerbate neoplastic conditions (see **Adverse Reactions** and **Animal Safety**).

Human Warnings:

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

Precautions:

APOQUEL is not for use in breeding dogs, or pregnant or lactating bitches.

The use of APOQUEL has not been evaluated in combination with glucocorticoids, cyclosporine, or other systemic immunosuppressive agents.

Dogs receiving APOQUEL should be monitored for the development of infections, including demodicosis, and neoplasia.

Adverse Reactions:

Control of Atopic Dermatitis

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

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

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

Control of Pruritus Associated with Allergic Dermatitis

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

Continuation Field Study

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

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

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

Storage Conditions:

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

Familiar bills introduced in Congress

Veterinary legislation is back as key players gear up for a continued fight.

For several years in a row, key players in organized veterinary medicine have fought a bill that would require veterinarians to hand clients a written prescription for every medication they prescribed for a patient. At the same time they have beseeched lawmakers to eliminate the tax on awards made to veterinarians serving in rural shortage areas. Neither bill has passed, to the simultaneous relief and consternation of many veterinarians involved in governmental affairs.

Now both bills are back, and efforts on both fronts are winding up again.

The Fairness to Pet Owners Act, first introduced in 2015 and reintroduced in 2016, lives again in the 115th Congress as H.R. 623, introduced by Jason Chaffetz (R-Utah). As the bill reads, it “directs the Federal Trade Commission to require prescribers of animal drugs to verify prescriptions and provide copies of prescriptions to pet owners, pet owner designees, and pharmacies, without the prescriber demanding payment or establishing other conditions.”

The American Veterinary Medical Association (AVMA) has re-upped its opposition to the bill, maintaining that it would require veterinarians “to waste time on red tape instead of what’s most important: caring for patients,” a statement on the AVMA website reads. “Many veterinary clinics are small businesses with limited administrative resources, so this extra regulatory burden may impact the number of patients they can see or even force pet care costs to rise for consumers.”

The AVMA continues that in most cases, clients can get a written prescription simply by asking, and in many states a law or policy already regulates this process. “There’s no need for extra federal regulation on this issue,” the association states. It is asking interested veterinarians to contact their state representatives to express their opposition to the bill.

On the AVMA’s “to pass” list, the Veterinary Medicine Loan Repayment Program (VMLRP) Enhancement Act—also on a repeat in Congress—would lift the 39 percent tax on awards made through the Veterinary Medicine Loan Repayment Program. These awards forgive up to \$75,000 of participants’ student loans in exchange for three years of work in areas where

veterinary services are scarce.

S. 487, introduced by Senators Mike Crapo (R-Idaho) and Debbie Stabenow (D-Michigan), is accompanied by companion bill H.R. 1268, introduced by U.S. Representatives Adrian Smith (R-Nebraska) and Ron Kind (D-Wisconsin).

As it stands now, federal loan repayment award recipients do not currently have to pay the 39 percent tax on the funds they receive. However, a large portion of the total amount the government allocates for the program—between \$4 million and \$5 million—goes

to pay those taxes, reducing the number of awards that can be made. If the tax were not a factor, more than 100 additional veterinarians could have benefited from the VMLRP since the program was instituted in 2010, according to a release from the AVMA. [dvm360](#)

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Are worries about long-term use of robenacoxib in arthritic cats warranted?

Study shows that longer use may be OK, even in cats with kidney disease. *By Michael Nappier, DVM, DABVP*



Osteoarthritis (OA) is a common problem in feline patients, especially in those that are senior and geriatric. Nonsteroidal anti-inflammatory drugs (NSAIDs) are commonly used in many other species for relief from OA because of their analgesic and anti-inflammatory effects. Currently in the United States there are no NSAIDs approved for long-term use in cats. Long-term use of meloxicam is approved in Europe but is strongly discouraged in the U.S. because of concerns about renal damage. Robenacoxib (Onsior—Elanco) is currently approved in the U.S. for use of up to three days' duration for postoperative pain. It is reported to have good safety in cats, but there are currently no studies looking at safe usage in cats with OA, until now.

What they did

The authors recruited 194 cats from 26 different veterinary hospitals across

the country that had a confirmed radiographic diagnosis of OA and a history of impaired activity for at least 12 weeks. Cats with existing endocrine, cardiac or chronic kidney disease (CKD) were not excluded from the study. On day one of the study a physical examination, complete blood count, serum chemistry profile, urinalysis and thyroid screen were performed. The cats were then randomly assigned to either a control group that received a placebo or a treatment group. The treatment group was administered 6-mg robenacoxib tablets at a minimum dose of 1 mg/kg every 24 hours with a dosage range for participants of 1 to 2.4 mg/kg every 24 hours. After 28 days, the blood screening was repeated. Repeat physical examinations were performed on days 14 and 28. A follow-up phone call was made on day 42 for an update on how the cats were doing post-study.

What they found

At the end of the study, no clinically relevant safety-related differences were found between the placebo and treatment groups. Twenty-one clinically serious adverse events were reported between the two groups. A clinically serious adverse event was defined as one that required medical intervention. However, the adverse events were relatively evenly divided between the groups (13 reports from 10 cats in the placebo group and eight reports from eight cats in the treatment group). No deaths or euthanasia occurred during the study. Even more interestingly, 40 cats were identified as having CKD and randomized, almost evenly, into the placebo (n = 22) and treatment (n = 18) groups. There were no significant differences between the groups for change in blood urea nitrogen and creatinine concentrations during the study. International Renal Interest So-

ciety (IRIS) scores for 87.5% of the cats in both groups did not change.

Takeaways

Robenacoxib was well-tolerated when given to cats for one month. No clinically detectable evidence of damage to liver, gastrointestinal tract or kidneys was found. Of particular interest is the lack of changes in the CKD group. The weakness of the study was the relatively small number of participants which may not accurately identify the likelihood of rare but serious adverse events. The authors caution that the study has only a 95% power to detect such side effects and that further study is recommended in a larger group to detect such potential rare adverse events. [dvm360](#)

For reference information and a link to the study abstract, go to dvm360.com/robenacoxib.

Surgery: Breaking down the optimal spay-neuter timing debate

Gone are the days when you're absolutely 100 percent sure what to say when a client asks the best age at which to spay or neuter a dog or cat. New research is showing possible ill effects of early spaying or neutering, resulting in some veterinarians recommending waiting until a patient is 1 to 2 years of age—or maybe not sterilizing a pet at all. Yet shelter policies often advocate these surgeries before a pet is adopted—often at a very young age. What to do?

We asked Philip Bushby, DVM, MS, DACVS, a member of the task force that helped create the updated Association of Shelter Veterinarians' 2016 Veterinary Medical Care Guidelines for Spay-Neuter Programs, this very question at a recent CVC, and he summarized all of the factors rolling into this complex question:

"You have to be willing to look at the different populations of animals. In the shelter environment, the recommendation of spay or neuter prior to adoption I think is absolutely appropriate, even if you're talking about a 6-, 7-, 8-week-old puppy or kitten. It's an absolute fact—there are examples all over the country of how spay-neuter prior to adoption reduces pet overpopulation, reduces shelter intake, reduces euthanasia of homeless dogs and cats. Then you get into the issue of, 'All right, this isn't a shelter animal. This is an animal that lives in my house, it sleeps on my bed—when should I spay or neuter that animal?' And that's where some of the confusion comes in. We've seen in the last few years three different articles coming out of the veterinary school at UC-Davis related to various orthopedic conditions and various cancers in golden retrievers, Labradors and German shepherds. When you read those articles, it gives the impression that certain orthopedic conditions and certain

cancers are more likely if an animal is spayed or neutered, especially if it's spayed or neutered under a year of age."

Oh, those studies that show the possible detriment of early spaying and neutering?

"I think you have to be willing to look pretty deeply into those studies and question how valid are the results. I can't prove this—but I would suspect that the majority of animals that are not spayed or neutered—at least in the United States—are not spayed or neutered because the owners can't afford it. What percentage of those animals would ever show up at a referral hospital like UC-Davis because their dog is limping? Or because their dog has a small tumor? So there's a select population that's examined in those studies, which I think at least puts a question mark on the validity of the studies. That doesn't mean that there can't be any truth to them. And I think the veterinarian has to have a good heart-to-heart conversation with an owner and find out what the use of the dog is, how the dog is managed in the home—does it run free, how much access does it have to the outside—and involve the owner in the decision of when to spay or neuter it." [dvm360](#)



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> Continued from the cover

The suit continues, “Dr. Gordon repeatedly complained about practices of veterinary care that did not minimize pain and suffering to the animals and otherwise do not constitute adequate veterinary care. Practices that do not minimize pain and suffering and otherwise do not constitute adequate veterinary care violate the AWA.”

Throughout his employment at UTMB, Gordon says in the court filing, he was “admonished for expressing his opinion related to animal care and safety at the facility and he was criticized for not being a ‘team player.’” After struggling with those in charge of the institution over the unreported suffering and deaths of the animals in his care, Gordon was terminated and cut off from the research laboratory completely, he says. For damages allegedly done to his reputation and finances, Gordon is seeking monetary relief of \$200,000 to \$1 million.

Recently, in an interview with *dvm360*, Gordon recalls when he was first hired. “It was already a fractured program,” says Gordon, who now lives in North Carolina. “They’d just fired their last attending veterinarian. In the last decade, they’d had over five attending veterinarians. Clearly, they had problems.”

What he didn’t realize was that violations were occurring without his knowledge, he says. When the facility Gordon worked at was audited, much was brought to light—especially in regard to the veterinary care the laboratory animals should have been receiving. “It was a scathing audit,” Gordon recalls, “but my concern was with the veterinary care that these animals did not receive. The animals were just put in a cage and allowed to die.”

Gordon had other complaints about management of UTMB as well. “They hired an institutional official that had never once been in an animal facility and had no animal background—but still wanted to micromanage,” he says. “She vetoed veterinary care, which prevented me from being able to discipline the veterinarians in charge of the animals. She wrote me up once for trying to find a better place for monkeys—they wanted to put them somewhere that was below sea level and surrounded by water. When I brought this to the attention of [the Institutional Animal Care and Use Committee], I was reprimanded for doing so.”

The official in question, Associate Vice President of Research Toni D’Agostino, is named by Gordon in the lawsuit along

with the institution. Gordon says he would like two things to come from his court case: compensation and increased awareness. “I see a trend with veterinary medicine when it comes to attending veterinarians,” Gordon says. “If you want to keep your job, you have to do the wrong thing. That’s not how I am as a veterinarian. The attending veterinarians are supposed to consult with the other veterinarians on animal pain and suffering and that’s not happening.”

Attorney Daphne Silverman, who is representing Gordon, believes this is a unique opportunity to send a message to the research community. “It’s rare that a plaintiff like Dr. Gordon will come forward and it’s rare that an attorney will take it,” she tells *dvm360*. “These wrongfully terminated veterinarians don’t want to make waves; they want to go quietly to their next job. When you make waves, the industry knows.”

Gordon echoes these thoughts. “They’re being threatened,” he says of veterinarians who speak out against the treatment of laboratory animals. “I wouldn’t even say it’s subtle. Many in the field keep their heads down and I don’t blame them. I’ve spoken with many in similar situations.”

Attorney Chris Berry, who works with the Animal Legal Defense Fund (ALDF) and is assisting Silverman with Gordon’s lawsuit, has worked on similar cases before. “In my experience, neglect is the most common form of animal suffering in laboratories,” he says. “Maybe people just don’t care or have become accustomed to the neglect and unnecessary harm done to the animals over time. But overall, costs matter and a lot of times we see corners being cut in order to minimize expenses.”

Silverman and Gordon agree that the facility was ruled by those with money. “The guy in charge of all of the funding could basically do whatever he wanted or else he’d pull all of the money from the program,” Gordon says.

“When you hit someone with money, they change,” Silverman says simply.

This is Gordon’s second lawsuit against UTMB. His original case was dismissed in February, with judges maintaining that the defendants were protected by sovereign immunity and that Gordon had failed to address several required elements in his claim.

Silverman almost immediately appealed the case once it was dismissed. “We missed some things,” she admits.

“I noticed this and drafted an amended proposition. It’s broader and states every claim. When I saw the glaring problems, I corrected them—but at the same time the judge was preparing a dismissal order based on the very order I’d already seen as inaccurate.”

This time, Gordon says he has a better understanding of what to expect. “If I see anything monetarily, I’ll be surprised,” he says. “What I’d like is to change what it means to be an attending veterinarian. They shouldn’t be the fall guy when something goes bad. Veterinarians are good people with good intentions. They want to make animals comfortable, reduce pain and stress—and they’re stopped by people and corporations that don’t have that in mind.”

Silverman says her eyes have been opened during this experience. “When you start getting involved in something like this, you learn stuff that isn’t open to the public,” she says. “I’m imagining that most of the human doctors benefiting from this [research] don’t even know.”

Gordon asserts that it’s possible for a research facility to be run properly—and for lab animals to be cared for humanely—but standards may be slipping. “There are good institutions that want everything run right—I’ve been through some of those places,” Gordon says. “I’d been through 25 years with no compliance issues until I came to Galveston. What I’ve seen over the years is change. I was part of a team that got to go in and work for the betterment of the animals—now all they want is veterinarians to be compliance officers.”

Berry, the ALDF attorney, agrees. “Dr. Gordon saw something that was wrong—in this case, monkeys were dying from diseases when they were supposed to be euthanized beforehand—and ultimately he was fired because of it,” he says. “It’s a sad lesson to take away, but it’s one that UTMB seems comfortable with constructing. When all is said and done, it’s my hope that veterinarians don’t need to feel afraid about speaking up when they see something wrong.”

“Caring for animals is the No. 1 priority for veterinarians,” Silverman says, “and that’s what Dr. Gordon is seeking. Most of the time, institutions pick someone they can control. If veterinarians stood up against this, I imagine that they’d have to tighten the enforcement of these laws.”

Repeated attempts by *dvm360* to reach UTMB for comment on this story were unsuccessful. [dvm360](#)



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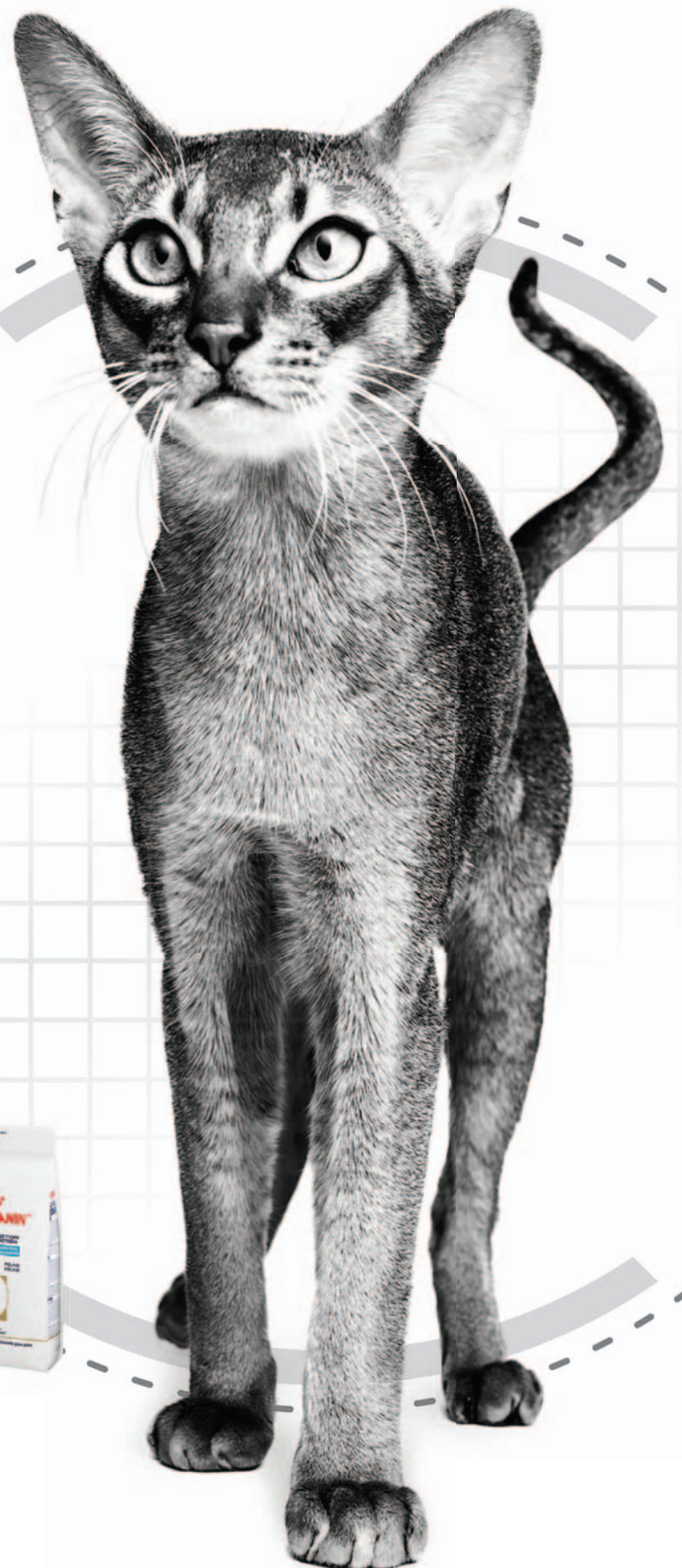
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Important but subtle changes taking place in the pet-owner population will have a dramatic impact on veterinary practices soon—if they're not already. Some of these changes may affect your practice more than others, says John Volk, CVC speaker and veterinary-market analyst—the key is to know which are happening in your neighborhood and how you can address them among your clients.

Financial stress

One of the things the Great Recession taught us is that financial pressures do indeed impact veterinary care, Volk says. And even though the U.S. has been in an economic recovery period for a number of years, many pet owners are still experiencing pressure to make ends meet. Median earnings for U.S. men haven't changed significantly since the 1970s when adjusted for inflation, Volk says. Women's earnings have improved in that time, so that helps in two-parent households—but there are fewer of those than ever (more on that momentarily). In a nutshell, we're still a long way from where we were before veterinary visits started declining in the early 2000s.

But wait, you say. Business was

rocking and rolling in the early 2000's. Maybe visits weren't increasing rapidly for many veterinarians, but business was good. Here's why, according to Volk: Remember the housing bubble? From 2001 to 2006, Americans pulled \$5 trillion—yes, *trillion*—out of their inflated home values and spent it on things like big-screen TVs, cars, restaurant meals, vacations and, yes, veterinary care. That's about \$17,500 for every man, woman and child in the U.S. That money is gone, and it won't return anytime soon, Volk says. For one thing, the housing bubble is over. For another, people are saving more than they've saved in a long time. That's a good thing for their financial security. But it does mean that they're spending less on veterinary care and other discretionary items.

What's more, the recovery hasn't occurred evenly across the economy, Volk says. It has heavily favored the well-educated. In Chicago, for example, where Volk is based, median earnings are still well below 2007 levels in all categories except those with graduate degrees. Underemployment is still rampant, especially among those with less than a college education.

The result of all this is a declining middle class, Volk says. Since 2000, the middle class has declined from 54 percent to 50 percent of the population (continuation of a trend—in 1971 it was 61 percent). So what exactly do we mean by “middle class”? According to the Pew Research Center, a family of four with an annual household income of \$44,000 to \$132,000 is considered

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INDICATIONS:
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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 neutropenia*. 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.

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2 Less homeownership

Homeownership in the U.S. is declining. These days more adults are living with their parents than anytime since the 1940s. Case in point: In 2015, more men 18 to 34 years old were living with parents or relatives than married or living with a significant other, Volk says. And almost as many women aged 18 to 34 were living with family versus married or cohabiting. There has also been a shift from owning to renting homes, Volk says. Pet population tends to follow household formation, and household formation took a big hit during the recession—in patterns that seem to be settling in long term.

An unrelated trend that doesn't bode well for pet ownership is the aging population. Pet ownership tends to start declining when adults reach 50 to 55 years of age and declines to very low levels by the time people reach 70 or older, Volk says. And guess what? The 55-and-older cohort is the fastest-growing population group in the U.S.

Implications for veterinarians practices: If you're not seeing a lot of new veterinary clients, the stagnation of the pet population may be a factor, Volk says. That means you have to work all the harder to attract new clients. More people are sourcing pets from shelters and rescue groups than ever before. Volk suggests working with these organizations, as well as breeders, and welcome organizations to identify people who may have a new need for veterinary services.

3 More single-parent families

The percentage of American households with two parents is declining, Volk says. In 2014 only 69 percent of households had two parents, down from 87 percent in 1960. Twenty-five percent of households are headed by a single mother, and an additional 15 percent of households have the mother as the sole or primary breadwinner. In most but not all of those households, mean income is lower than those in which men are the primary breadwinners, Volk says.

Implications for veterinarians: In single-parent households, time and often money are challenges. Offering convenient hours can make it easier for these busy clients to fit in veterinary care. Volk says, by way of example, that

Don't just target the same group of clients you've always targeted. These new groups need care for their pets, too. But they may purchase veterinary services differently than the clients you've traditionally served.

his daughters—both full-time professionals—take their children to the pediatrician on Sunday morning (because every pediatrician in downtown Chicago offers evening and weekend hours). Want to get really crazy? Consider a “veterinary van” or “doggie daycare bus” to pick up pets and bring them to your facility for services.

More millennials

Now Volk has better news. Currently those in the 25 to 29 and 30 to 34 age cohorts are the third- and fourth-largest groups in the U.S. By 2020, those two groups will be the largest population groups. This is the age range when people are most likely to purchase a home, get married, have children and acquire pets, Volk says. In fact, many of them are deferring having children and acquiring pets instead.

These millennials are partly responsible for an uptick in the number of households owning pets, Volk says. But while they are favorable to owning pets, they're different from their parents when it comes to pet care. Brakke Consulting, Volk's firm, conducted a study recently and learned that millennials are less dependent on veterinarians for pet care advice and are more open to purchasing healthcare products and services from nonconventional sources. They are also more likely to outsource services than their parents, so they are heavier users of pet daycare, boarding and grooming services. (Another Chicago example: Some veterinary practices are offering dog walking services for their clients.)

Implications for veterinarians:

If you offer daycare, boarding or grooming services, millennials are an excellent target for your services. In

addition, keep in mind that many of these are first-time pet owners, so it's worth your while to spend extra time educating them about proper pet care, including proper veterinary care.

Changing ethnicity

Every year, the U.S. becomes less white and more diverse. In fact, within 50 years, all of us—regardless of race or national origin—will be minorities, Volk says. In recent years, the greatest influx of immigrants has been Latinos. But the tide is turning, and increasingly Asians will be the predominant immigrant group. Today 87 percent of pet-owning households are white. By 2025—less than 10 years from now—only 60 percent of pet-owning households will be white, Volk says. And different ethnic groups have different approaches to pet ownership and pet care—as well as different levels of resources to fund them.

Implications for veterinarians:

Make sure you're reaching out to all the potential constituencies in your trade area, Volk recommends. If you have a large Latino or Asian population in your area, reach out to them through their community organizations and religious institutions. And make sure your staff reflects the ethnicity of your clientele.

Again, what's going on in your own neighborhood is what matters most, Volk notes. But changing demographics can quickly sneak up on you. Be alert to financial pressures on your clients, or to shifting racial or ethnic cohorts in your neighborhood. Don't just target the same group of clients you've always targeted. Those new groups need care for their pets, too. But they may purchase veterinary services differently than the clients you've traditionally served. **dvm360**

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>>> From the outside looking in: When the Charlotte Animal Referral & Emergency (CARE) team purchased their 23,214-square-foot building in an office park near uptown Charlotte, North Carolina, they had a vision. They renovated approximately 12,000 square feet of the building, reserving 11,000 square feet for future expansion. The renovated exterior has an industrial feel, with galvanized steel siding, but the wood awnings guide the eye toward the natural materials of the lobby.

Designing for top-notch patient CARE

From the hotel-like lobby to the cat and dog alcoves, find out how this emergency and referral hospital renovated its space into a stress-free environment for clients, staff and, most importantly, pets.

By Ashley Griffin

Welcoming. Relaxing. Stress-free. These aren't usually the first words that come to mind when you think of emergency veterinary care. However, the team at Charlotte Animal Referral & Emergency (CARE) in Charlotte, North Carolina, was up to the challenge of rewriting the emergency

clinic experience. And we'd say they succeeded, considering they took home a Merit Award in the 2017 Veterinary Economics Hospital Design Competition.

"Visiting the ER or veterinary specialist can make people very nervous, and we wanted to take every opportunity to reduce their stress," says one

hospital co-owner Peggy Sayer, DVM, DACVIM (cardiology).

From the natural lighting to a hotel-like lobby to the alcove cat- and dog-friendly reception areas, find out how they renovated their space into a brand new, stress-free environment for clients, staff and, most importantly, pets.

1 Welcome clients naturally

When the CARE team purchased their 23,214-square-foot building in an office park, they wanted to renovate approximately 12,000 square feet and leave 11,000 for expansion, along the way creating a warm environment while providing state-of-the-art veterinary care. This is why the lobby area is a wide open space with an abundance of light and natural elements.

"Use of natural materials such as marble, stone, wood and glass along with earth-tone colors create a relaxing environment," the team writes in their entry notebook.

And don't forget the snacks! The waiting room is complete with comfortable armchair seating, large-



>>> A warm welcome: When clients walk through the double-door entry with their pets, they see smiling staff members and a stone and wood signage wall. Stone and wood also cover the front of the reception desk that's topped off with granite. And this 24/7 clinic comes with snacks 24/7. The waiting room is complete with comfortable armchair seating, large-screen TVs and complimentary WiFi.



>>> Earthy exam rooms: The hospital comes equipped with eight exam rooms designed to be both comfortable and functional. Continuing the theme from the lobby, these rooms keep the residential feel through the use of incandescent lighting, soothing color schemes, rustic art and comfortable, cushioned bench seating.

screen TVs, complimentary WiFi and refreshments.

“Concessions are a variety of soda, coffee, tea and chips—you’d be shocked how happy a bag of SunChips can make someone,” says Dr. Sayer.

2 Make staff members happy

Operating a 24/7 veterinary hospital means going the extra mile for team members as well.

“The working section of the hospital was designed to preserve the atmosphere established in the lobby area and exam rooms with a goal of making CARE a setting where it’s enjoyable to work,” the team writes in their entry.

Team perks include a “sleeping room,” complete with a bed and a recliner, designed as a quiet space for

CARE by the numbers

Owners: Dr. Laura Dvorak, Dr. Amy Fauber, Dr. Margaret Sayer

Number of doctors: 10 full-time, 2 part-time

Exam rooms: 8

Total cost: \$6,001,757

Building cost: \$3,248,904 (building only; excludes land purchase, landscaping, parking lot, etc.)

Cost per square foot: \$139.96

Square footage: 23,214

Structure type: Renovation freestanding

Architect: Cary Perkins, McMillan, Pazdan and Smith

Photographer: Brian Osborne, The Professional Photography Group



>>> Locate the lab:

The hospital’s lab features a variety of equipment to provide top-notch patient care: two Catalyst chemistry machines, a complete blood count machine, a SediVue Dx Urine Sediment Analyzer, a SNAP test reader, centrifuges, a microscope and a fridge.



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>>> Treat with care: Most treatment areas are strategically located along outer walls to take advantage of the large windows surrounding the building. Wide corridors in the hospital were built to enhance traffic flow throughout the space. “We felt that having good workflow in the ICU and treatment areas was vital, because all of our services use those spaces,” says hospital co-owner Dr. Peggy Sayer. The team’s treatment stations come equipped with two dry tables and two wet tables.



doctors to snag a few moments of rest. However, Chief Operating Officer Jack Henderson says the clinic is usually so busy that the room is used more as a private space for nursing mothers.

“There’s also a break room with a full kitchen so employees can prepare meals,” Henderson says.

And last, but certainly not least, one of the hospital's major goals in the design process was to offer top-notch patient care. This is why they built an in-house computed tomography scanner and installed a mobile magnetic resonance imaging trailer that remains on site.

In addition, the feline ward was designed to keep cats calm with extra thick walls (to minimize noise) and an outdoor view of bird feeders. The lobby also has separate waiting alcoves for dogs and cats.

Ashley Griffin is a freelance writer based in Kansas City and a former content specialist for dvm360.

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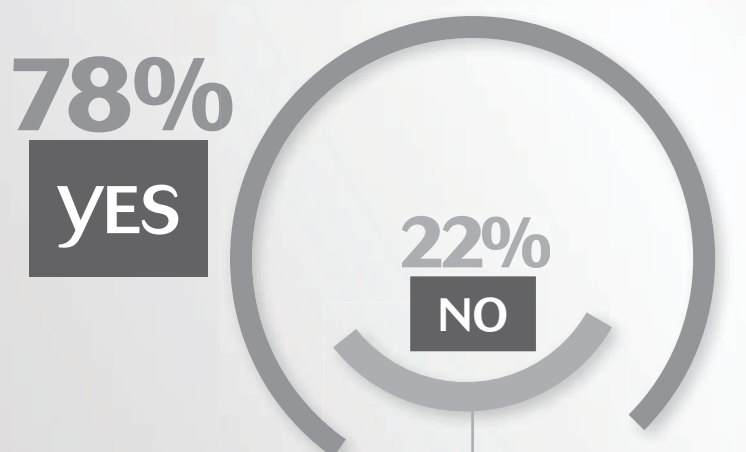
See brief summary on page 24

50 shades of gray: Data on digital radiography

How much do you love your digital radiography system? Is it an obsession or just a fling? We asked survey-takers to share the opinions on what digital radiography does for their productivity in practice and what it'll look like in the future.

Data show that over the past seven years, use of digital radiography in veterinary practice has nearly doubled.¹ We wanted to see how far the industry has come, and where it's headed in the future.

Does your practice have a digital (direct or computed) radiography unit/system?



Of those who said no, **77%** said they planned to purchase a DR unit/system within the next 5 years.

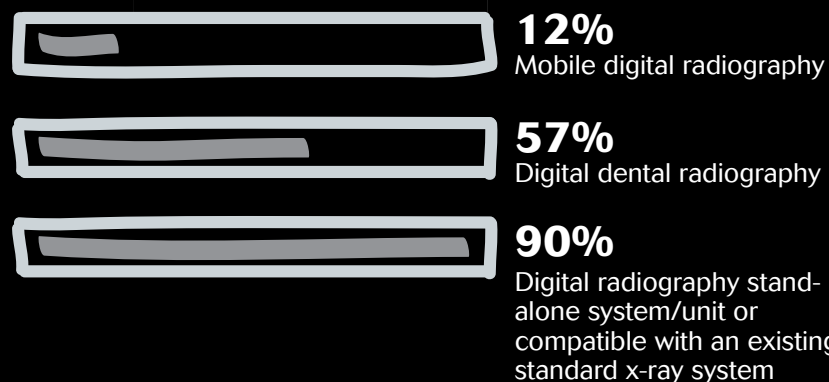
LOVE IT

"It's a time-saver, provides a better quality x-ray, and can be sent digitally to remote locations."

HATE IT

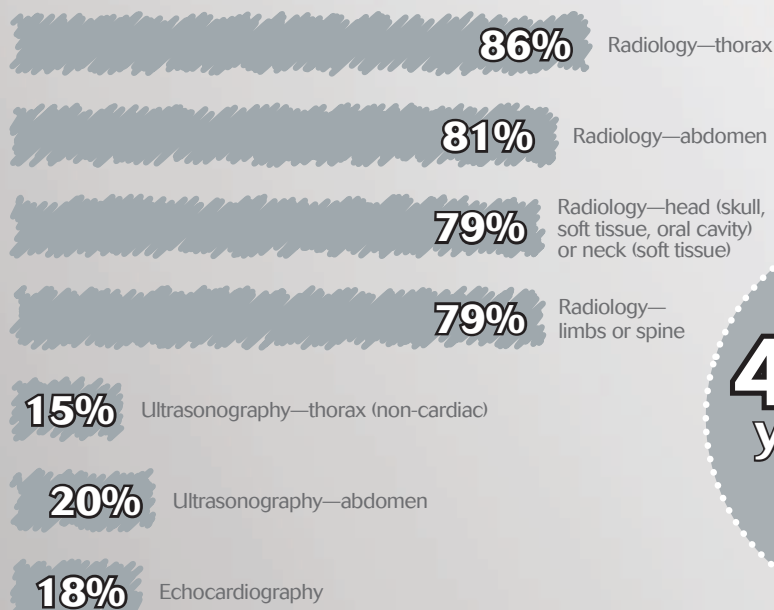
"The only plus is that it is quick. Like most technology, when it fails, everything comes to a grinding halt."

What type of unit do you have?

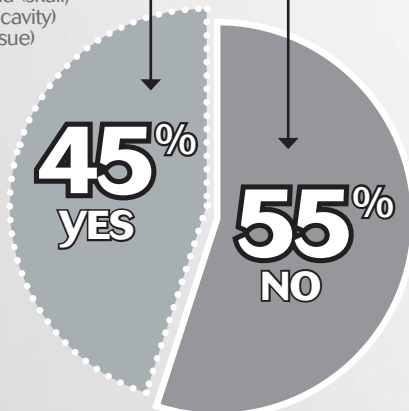
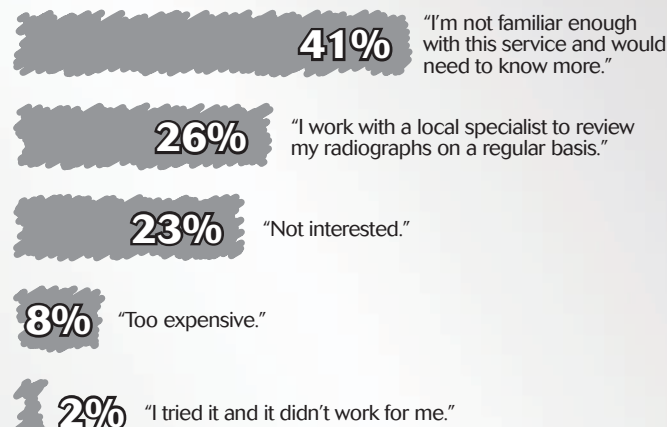


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References

1. Small Animal Veterinary Digital Radiography Survey by Brakke Consulting. Find more information at dvm360.com/doyoudigital.

Data source

The dvm360 clinical updates survey on digital radiography was sent in April 2017 to subscribers of dvm360, Vetted and Firstline, and garnered 213 responses, with a 6% margin of error.



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¹Floerchinger AM, et al. Effects of feeding a weight loss food beyond a caloric restriction period on body composition and resistance to weight gain in cats. *J Am Vet Med Assoc.* 2015;247(4):365-374.

²Kruger JM, et al. Comparison of foods with differing nutritional profiles for long-term management of acute nonobstructive idiopathic cystitis in cats. *J Am Vet Med Assoc.* 2015;247(5):508-517.





The veterinary debt-to-income ratio: Good news, but also a warning

090340591/0

NADA 141-273, Approved by FDA

Vetmedin® (pimobendan) Chewable Tablets

Cardiac drug for oral use in dogs only

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

Description: Vetmedin (pimobendan) is supplied as oblong half-scored chewable tablets containing 1.25, 2.5, 5 or 10 mg pimobendan per tablet. Pimobendan, a benzimidazole-pyridazinone derivative, is a non-sympathomimetic, non-glycoside inotropic drug with vasodilative properties. Pimobendan exerts a stimulatory myocardial effect by a dual mechanism of action consisting of an increase in calcium sensitivity of cardiac myofilaments and inhibition of phosphodiesterase (Type III). Pimobendan exhibits vasodilating activity by inhibiting phosphodiesterase III activity. The chemical name of pimobendan is 4,5-dihydro-6-[2-(4-methoxyphenyl)-1H-benzimidazole-5-yl]-5-methyl-3(2H)-pyridazinone.

Indications: Vetmedin (pimobendan) is indicated for the management of the signs of mild, moderate, or severe (modified NYHA Class II^a, III^b, or IV^c) congestive heart failure in dogs due to atrioventricular valvular insufficiency (AVVI) or dilated cardiomyopathy (DCM). Vetmedin is indicated for use with concurrent therapy for congestive heart failure (e.g., furosemide, etc.) as appropriate on a case-by-case basis.

^a A dog with modified New York Heart Association (NYHA) Class II heart failure has fatigue, shortness of breath, coughing, etc. apparent when ordinary exercise is exceeded.

^b A dog with modified NYHA Class III heart failure is comfortable at rest, but exercise capacity is minimal.

^c A dog with modified NYHA Class IV heart failure has no capacity for exercise and disabling clinical signs are present even at rest.

Contraindications: Vetmedin should not be given in cases of hypertrophic cardiomyopathy, aortic stenosis, or any other clinical condition where an augmentation of cardiac output is inappropriate for functional or anatomical reasons.

Warnings: Only for use in dogs with clinical evidence of heart failure. At 3 and 5 times the recommended dosage, administered over a 6-month period of time, pimobendan caused an exaggerated hemodynamic response in the normal dog heart, which was associated with cardiac pathology.

Human 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.

Precautions: The safety of Vetmedin has not been established in dogs with asymptomatic heart disease or in heart failure caused by etiologies other than AVVI or DCM. The safe use of Vetmedin has not been evaluated in dogs younger than 6 months of age, dogs with congenital heart defects, dogs with diabetes mellitus or other serious metabolic diseases, dogs used for breeding, or pregnant or lactating bitches.

Adverse Reactions: Clinical findings/adverse reactions were recorded in a 56-day field study of dogs with congestive heart failure (CHF) due to AVVI (256 dogs) or DCM (99 dogs). Dogs were treated with either Vetmedin (175 dogs) or the active control enalapril maleate (180 dogs). Dogs in both treatment groups received additional background cardiac therapy.

The Vetmedin group had the following prevalence (percent of dogs with at least one occurrence) of common adverse reactions/new clinical findings (not present in a dog prior to beginning study treatments): poor appetite (38%), lethargy (33%), diarrhea (30%), dyspnea (29%), azotemia (14%), weakness and ataxia (13%), pleural effusion (10%), syncope (9%), cough (7%), sudden death (6%), ascites (6%), and heart murmur (3%). Prevalence was similar in the active control group. The prevalence of renal failure was higher in the active control group (4%) compared to the Vetmedin group (1%).

Adverse reactions/new clinical findings were seen in both treatment groups and were potentially related to CHF, the therapy of CHF, or both. The following adverse reactions/new clinical findings are listed according to body system and are not in order of prevalence: CHF death, sudden death, chordae tendineae rupture, left atrial tear, arrhythmias overall, tachycardia, syncope, weak pulses, irregular pulses, increased pulmonary edema, dyspnea, increased respiratory rate, coughing, gagging, pleural effusion, ascites, hepatic congestion, decreased appetite, vomiting, diarrhea, melena, weight loss, lethargy, depression, weakness, collapse, shaking, trembling, ataxia, seizures, restlessness, agitation, pruritus, increased water consumption, increased urination, urinary accidents, azotemia, dehydration, abnormal serum electrolyte, protein, and glucose values, mild increases in serum hepatic enzyme levels, and mildly decreased platelet counts.

Following the 56-day masked field study, 137 dogs in the Vetmedin group were allowed to continue on Vetmedin in an open-label extended-use study without restrictions on concurrent therapy. The adverse reactions/new clinical findings in the extended-use study were consistent with those reported in the 56-day study, with the following exception: One dog in the extended-use study developed acute cholestatic liver failure after 140 days on Vetmedin and furosemide.

In foreign post-approval drug experience reporting, the following additional suspected adverse reactions were reported in dogs treated with a capsule formulation of pimobendan: hemorrhage, petechia, anemia, hyperactivity, excited behavior, erythema, rash, drooling, constipation, and diabetes mellitus.

Effectiveness: In a double-masked, multi-site, 56-day field study, 355 dogs with modified NYHA Class II, III, or IV CHF due to AVVI or DCM were randomly assigned to either the active control (enalapril maleate) or the Vetmedin (pimobendan) treatment group. Of the 355 dogs, 52% were male and 48% were female; 72% were diagnosed with AVVI and 28% were diagnosed with DCM; 34% had Class II, 47% had Class III, and 19% had Class IV CHF. Dogs ranged in age and weight from 1 to 17 years and 3.3 to 191 lb, respectively. The most common breeds were mixed breed, Doberman Pinscher, Cocker Spaniel, Miniature/Toy Poodle, Maltese, Chihuahua, Miniature Schnauzer, Dachshund, and Cavalier King Charles Spaniel. The 180 dogs (130 AVVI, 50 DCM) in the active control group received enalapril maleate (0.5 mg/kg once or twice daily), and all but 2 received furosemide. Per protocol, all dogs with DCM in the active control group received digoxin. The 175 dogs (126 AVVI, 49 DCM) in the Vetmedin group received pimobendan (0.5 mg/kg/day divided into 2 portions that were not necessarily equal, and the portions were administered approximately 12 hours apart), and all but 4 received furosemide. Digoxin was optional for treating supraventricular tachyarrhythmia in either treatment group, as was the addition of a β -adrenergic blocker if digoxin was ineffective in controlling heart rate. After initial treatment at the clinic on Day 1, dog owners were to administer the assigned product and concurrent medications for up to 56 \pm 4 days.

The determination of effectiveness (treatment success) for each case was based on improvement in at least 2 of the 3 following primary variables: modified NYHA classification, pulmonary edema score by a masked veterinary radiologist, and the investigator's overall clinical effectiveness score (based on physical examination, radiography, electrocardiography, and clinical pathology). Attitude, pleural effusion, coughing, activity level, furosemide dosage change, cardiac size, body weight, survival, and owner observations were secondary evaluations contributing information supportive to product effectiveness and safety. Based on protocol compliance and individual case integrity, 265 cases (134 Vetmedin, 131 active control) were evaluated for treatment success on Day 29. At the end of the 56-day study, dogs in the Vetmedin group were enrolled in an unmasked field study to monitor safety under extended use, without restrictions on concurrent medications.

Vetmedin was used safely in dogs concurrently receiving furosemide, digoxin, enalapril, atenolol, spironolactone, nitroglycerin, hydralazine, diltiazem, antiparasitic products (including heartworm prevention), antibiotics (metronidazole, cephalixin, amoxicillin-clavulanate, fluoroquinolones), topical ophthalmic and otic products, famotidine, theophylline, levothyroxine sodium, diphenhydramine, hydrocodone, metoclopramide, and butorphanol, and in dogs on sodium-restricted diets.

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Revised 01/2017

A robust economy has helped this financial indicator trend in a positive direction. But for the health of the profession, more needs to happen.

By Bridgette Bain, PhD, and Michael Dicks, PhD

After the 2016 Fix the Debt Summit, the American Veterinary Medical Association (AVMA) partnered with veterinary colleges, practice owners, professional associations, students and others to stop the growth of the debt-to-income ratio (DIR) and bring it down if possible. Strategies have included:

- > appealing to the government to eliminate interest accumulated on student loans while in school
- > reducing interest rates to be more in line with the risk of the loan
- > informing veterinary school applicants that they don't need numerous hours of unpaid veterinary experience in order to be accepted
- > increasing scholarships for veterinary students
- > increasing financial literacy among practice owners and students
- > enhancing the demand for veterinarians.

These tactical approaches are designed to either reduce veterinary debt or increase veterinarians' income.

So what's the big deal about DIR again? Here's a review

The DIR measures the debt and income of a constant cohort of graduates from U.S. colleges of veterinary medicine. This key performance indi-



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Reference: 1. Lombard CW, Jöns O, Bussadori CM; for the VetSCOPE Study. Clinical efficacy of pimobendan versus benazepril for the treatment of acquired atrioventricular valvular disease in dogs. *J Am Anim Hosp Assoc*. 2006;42(4):249-261.

Please see Brief Summary on page 28.

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TABLE 1: VETERINARY EDUCATION EXPENSES, 2015 AND 2016

| | 2015 | 2016 |
|--------------------|---------------|---------------|
| Total debt | \$410 million | \$418 million |
| Tuition and fees | \$367 million | \$403 million |
| Living expenses | \$231 million | \$228 million |
| Interest expense | \$67 million | \$70 million |
| Total cost | \$664 million | \$701 million |
| Number of students | 2,895 | 2,930 |

cator (KPI) signifies demand for new veterinarians—it weighs the price society is willing to pay for veterinary services against the cost to veterinarians to acquire the training needed to develop the required veterinary skills. A rising DIR indicates that society’s willingness to pay for veterinary services is not keeping pace with the increasing cost to veterinarians to obtain the required skills.

Total debt for 2016 graduates of U.S. veterinary colleges was estimated at \$418 million. The total cost of education was estimated at \$631

million for all 2,930 graduates. This included \$403 million for tuition and fees and \$228 million in estimated living expenses. The interest expense for borrowing these funds would have been an additional \$70 million, bringing the total cost of the education to \$700 million. However, students received some internal assistance and applied various outside funds to pay for some of these expenses; thus total debt was only 60 percent of the total cost. In 2015 total debt was 62 percent of total cost. See Table 1 above for more detail.

What the economy means for veterinary DIR

The veterinary profession has considerable control over factors that affect the DIR—but it can’t control the economy. Currently the U.S. economy is in an expansionary phase, and while we can’t predict when the next economic contraction will occur, we can be sure that it *will* occur at some point in the near future. An economic contraction—also known as a recession—will adversely affect the DIR in two major ways.

First, state budgets and funds

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¹ Poulet H, Minke J, Pardo MC. Development and registration of recombinant veterinary vaccines: The example of the canarypox vector platform. *Vaccine*. 2007;25:5606–5612.



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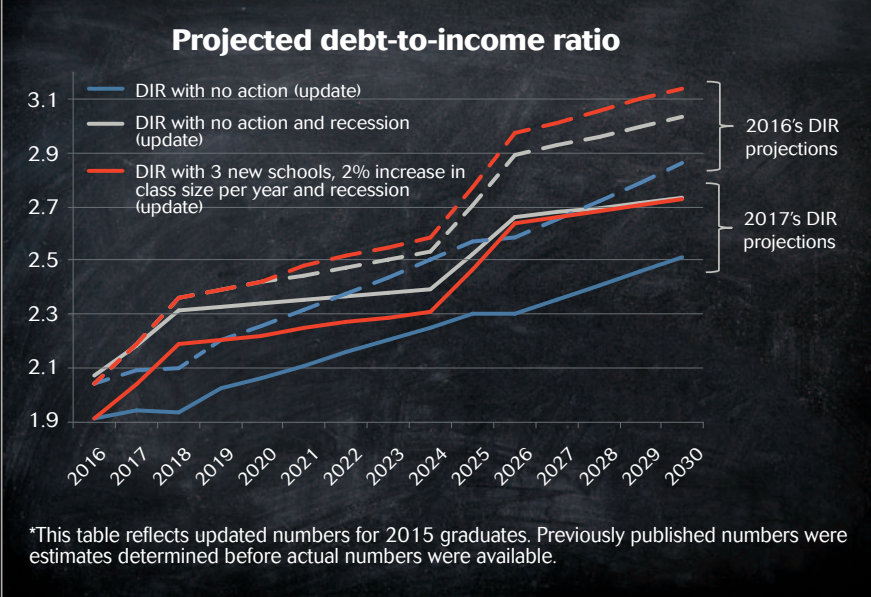
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Location

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TABLE 2



allocated to state universities will be reduced and this expense will be transferred to students, either through increased costs or increased numbers of students accepted into veterinary programs, which will reduce starting salaries. Second, consumer expenditures will decline during a recession. This will reduce the demand for veterinary services and consequently veterinary salaries. During a recession the DIR is likely to increase beyond trend levels.

Last year we provided a 15-year forecast for (1) the DIR, (2) the DIR in a recession, and (3) the DIR in a recession with the addition of three new veterinary schools and a 2 percent increase yearly in students accepted at existing U.S. schools. In Table 2* (above) we've updated these projections.

We updated the DIR forecasts for 2017 to 2030 by adding to the existing data the actual debt, income, number of graduates and new veterinarians finding full-time employment in 2016. The new 2017 DIR forecast is lower, as is the rate of increase over time. This is a result of slower growth in debt for 2016 (approximately \$2,000 less than forecasted) and a greater increase in starting salaries (approximately \$1,500 more than forecasted). Other variables that made a favorable impact on the DIR projection were a higher percentage of new veterinarians finding full-time employment and the actual versus projected value of gross domestic product per capita.

A positive outlook, but action needed

This DIR outlook is positive: There was no growth in the DIR year over year, and the current forecast indicates a slower growth in the DIR than last year's forecast predicted. As much as we'd like to credit the Fix the Debt Summit for these encouraging changes, it's unlikely that they came about because of that initiative. The real story is that we're experiencing a more robust economy.

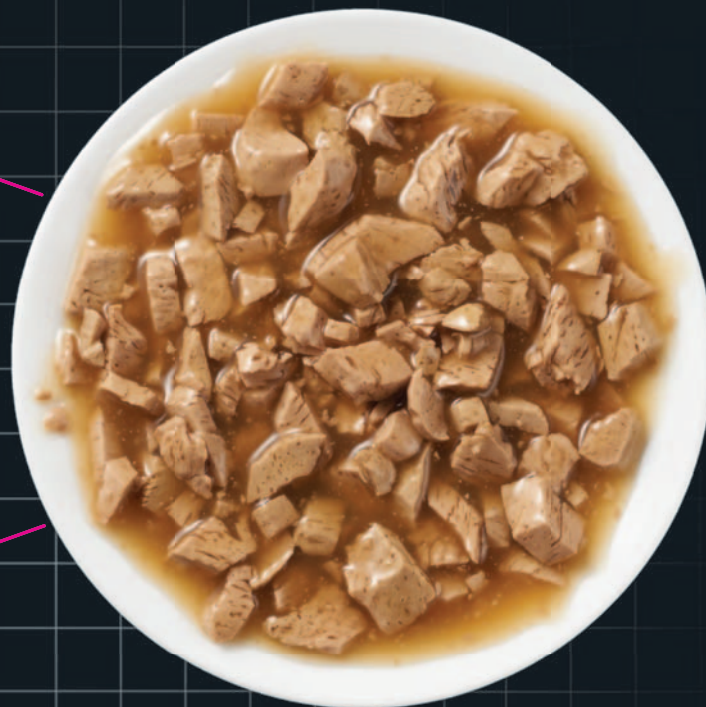
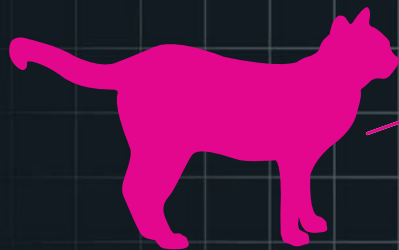
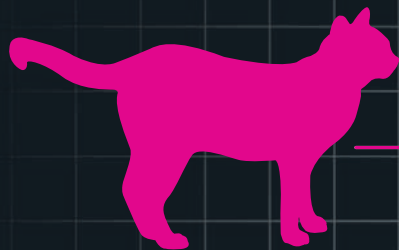
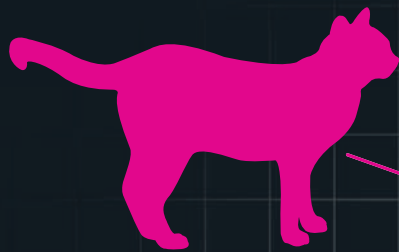
While we should be glad for this good news, there is cause for concern: The DIR hasn't declined even though the economy has been in an extended period of moderate growth. Because we're facing an increasing likelihood of economic contraction, we must start to see the DIR decrease during the economic expansion in order to guarantee the future health of the veterinary profession.

It's commendable that the profession has begun the conversation on the rising DIR, but let's not lose sight of the urgency of the situation. We need to implement both long- and short-term strategies quickly in order to avoid a problem that becomes too large to fix. **dvm360**



Dr. Bridgette Bain is an analyst in the AVMA's Veterinary Economics Division. Dr. Michael Dicks is director of the division.

3 Out of 4. Need We Say More?



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A letter from a disillusioned veterinary school graduate

While the financial problems plaguing veterinary education may hog the spotlight, this veterinarian says it's time to talk about the issues occurring behind closed doors and within closed minds.

Recently I had an interesting conversation with a technician at work. She's bright, motivated, diligent and interested. She wanted to be a veterinarian when she was younger, but those dreams went by the wayside due to life circumstances and finances. Her father asked her if, since she's now working in a veterinary hospital, her old desires had been re-kindled. Did she still want to be a vet? "I think you would make a good veterinarian," I told her. "But I don't think you should go to vet school." The recent grad and the fourth-year extern standing nearby echoed my sentiments.

Why did we offer this advice? And why are veterinary students so unhappy? Why do they suffer from anxiety and depression at alarming rates? It's a multifaceted problem, but everything boils down to incredible anger about our experience in vet school. Anger because we worked hard with little reward. Anger because we had

to sacrifice our hobbies, social lives and emotional well-being to study, do grunt work and write volumes of paperwork no one would ever read. Anger because we were at times mistreated, yelled at and punished for things we didn't do. Anger because we were bombarded by statistics and articles that say vets are overpopulated, vets make salaries that aren't commensurate with the time and tuition they put out, vets are to blame for killing animals or practicing pseudoscience and are crucified on social media—with career- and life-ruining effects.

Anger because we watched animals suffer and die needlessly, were witness to errors we didn't have the power to fix and slogged on daily through injustice and mismanagement. It's true that veterinary medicine attracts type A people. But I'm not referring to stress from internally driven motivators. There's a prevailing attitude that people need to "put in their time." This field needs collaboration, camaraderie and healthy competition. Instead, it has backstabbing, gossip and cutthroat antagonism. And at the university, I saw efforts to sabotage careers out of personal vendettas. I

Here's a sampling of some of the comments we received on [dvm360.com](#) and [facebook.com/dvm360](#). Read the full letter and add your own comment at [dvm360.com/disillusioned](#).

I hope that your life improves and that you can let go of your past resentments. I am sure that the clinician who missed the diagnosis was crushed inside. The senior staff members "hiding" in their office likely have an insurmountable mass of paperwork themselves. Being negative towards others' dreams or wishes is on you now, as that is what you have done. A lot of the experience of vet school is just human nature in times of stress. It's important to keep your focus on your patients and learning. Be kind. Work hard. Study well. Practice courtesy. Try to inspire others. And don't ever say technicians don't work hard.

Been there. Sadly.

Seems whiny.

Anger can only take you so far, new graduate. I will agree that I witnessed more ugly scenes in academia than are appropriate in a professional setting, but I left it in the past. Act on the power you have to control your professional destiny. Don't allow circumstances to drag you down into a world of self-pity and cynicism. Nobody is going to come and rescue you.



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saw great attempts to discredit and embarrass clinicians in front of their students and peers. I saw patient care go by the wayside, a casualty of intra- and interdepartmental quarrels. And I saw—and even received—unjustified, over-the-top criticisms and punishments in order for someone to maintain a façade of undeserved authority.

I believe the following guidelines to serve as counterpoints to the negative behaviors I observed as a student.

Be realistic. If the head clinician is overwhelmed, the house officers probably are, too, and the students are probably running around like maniacs trying to keep the whole thing afloat. Each person should try to recognize when someone is in over their head and help out accordingly. There were many times I witnessed technicians sitting around gossiping or snacking

while students juggled menial patient care and other pressing responsibilities—or when senior clinicians vanished to an office hideout while underlings were left to clean up messes. And 15-hour days, five days a week, plus emergency shifts, nighttime patient medication and walking, and weekend care isn't sustainable for students.

Be respectful. The Golden Rule still applies, even when superiors aren't

watching. I've witnessed some heinous behavior from respected "professionals," directed at students and doctors.

Be receptive. Sometimes good ideas come from unexpected places. Sometimes clients can diagnose their pets before the doctor can, because they know the animal better. Sometimes students are armed with more up-to-date knowledge on their cases than the clinician.

Be relevant. I've seen bad or outdated science touted as unquestionable fact. Universities should be at the forefront of medical progress, not stuck in the Stone Age out of stubbornness and reliance on "tradition."

This is how dialogue in the veterinary community ought to work. Please don't forget this. **dvm360**

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A Young Veterinarian*

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Internships— one question to assess them all

Here's an account of the benefits my group practice reaped from its internship program—and how we were able to cut the wheat from the chaff when it came to candidates.

Once my goal of establishing a group practice had been achieved, we had a staff of four doctors. The practice was incorporated—each of us owning 25 percent of the stock and 25 percent of the hospital real estate.

We hired additional doctors as the practice grew and, at one point, decided to start an annual internship program. We recruited recent graduates from many different schools, including some from Europe.

It was brilliantly successful. For 25 consecutive years, each intern profited immensely from the experience working with a team of older colleagues, each having special skills and interests, in a practice that was two-thirds hospital-based (mostly dogs, cats and the small exotics) and one-third ambulatory (horses, food animals and a thriving zoo practice).

Every single intern contributed something to our practice. It could be a treatment learned at their school, a bookkeeping method or even the logo design on our stationery and doors. It was of mutual benefit.

A cut above the herd

We always tried to have all four partners interview the applicants for internship, but this was not always possible. For example, one year Dr. Larry Drescher was going back to his alma mater for a CE meeting. We asked him to recruit while he was there and told him we'd accept his decision. He selected a graduating senior.

When he returned, I asked what she was like.

He asked me, "Well, you've worked on dairy farms, right?"

I said that I had.

"You know how there's a boss cow in every herd?"

I said, "Yes."

"Well, she's the boss cow in the senior class at Kansas State," he said.

As every one of our interns were, she was very satisfactory. She was one of several we invited to stay on, which she did. We also offered eventual partnerships to a few of our interns, but only one accepted the offer. As one put it, "That would be like marrying the first girl you ever dated."

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References: 1. Levy SA. 2002. "Use of a C6 ELISA test to evaluate the efficacy of a whole-cell bacterin for the prevention of naturally transmitted canine *Borrelia burgdorferi* infection." Vet Ther. 3(4):420-424. 2. Chu H., Chavez L. et al. 1992. "Immunogenicity and efficacy study of a commercial *Borrelia burgdorferi* bacterin." J Am Vet Med Assoc. 201(3):403-411 3. Levy S., Lissman B. et al. 1993. "Performance of a *Borrelia burgdorferi* bacterin in borreliosis-endemic areas." J Am Vet Med Assoc. 202(11):1834-1838. 4. Levy S., Millership J. et al. 2010. "Confirmation of presence of *Borrelia burgdorferi* outer surface protein C antigen and production of antibodies to *Borrelia burgdorferi* outer surface protein C in dogs vaccinated with a whole-cell *Borrelia burgdorferi* bacterin." Intern J Appl Res Vet Med. 8(3):123-128.

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MIND OVER MILLER | Robert M. Miller, DVM

Asked and answered: The rating game

As chief of staff and founder of the practice, I also usually did a personal interview with the applicants. At the conclusion, I would ask, “What are your goals?”

I’m going to tell some of the answers to that question, and reveal my score on a scale of 0 to 10:

Interview 1

| | |
|------------|---|
| Me: | What are your goals? |
| Applicant: | My goals? Well, I have two passions—golf and surfing. I’ve already checked out the three golf courses closest to here and I like them. I also know that there is a surfing beach a half-hour’s drive over the mountains. So this is the right place for me. |
| Me: | I’ve never golfed or surfed. (Note: I did caddy once as a pre-vet student for 10 days during spring break.) Can you do those things in the dark? |
| Applicant: | In the dark? Why would you want to do them in the dark? |
| Me: | Because you will be working from before sunrise until long after sunset if you intern here. |
| Score: | 0 |

Interview 2

| | |
|------------|--|
| Me: | What are your goals? |
| Applicant: | My goals? To pay off the \$40,000 debt my education cost. To find a job in a practice that offers the caliber of medicine I was taught. That’s why I’m here. Also, to get my mother out of Harlem. |
| Me: | You’re hired! |
| Score: | 10 |

(She was with us several years, but her mother refused to leave Harlem.)

Interview 3

| | |
|------------|--|
| Me: | What are your goals? |
| Applicant: | To become an equine surgeon. To read in a newspaper that a horse I’ve operated on won an important race. |
| Me: | But this is a mixed-practice internship. (At this point he refused to pet my own dog who was seeking attention.) |
| Applicant: | I can endure that for a year. |
| Score: | 0 |

(He became a successful equine surgeon.)



Interview 4

| | |
|------------|--|
| Me: | What are your goals? |
| Applicant: | To be my own boss in a veterinary practice. I grew up having to feed chickens, hoe the garden, pick strawberries, shovel manure—I’ve had it! |
| Me: | (Silence.) |
| Score: | 0 |



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Interview 5

| | |
|------------|--|
| Me: | What are your goals? |
| Applicant: | My goals? To get all the experience I can in a high-quality practice, interning with a good team of dedicated professionals, and, if it’s mutually agreeable, maybe to stay on afterward as some of your interns have. |
| Me: | Sounds good. |
| Score: | 10 |

(At the end of the year we offered him the chance to stay on, which he did. A few years later, we offered him a partnership. He said, “This is the greatest dilemma in my life. I love this practice. But both my and my wife’s family are in the same town in another state, and we feel compelled to go back home.” I said, “We’ll really miss you, but my advice is to go home.” He did so.) **dvm360**

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

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

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See brief summary on page 40



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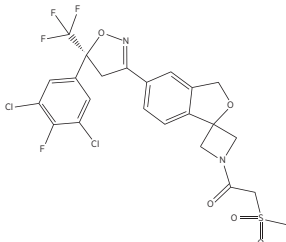
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Description:

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

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

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



Indications:

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

Dosage and Administration:

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

Dosage Schedule:

| Body Weight | SAROLANER per Tablet (mg) | Number of Tablets Administered |
|-------------------|---|--------------------------------|
| 2.8 to 5.5 lbs | 5 | One |
| 5.6 to 11.0 lbs | 10 | One |
| 11.1 to 22.0 lbs | 20 | One |
| 22.1 to 44.0 lbs | 40 | One |
| 44.1 to 88.0 lbs | 80 | One |
| 88.1 to 132.0 lbs | 120 | One |
| >132.1 lbs | Administer the appropriate combination of tablets | |

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

SIMPARICA should be administered at monthly intervals.

Flea Treatment and Prevention:

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

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

Tick Treatment and Control:

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

Contraindications:

There are no known contraindications for the use of SIMPARICA.

Warnings:

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

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

Precautions:

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

Adverse Reactions:

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

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

Table 1. Dogs with adverse reactions

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

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

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

Clinical Pharmacology:

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

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

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

Mode of Action:

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

Effectiveness:

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

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

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

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

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

Animal Safety:

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

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

Storage Information:

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

How Supplied:

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

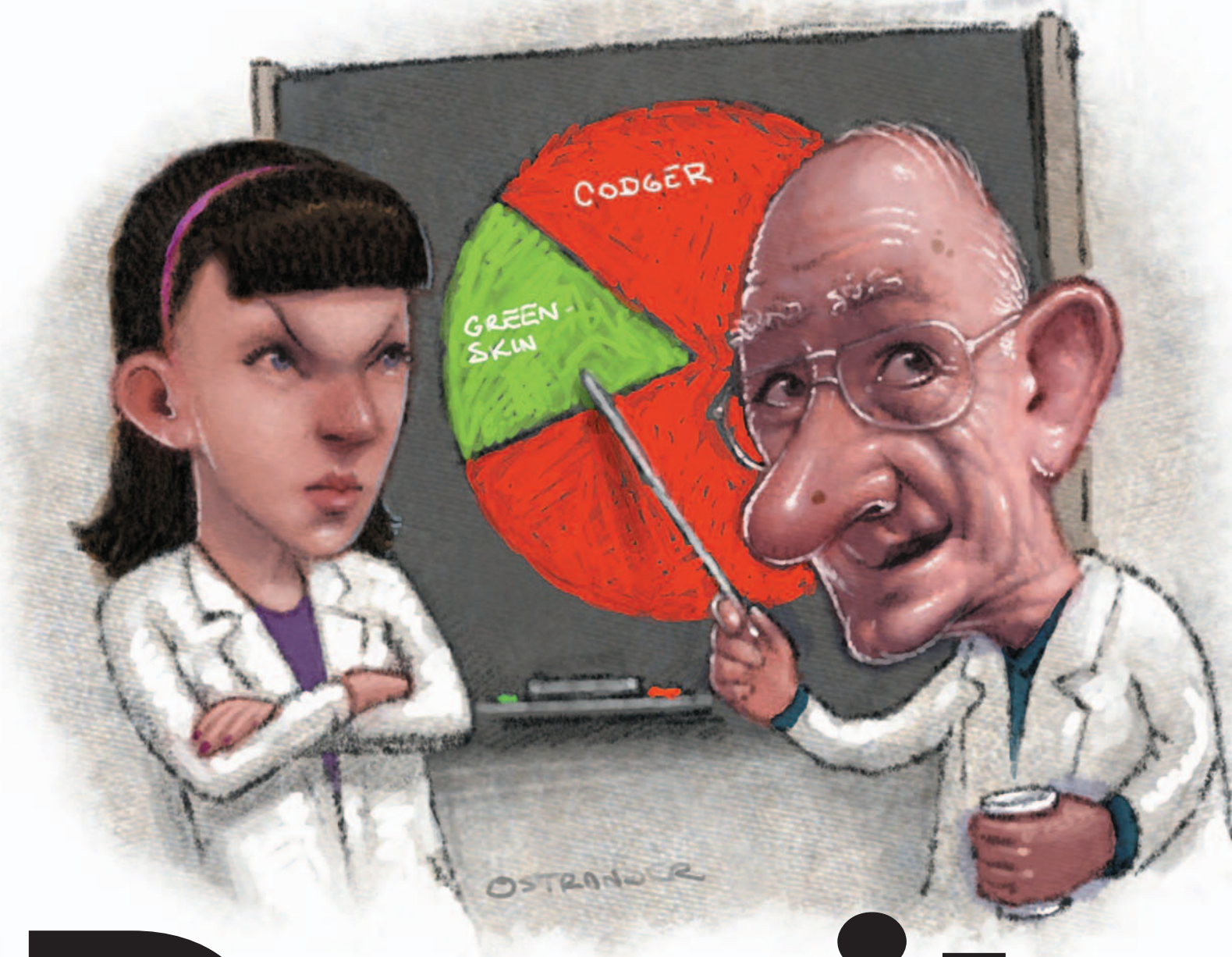
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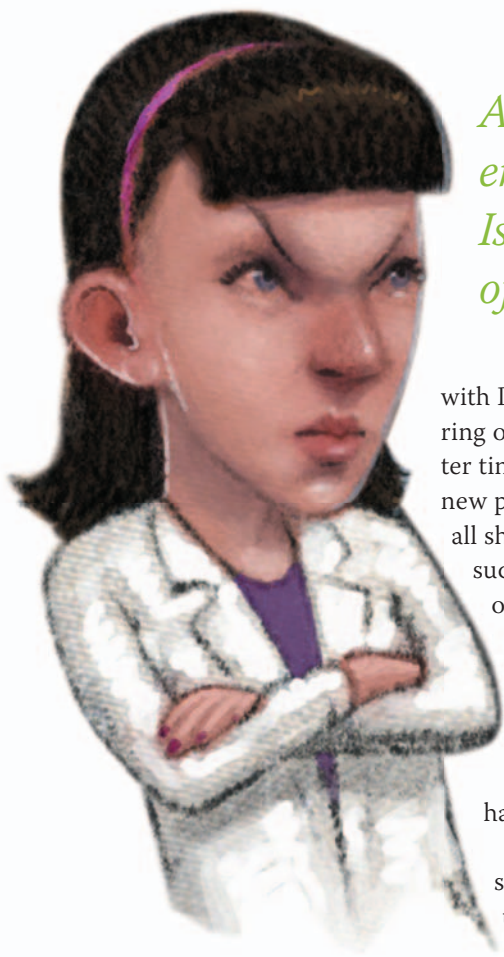
Dr. Codger schemes about how to hand off his responsibilities at his practice—and still receive a paycheck. But will Greenskin bite?

After icing down the bruises from their recent battle royale, Drs. Codger and Greenskin are back to business as usual at the veterinary hospital on a mild summer day. Despite glaring differences of opinion, the two

practitioners have found a way to cooperate on routine tasks, and the rest of the staff seems oblivious to any lasting tensions. Have their disagreements really been resolved, or are the docs simply masking their emotions for the sake of the team?

Is something quietly brewing in the land of nonverbal communication?

For Dr. Codger, the day-to-day slog through appointments and surgeries rarely results in any brain drain. The veteran doctor has brushed up on his exit options since his last exchange



Are the docs simply masking their emotions for the sake of the team? Is something quietly brewing in the land of nonverbal communication?

with Dr. Greenskin about transferring ownership. After all, what better time than the present to institute new policies and get the practice all shined up? Former trivialities, such as a reliable air conditioner or a leak-free anesthetic circuit, never troubled Codger when he was in the trenches. But now that it's time to secure top dollar for the clinic, that heaping pile of teeny issues has caught his attention.

Dr. Greenskin has a rare empty slot in her afternoon schedule and sifts through piles of charts in the office. Dr. Codger, seated next to her, crosses his legs and leans back in his creaky chair, poised and ready to take another run at the reluctant young veterinarian. He's just opened an ice cold bottle of buttermilk to sip during their conversation. Let's sit back and watch the dialogue unfold, shall we?

Greenskin: I just can't find my signature stamp anywhere. Have you seen it, Doc? My hand is getting cramps from all this signing.

Codger: I just got a syringe pump like you requested, so you don't have to count the drips anymore!

Greenskin: Well that's good, I guess. But it wasn't the counting that upset me. I was more worried about the poor parvo puppy that died from fluid overload.

Codger: Yes, those things sure do happen. So, listen. I've been thinking a lot about how we can get you some real skin in the game around here. There are so many great options! We just need to decide how much you want to invest and go from there.

Dr. Greenskin, still thinking about the puppy, blinks back tears. But then she does her best to refocus.

Greenskin: Well, I have about 5 percent of my paycheck left over every month after living expenses and student loan payments. You know how little that is. I worry that my finances (or lack thereof) will be a real barrier to entry.

Codger: Oh, don't stress. I'm willing to carry some of the financing at a very generous rate. Here's an idea: You can just buy the practice and I'll keep the real estate so the practice can keep paying me after I retire.

Greenskin: While it sounds like that would reduce the overall purchase price, I'd need to know how much the rent would be in relation to our monthly gross. And the practice could use several renovations. Will you pay for those as the property owner?

Codger senses he's making some headway and permits himself a long, tangy draw from his glass bottle.

Codger: Ahh ... Well, it sure would be a good bet for you, Greenskin. And yet this corporate outfit is ready to pay top dollar for the whole thing, which would be a highly profitable and easy out for me. How'd you like to work for a candy company? If I were you, I'd be jumping at this opportunity!

Greenskin, feeling threatened, takes a deep breath and remains calm.

Greenskin: My classmates tell me the candy company offers great benefits. Better than I have now.

Codger hurriedly licks off his buttermilk mustache.

Codger: We could also keep me on as a consultant for a while. Or you could buy half the practice and decide after awhile if you liked it and wanted to buy the rest in a few years. Or here's an option you may like the most: I could just stay on as the owner while staying out of your way. You would be the medical director and could maybe hire a part-time doctor, if you wanted. Or you could just work alone, like I did, and make all the money yourself. We could pay you a generous manager's salary, and you wouldn't have huge upfront costs to worry about.

Greenskin: So you're saying I could have all the worry of owning a practice without actually owning a practice? And I could make a little more money while you still profit?

Codger: Well ... err ... I would

only profit if the practice did well. So I would do everything I could to help you succeed. In the beginning, we'd probably need to pay me as a consultant while you get your feet wet. I wouldn't want you to get overwhelmed!

Greenskin: So you would be the owner and would keep receiving a paycheck, but you wouldn't actually do any work?

Codger grips the buttermilk bottle.

Codger: But you would earn a lot more—at least an extra \$10,000 a year! 10K has a nice ring to it, right?

Greenskin digs deep to maintain her professionalism.

Greenskin: Doc, you've given me a lot to think about. I am glad you've been considering these options and that you took the time to discuss them with me. Now I need to do some homework. Leave the practice's balance sheets on my desk tonight, and I'll consider what I might be willing and able to manage.

Dr. Greenskin grabs her stethoscope and excuses herself to her next appointment, leaving Codger to drain the final drops of his buttermilk in peace.

Moving on and letting go?

Greenskin should feel proud for staying cool and collected. She's learning not to throw all of her cards down on every hand. Codger is satisfied with the progress they're making in negotiations too. The grizzled veterinarian makes one last round to turn off some lights and tighten up a few of the kennel door screws before heading home to an evening of watching *I Love Lucy* on the couch with Mrs. Codger at his side and his coonhound at his feet.

Is Codger really looking out for his young associate's best interest, or is he using old-man cunning to distract and subdue his prey? Despite his stated intentions of getting out, there are several indicators that the old fellow is going to have a hard time fully letting go of the practice. Will there be an acceptable deal for Greenskin, or only a great deal for Codger? Will there be any deal at all? Stay tuned! **dvm360**

Dr. Jeremy Campfield works in general practice in California's Sacramento Valley. He is an avid kiteboarder.

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Contractually obligated: From bad to worse

Subtleties in wording can mean everything when addressing breach of contract situations. Learn from these examples.

When one of my clients submits an employment contract for review, I always encourage her to read through the document thoroughly, multiple times if necessary. This way, she's as familiar as possible with the language in the contract—as well as what's missing in comparison with what the prospective employer promised during pre-contract discussions. Familiarity with each term or section when I discuss the document with her is important.

Even after reading the legal language,

it can be hard for a person who doesn't have experience in contract drafting to identify all of the provisions that may prove essential later on—either for the way they were stated or for the fact that certain subjects were never addressed.

Here's an overview of subtle contractual items that may overlooked by employers and employees.

When is our agreement over?

Most employment contracts are fairly clear as to when they begin

(for the purpose of establishing when the associate begins being paid). The start of compensation often doesn't matter in relation to when the contract was signed. For example, it isn't uncommon for a new graduate to sign an employment contract before graduation, and while she may not start work until June, the rights and obligations of her contract may begin upon execution (signing) of the employment document by both parties (possibly as early as the end of the prior year).

Earning money, though, doesn't begin until work commences.

But what may be less clear is when the contract terminates. And it may not be spelled out as to whether the termination of the contract will occur—or not occur—at the same time as when the associate's job ends.

That may seem like a distinction without a difference (or just wacky legal mumbo jumbo), but consider this example:

Dr. A signed an employment agreement at Dr.

O's clinic for a one-year job beginning July 1,

2017. Everything is going great,

but in December 2018, Dr.

A receives a job offer from another clinic for more money and better benefits.

Dr. O is totally blindsided when Dr. A tells

him she will be leaving the O Clinic in 10 days.

Hey, what about the 90-day notice mandated by the employment contract?

Uh-oh! That notice obligation ended along with the contract when a full calendar year passed on June 30, 2018. Dr. A is free to go, provided that she works under circumstances that do not violate her noncompete. As for Dr. O? He needs to be more careful next time.

Issues beyond giving notice

Dr. O was more careful when he hired an associate to replace Dr. A.

He got an attorney to change the notice language but, unfortunately, neglected to modify the following employment term in the template contract he had been using faithfully since he originally typed it on his Smith Corona typewriter in 1987:

"Employee veterinarian will not compete within 10 miles of O Clinic for a period of two years after termination of this contract."

Dr. O interviews young Dr. B and, delighted with his knowledge and demeanor, hires Dr. B to join the O Clinic team. Everything goes great and since Dr. B is making great money under the

contractual production-salary formula, no one looks at the contract again until 2020. In 2020, Dr. B realizes he has the personality and ability to open his own practice—which he does—one mile from O Clinic.

Outraged, Dr. O looks at the employment contract closely. It says that Dr. B can't leave without giving 90 days' notice (which Dr. B is perfectly happy to do since he sees an opportunity for three good months of schmoozing O Clinic's clients who will hopefully follow him to the all-new B Pet Hospital). But lo and behold, the contract, and its non-compete term, still terminate one year from Dr. B's signing it. Since that was three years ago, Dr. B is no longer bound by the noncompete.

So it really stings when Dr. O fires Dr. B on the spot and Dr. B reminds him that the notice requirement swings both ways. Dr. B gave notice 90 days prior to leaving because that term in the old, slightly improved, "Dr. A" contract was repaired. Unfortunately for Dr. O, he is also required to give 90 days' notice if he fires Dr. B for a reason other than malpractice or misbehavior.

So out walks Dr. B to his new clinic with a check in his hand for three months' pay.

Dr. O wises up

Dr. O finally realizes that his 30-year-old contract form needs an overhaul, so he gets some qualified advice and presents the new and improved version to recent grad Dr. C. Third time's a charm, right?

Dr. C loves the new job and the staff! Dr. C especially likes Dr. D because they share the same practice philosophy.

Six months later, over beers at the local watering hole, Dr. D proposes to Dr. C that they should open a new clinic together, even though losing two doctors simultaneously would really hurt good old Dr. O.

"It's not personal, it's just business," Dr. D tells Dr. C, and so the plan is in motion. D Hospital for Pets opens 90 days later, featuring "Drs. C and D, formerly of O Clinic." (So say the billboards all over town.)

Dr. O is beside himself with rage. He calls his lawyer who drafted the C contract and asks how this situation could possibly not have been addressed in the new improved O Clinic employment contract form. The attorney tells

him that he did address the issue. The agreement says:

"Associate will not solicit, hire or employ any of O Clinic's employees within one year of leaving employment with O Clinic."

Good news, no?

"Smells like a winning breach of contract lawsuit to me," opines Dr. O.

Dr. O's lawyer says, "Hmmm, maybe ... let me have a look at your copy of Dr. D's employment contract."

Just as Dr. O's attorney suspected—the D contract doesn't have a provision regarding employee raiding. But Dr. O's lawyer is pretty sharp (even though he wasn't able to convince Dr. O to update all the vet contracts after he got slammed the last time). Dr. O's attorney says, "Let me go to the secretary of state's website and see how Dr. C fits into this new "partnership."

Instantly the search yields the business filing of the new clinic: "D Hospital for Pets, LLC," licensed for business with one member, Dr. D.

"So what?" Dr. O demands.

"What it means is that Dr. D solicited Dr. C, and Dr. C now works for him outside of both the Dr. C and Dr. D noncompete radii," the lawyer says. "Your C contract keeps Dr. C from soliciting Dr. D. But Dr. D can solicit anyone he pleases from your clinic."

That's when the distraught Dr. O gets a text message from his office manager. It seems that both receptionists, an LVT and one part-time kennel attendant all just gave their notices. They plan to go to work at that beautiful new clinic opening on the other side of town—the D Hospital for Pets.

Dr. O leaves the lawyer's office and heads for the bar. The bartender is sympathetic. He says, "Doc, you know it was a conspiracy between Dr. C and Dr. D ... maybe even Dr. C's idea."

But law-weary Dr. O knows in his heart there's no way to prove who said what to whom. The only thing he knows for sure is that his lawyer said years ago, "You need a new contract for all your doctors." **dvm360**

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UC Davis identifies genetic risk factor for squamous cell carcinoma in horses

Test can help veterinarians monitor at-risk patients as well as assist horse owners with breeding decisions.

Equine veterinarians are all too familiar with squamous cell carcinoma (SCC), the most common cancer of the equine eye and second-most-common tumor in horses overall. Now, thanks to a recent genetic study led by the University of California, Davis, owners can identify horses at risk for ocular SCC and make smart breeding decisions.

In the cover article for a recent issue of the *International Journal of Cancer*, scientists revealed the discovery of a genetic mutation in horses that is thought to affect the ability of damage-specific DNA binding protein 2 (DDB2) to carry out its standard role. Normally, the protein conducts DNA surveillance, looking for UV damage and then calling in other proteins to help repair the harm, according to a release from UC Davis.

"The mutation is predicted to alter the shape of the protein so it can't recognize UV-damaged DNA," says Rebecca Bellone, PhD, an equine

geneticist at the Veterinary Genetics Laboratory and associate adjunct professor at UC Davis School of Veterinary Medicine, in the release. "We believe this is a risk factor because cells can't repair the damage and accumulate mutations in the DNA that lead to cancer."

Several equine breeds, including Haflingers, have a higher occurrence of limbal SCC, the form of the disease that originates in the junction between the cornea and the conjunctiva, the release states. Mary Lassaline, DVM, PhD, DACVO, associate professor of clinical equine ophthalmology at the UC Davis School of Veterinary Medicine, assisted with the recently published research. "The fact that we see this type of cancer in a relatively small breed with a narrow pedigree makes it a good model to study," she says.

Ocular SCC can lead to vision loss and even loss of the eye. In advanced cases, SCC can be locally invasive and



>>> A horse's eye affected by SCC.

spread to the orbit and eat away at bone and eventually the brain, leading to death. These recent study results help identify horses at risk for developing SCC in two ways, according to the Davis release:

"One, it's important for the individual horse with a known risk and we can be more vigilant about exams as well as protecting their eyes from UV exposure," Lassaline says. "If detected early, we can remove the tumor and save the eye. Secondly, that knowledge is important for making informed breeding decisions."

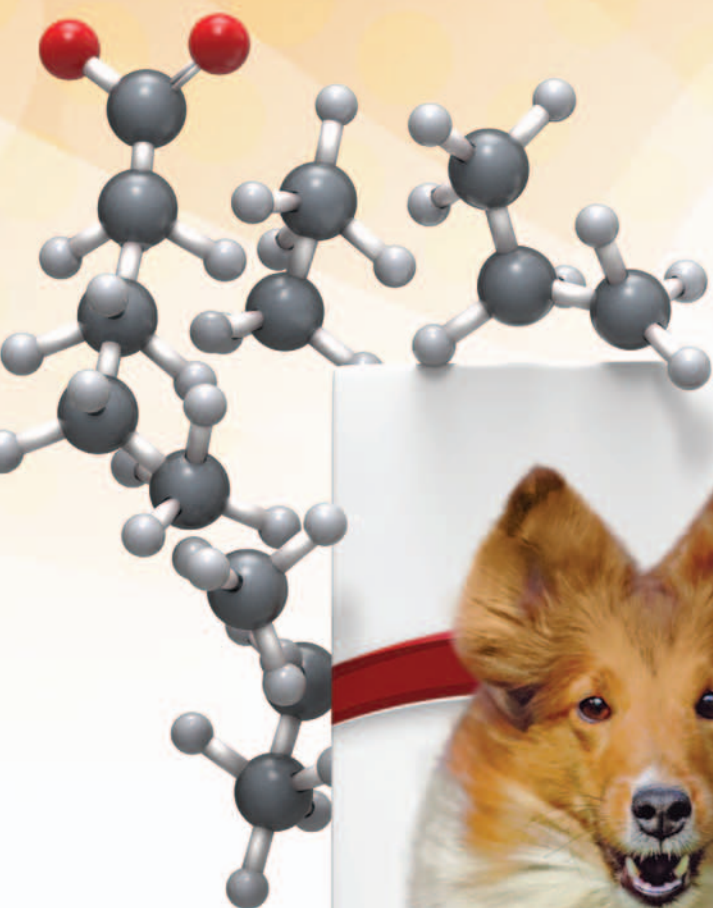
Scientists at the UC Davis Veterinary Genetics Laboratory have developed a genetic test for horses based on the research. The test determines if a horse carries the mutation or has two copies of the risk variant, putting it at highest risk for cancer.

The study may have implications for human health as well, the UC Davis release asserts. The gene associated with equine SCC is also linked in humans to xeroderma pigmentosum complementation group E, a disease characterized by sun sensitivity and increased risk of cutaneous SCC and melanoma.

"There is an interesting parallel in humans with mutation in this protein," Bellone says. "Now we have the ability to understand why it's affecting the eyes of horses as well as the skin of humans." [dvm360](#)



>>> Haflinger horses are more likely than other breeds to develop ocular squamous cell carcinoma.



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Code of conduct:

Labeling clients with secret shorthand

Is it unprofessional to warn veterinary technicians about difficult people and pets using a labeling system that's hidden from the client? One team member says yes.

Dr. Reed Thompson has chosen to follow in the footsteps of his father, Reed Thompson Sr., who started an urban veterinary practice 49 years ago. This inner-city clinic has its challenges, but Dr. Thompson, like his father, refuses to abandon the community and flee to the suburbs.

The practice presents somewhat unique challenges. Dr. Thompson works with one other doctor and a staff of eight technicians and three receptionists. Despite his best efforts, accounts receivable are high and his

profit margin is less than ideal. Dr. Thompson compensates for these shortcomings by using his technicians in the most efficient manner possible.

Many veterinarians will tell you that their techs are the lifeblood of their practice—in Dr. Thompson's clinic, this is an understatement. Technicians take client histories, record exam room notes, administer all medications and perform all diagnostic tests.

Dr. Thompson has always thought the medical side of his practice was the easy part; the compliance component

was the real challenge. Many of his clients don't pay their bills and can be tough to deal with, plus they often have aggressive pets. In order to render the best care for his patients he has to be in tune with his clients' mindset. And the best way he's found to do this is to use a shorthand protocol with his techs. This allows him to tailor his treatment protocol for maximum compliance.

'A memorable dog'

Today a diabetic patient is in the clinic. The dog is aggressive when



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handled, and the client is confrontationally defensive about the dog’s aggression. In addition, this client is known to have limited funds and is able to afford only minimum care. Dr. Thompson must do his best to help this pet, encourage client compliance and still get paid for his services.

In the exam room the technicians make notes on the doctor’s observations. Dr. Thompson dictates the pet’s vitals while mentioning that he’s a memorable dog. He tells the technician to add a circle dot to the record and the number 47. While talking to the client, Dr. Thompson mentions that he uses medical code to assist his staff with notes to the record.

The reality is that Dr. Thompson is telling his technicians that the dog is aggressive (circle dot), the client might be difficult to deal with (number 47), and there’s a history of reluctance to provide payment (“a memorable dog”). Everyone’s informational needs are met, no feelings have been hurt, and the pet and client are handled in the best possible way.

A new technician has some issues with this technique. She approaches Dr. Thompson to express her views. She understands the codes and their role in informing the staff, but she thinks the practice is unprofessional. She believes the client is the pet advocate and part of the healthcare team. Excluding the pet owner in this way is easier in the moment but ultimately dishonest. The veterinarian’s professionalism must be above board if clients are to place their faith in his medical recommendations.

Dr. Thompson is taken aback. He believes that his clients, his patients and the local community all benefit from both his style and his commitment. In his view, if he’s not efficient in the way he handles communication challenges such as this, his practice won’t survive.

He tells his new technician that he’s doing nothing illegal, that he does not agree that his actions are unprofessional, and that she has a decision to make. The doctor and his technician agree to part ways. Dr. Thompson continues to practice with the aid of his private informational code, secure in his mind that it’s ultimately in the best interests of his patients and practice.

Do you agree with Dr. Thompson’s methods?

What readers are saying about this article on [dvm360.com/Facebook](#)

Does your practice use a secret code for difficult clients and patients in the medical record? Is it ethical?

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Mary How many of us have almost been bitten because 1) the client knows and doesn’t warn us that their dog has a history of aggression (fearful, interdog, temperature only, whatever) and 2) there’s nothing in the medical record—electronic record or paper record to indicate this is a know aggressive pet? Granted, some dogs are better with certain technicians and certain doctors, and if the practice can accommodate this, that’s awesome! I’ve been backed by practice owners when I have “fired” a client from seeing me, and the client is still welcome in the practice. I think the receptionists and technicians should be aware of this.

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Kathy Staff members need to be aware of issues with both clients and the pets. If a dog is fearful, I’m going to note that in the record. If a dog attempts to bite me, I’m going to put a “will bite” in the record.

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Christina Then note the dog is a bite risk or similar, but the passive aggressive notes or symbols about clients that get passed on to clinics with transferred charts are unprofessional. You’d never see some of what people put in vet med charts in human medicine.

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Jennifer Ha! The main reason for that is because they hardly write anything down in human medicine.

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Carolyn I would love it if each client is given a blank slate during each visit. Dr. T #47, is being paternalistic. (And he seems to have hidden hostility towards his clients.) If his clients knew his codes, they’d go elsewhere. Obviously, being honest with himself should motivate him to take his clinic elsewhere.

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Christina I’ve seen some really horrible notations or secret marks (usually regarding client). There has to be a balance.

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Michel It is absolutely unethical. It is a medical record and a “difficult” client is a matter of personal opinion.

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R. James I can’t imagine a doctor needing to tell a tech, during an exam, the codes mentioned. They should already be in the patient record from past visits. If there are no past visits it can’t be a “memorable dog.” Also, if this is a first visit (no codes already noted), the tech should know if a ‘circle dot’ or ‘47’ is appropriate without being told. Aside from that, I wouldn’t mind my vet having a code for me or my pet. My only concern is being judged “difficult” for asking questions or for asking what treatment alternatives are available (this has happened). If it’s not clear why I was judged “difficult” techs and other doctors, at that practice, might enter the exam room with incorrect preconceived expectations that could negatively impact that visit (just give me the code for “will ask questions”). BTW, if the practice offers daycare, like mine does, codes about the patient/client would seem important.

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Rosenberg’s response

No one will argue with the idea that honesty and transparency are the foundations of ethical veterinary practice. However, when you move from the ideal world to the real world, black and white are not the only professional options. None of Dr. Thompson’s veiled medical-record comments negatively affect his patients. If he didn’t use these

methods, would clients be insulted? Might technicians be injured?

Yes, taking the time to talk through these issues tactfully with the pet owner might accomplish the same thing, albeit less efficiently. But the bottom line is that veterinary practice is composed of myriad well-intentioned clinicians. Professionalism has many different acceptable faces, and Dr. Thompson’s is one of them. [dvm360](#)

Dr. Marc Rosenberg is director of the Voorhees Veterinary Center in Voorhees, New Jersey. Although many of his scenarios in “The Dilemma” are based on real-life events, the veterinary practices, doctors and employees described are fictional.

MEDICINE | Renal disease

SDMA:

Satisfy your need for speed (in diagnosing CKD)

How to use this biomarker in your veterinary practice to help you diagnose, treat and monitor chronic kidney disease.

By Jennifer L. Garcia, DVM, DACVIM

In her IDEXX-sponsored presentation, “SDMA in practice: Impact on diagnosis, staging, and management of CKD,” at the 2016 American College of Veterinary Internal Medicine (ACVIM) Forum, IDEXX Director of Medical Affairs Jane Robertson, DVM, DACVIM, discussed how the

symmetric dimethylarginine (SDMA) biomarker can be used to diagnose chronic kidney disease (CKD) in cats and dogs far sooner than with traditional methods.

Robertson cited studies demonstrating that in dogs with renal disease, SDMA elevations can be seen approxi-

mately 9.8 months before creatinine becomes elevated.¹ In cats, the average is about 17 months.² This means increases in SDMA concentrations can be identified when only 25% of kidney function has been lost (40% average),² as opposed to a loss of 65% to 75% by the time azotemia can be noted.



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Robertson also explained that creatinine may lose sensitivity as an indicator of CKD in elderly patients with diminished muscle mass, but studies indicate that SDMA is not affected by muscle loss.^{3,4}

Can creatinine be elevated before SDMA?

In short, yes. While uncommon, Robertson said that in 1.3 million canine samples submitted to IDEXX, 1.6% of cases showed elevated creatinine concentrations before elevations in SDMA concentrations. In cats, this condition has been noted in 1.1% of over 600,000 samples. While it is unclear why the creatinine concentration would be elevated before the SDMA concentration, Robertson offered three possible reasons:

- > It is normal for glomerular filtration rates and SDMA to fluctuate by about 15% on a daily basis.
- > Patients that are highly muscled may have abnormally high creatinine concentrations.
- > Drug interactions (e.g. cephalosporins) may lead to discordant results.

Using SDMA within the International Renal Interest Society (IRIS) guidelines

Once the patient’s renal function measurements have stabilized and IRIS staging and substaging can be assessed, SDMA can be used to help evaluate trends in individual animals. Robertson emphasized that while the current IRIS guidelines do not currently specify SDMA cut off values for each stage of CKD, there are some general values that can be used to assess progression.

For example, IRIS stage 2 CKD

Table 1

| | |
|-------------|--|
| Investigate | Check the urine protein-to-creatinine ratio |
| | Perform a urine culture. |
| | Assess blood pressure. |
| | Use diagnostic imaging. |
| | Screen for infectious diseases (depending on geographic location). |
| Manage | Avoid drugs that can negatively affect the kidneys (e.g. NSAIDs). |
| | Use appropriate anesthetic protocols and intravenous fluids to maintain renal perfusion during procedures. |
| | Consider implementing a renal-specific diet |
| | Offer multiple water sources to encourage increased water intake. |
| | Treat proteinuria and hypertension as needed. |
| Monitor | Recheck the patient in two weeks to determine progression |
| | Other monitoring will depend on diagnostic findings and changes in clinical signs—particularly anything that could affect hydration (e.g. vomiting, diarrhea). |

patients with an SDMA concentration greater than 25 µg/dl would benefit from being treated as though they are stage 3. Similarly, treatment for stage 4 should be considered in IRIS stage 3 CKD patients with an SDMA concentration greater than 45 µg/dl.

Investigate, manage, and monitor approach

Robertson discussed how to apply an investigate, manage and monitor approach to clinical scenarios in order to demonstrate how SDMA may be used to develop a plan for treatment and monitoring.

For example, in a patient with an elevated SDMA concentration, low urine specific gravity, no clinical signs, normal creatinine concentration and normal physical examination results, the approach in Table 1 could be applied.

Robertson noted that there is still much to learn about how SDMA is affected by various medical conditions, but studies are already underway to assess the interaction between feline hyperthyroidism and SDMA. [dvm360](#)

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The ABCs of veterinary dentistry: “J” is for jaw fractures

It's all smooth sailing until a maxilla or mandible mishap. Here's some help on navigating the sometimes scary course of jaw fracture repair.

By Jan Bellows, DVM, DAVDC, DABVP, FAVD

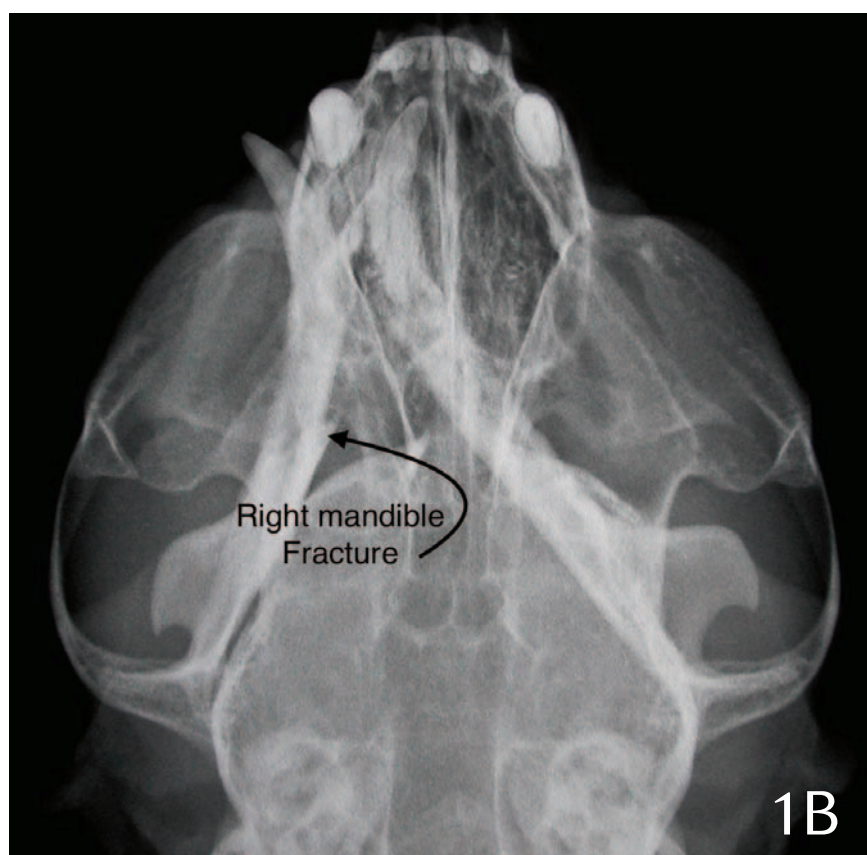
When a dog or cat presents with a jaw fracture, trepidation often sets in—not unlike watching *Jaws* the movie. Ready to step into the waters of jaw fractures and symphyseal separations? We'll hold off on temporomandibular joint fractures until the “T” article in this series. For now, let's embrace jaw anatomy, terminology and a few straightforward concepts.

The maxilla

The maxillary bones form the lateral parts of the face and the part of the hard palate that hold the canines and upper cheek teeth. The maxilla articulates with the incisive bone rostrally, the nasal bone dorsally, the vomer bone medially, and the lacrimal and zygomatic bones caudally.

The palatine bone forms the bony part of the hard palate together with the maxillary and incisive bones. The incisive bone located rostrally holds the upper incisors and forms about one-sixth of the hard palate.

The hard palate separates the oral



>>> **Figures 1A and 1B.** A cat's mandibles deviated toward the right, secondary to a right-sided mandibular fracture.

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and nasal cavities. The primary palate is the incisive portion of the palate and associated soft tissues. The secondary palate includes the remaining hard and soft palatal structures. Firmly attached heavily keratinized mucosa covers the hard palate.

The mandible

The large bones articulating with the skull that support the lower teeth are the mandibles. Each mandible is composed of a horizontal body and a vertical ramus. The body supports the lower teeth. The ramus has three processes (coronoid, condylar and angular). The condylar process articulates with the cranium in the temporomandibular joint (TMJ). The mandibles are connected to each other by a strong fibrocartilaginous joint at the mandibular symphysis.

Jaw fracture pointers

Keep in mind that jaw fracture repair options include simple suturing, external fixation, plates and screws, elastics, interfragmentary wiring and acrylic splinting. But let's look at some particulars.

> Generally, the lower jaw deviates toward the side of the fracture (Figures 1A and 1B).

> Determining whether the fracture is favorable or unfavorable is important in deciding which method of fixation is best. Attached jaw muscles either compress (favorable) or distract (unfavorable) the fractured segments.

Favorable mandible fractures run dorsocaudal to ventrocranial. These fractures compress because of the upward pulling of the masseter and temporalis muscles, and downward

and caudal pulling of the digastricus. Stabilization of the tension surface may be all that is required for bony healing.

Unfavorable fractures run dorsocranial to ventrocaudal and distract the fracture fragments. The alveolar crestal bone is considered the tension surface, while the ventral cortex is considered the compression surface (Figure 2).

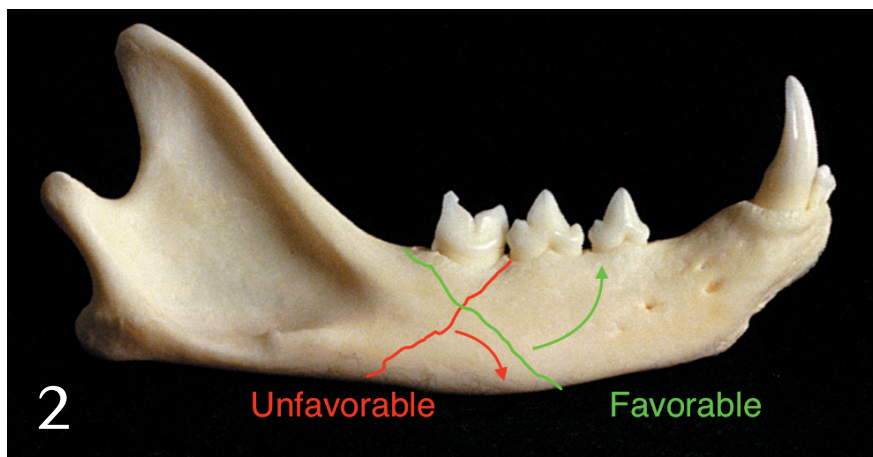
> Unless you've had advanced training, avoid plating jaw fractures for fear of compromising tooth roots. Also avoid placing intramedullary pins into the mandibular canal. The mandibular canal carries the neurovascular structures—it's not an intramedullary canal.

> Removing teeth (or parts of teeth) in the fracture line is usually a good idea (Figures 3A-3C, 4A and 4B).

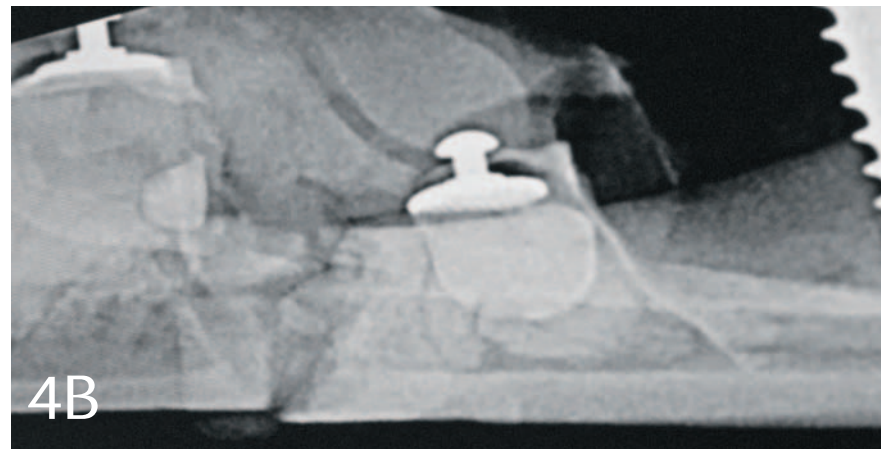
> For many minimally displaced jaw fractures, you can use a tape muzzle or



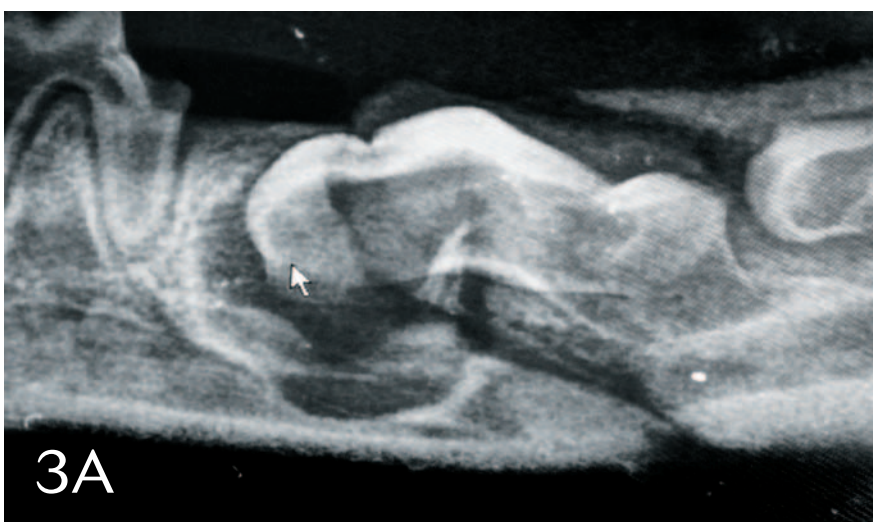
>>> **Figure 4A.** A left mandibular fracture between the first and second molars..



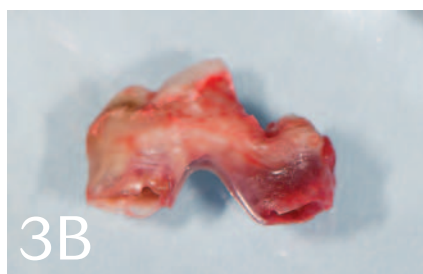
>>> **Figure 2.** An illustration of favorable and unfavorable jaw fractures.



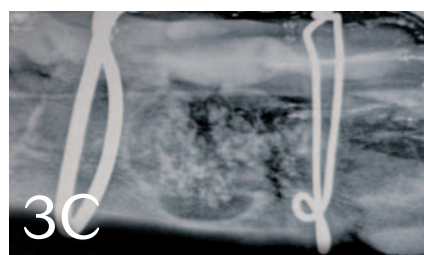
>>> **Figure 4B.** Repair with hemisection and vital pulp therapy of the first molar, orthodontic buttons, a splint and an external fixator..



>>> **Figure 3A.** A radiograph of an immature right mandibular first molar in the fracture line..



>>> **Figure 3B.** The immature first molar.



>>> **Figure 3C.** The healed fracture site before removal of wires and splint.

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>>> **Figure 5.** An external fixator used to complement repair of the above fracture between the first and second molar (Figures 4A and 4B).



>>>**Figure 6A.** A symphyseal separation.



>>>**Figure 6B.** An 18-ga needle used to feed suture around the left rostral mandible.



>>>**Figure 6C.** Suture placed around the right mandible.

loose-fitting commercial muzzle that allows for food lapping to stabilize the area.

- > External fixators work well in many mandibular fractures (Figure 5).
- > Mandibular symphyseal separa-

tions are not true fractures. The symphysis is a joint. If needed, the separation can be stabilized with suture, wire or light-cured composite (6A-6I).

- > Midline maxillary fractures without displacement often only need to be



>>>**Figure 6D.** Suture exiting ventral to the symphysis.



>>>**Figure 6E.** A stabilized, realigned symphysis.



>>>**Figure 6F.** The appearance at suture removal one month after surgery.



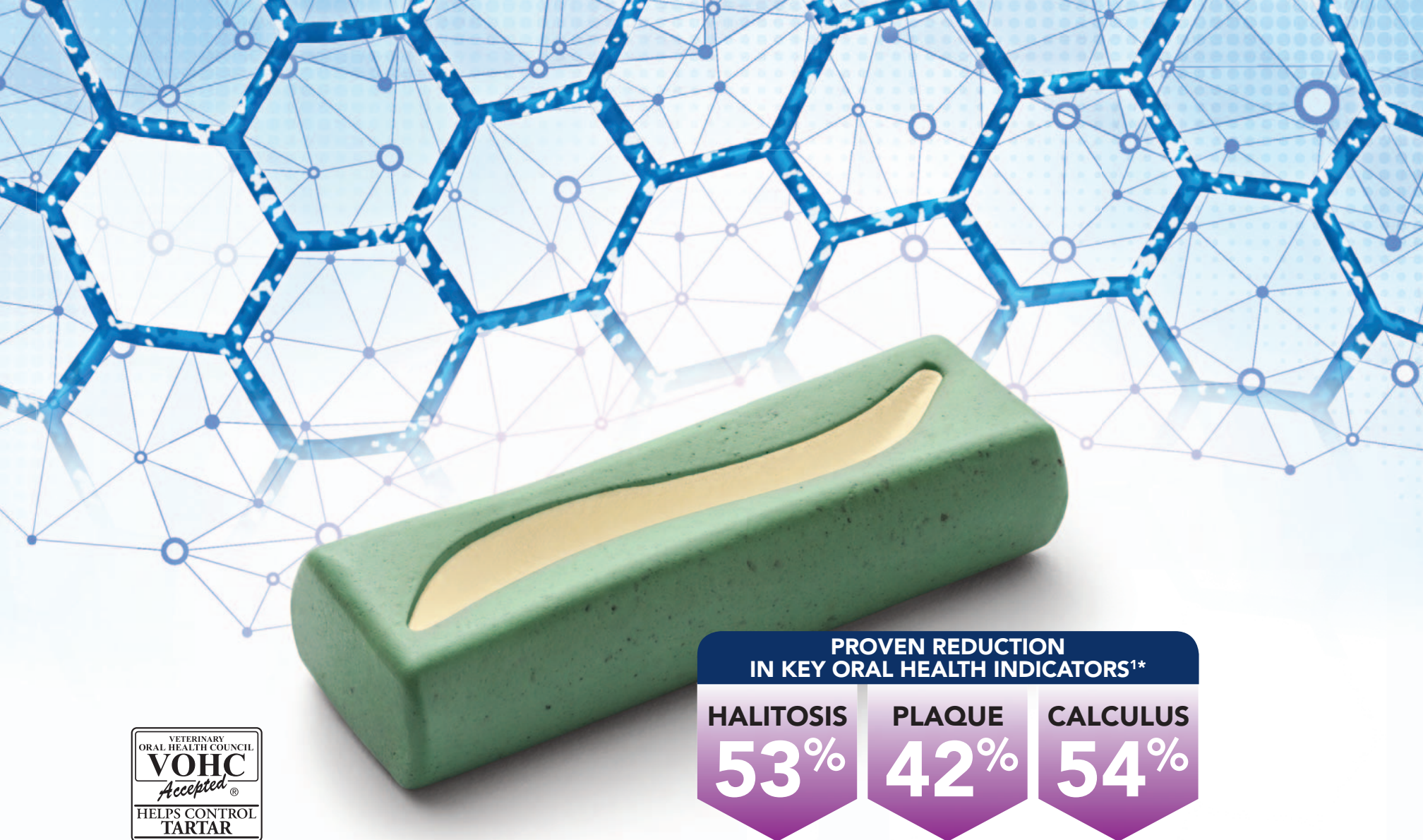
>>>**Figure 6G.** Application of acrylic to a symphyseal separation in another cat patient.



>>>**Figure 6H.** An acrylic splint to stabilize separation during healing.



>>>**Figure 6I.** The healed separation after splint removal four weeks after surgery.



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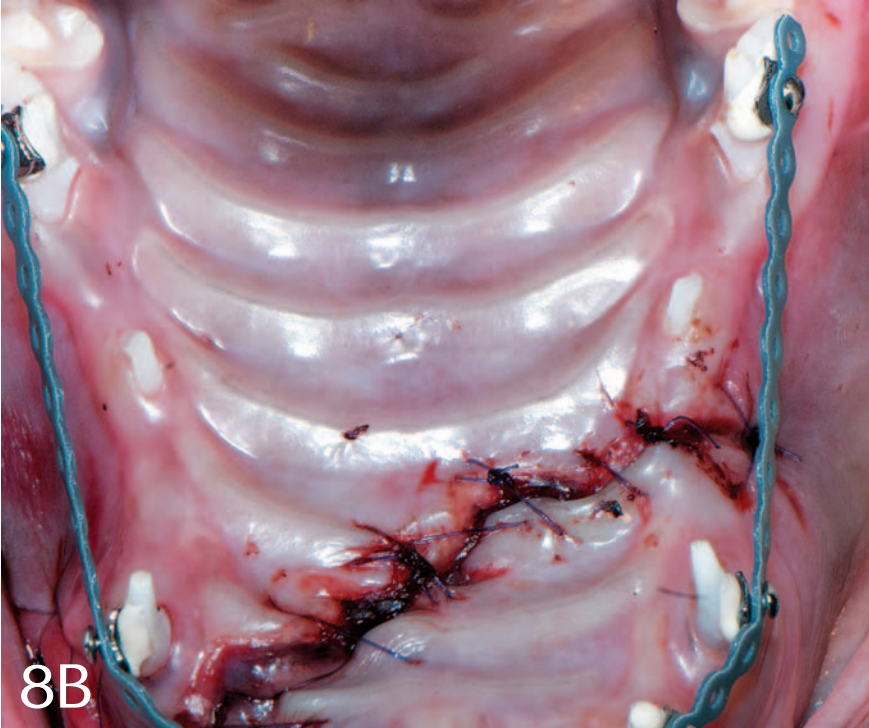
>>>Figure 7A. A maxillary defect secondary to fracture.



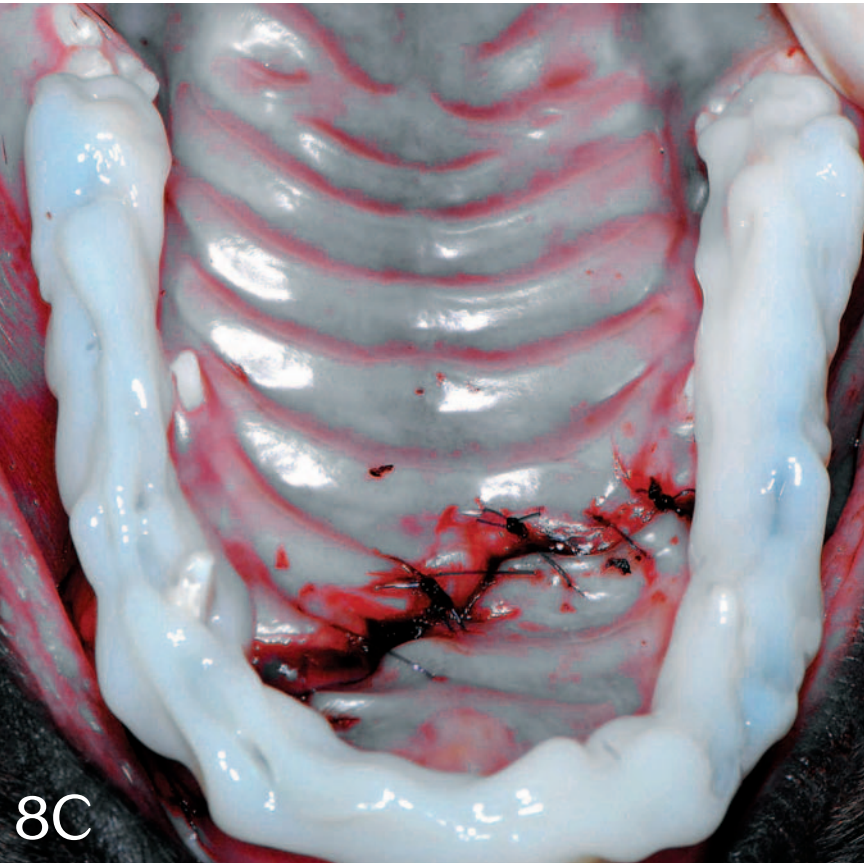
>>>Figure 7B. The sutured defect.



>>>Figure 8A. A rostral maxillary fracture in a 4-month-old Weimaraner puppy after being kicked in the face by a horse.



>>>Figure 8B. The sutured defect with placement of orthodontic buttons and elastics for apposition and realignment.



>>>Figure 8C. An acrylic splint placed over buttons and elastics, which was removed after three weeks.



>>>Figure 8D. The appearance of the dog at 2 years of age before maxillary canine teeth restoration.

sutured (Figures 7A-7C).
> Maxillary fractures with displacement often need much more than suturing the tissues overlying the hard palate (Figures 8A-8D).

Time to stop jawing and start doing!

Jaw fractures don't have to be overwhelming when you concentrate on creating a stable means of fixation to maintain alignment and quick return to function. Feel free to contact your local veterinary dentist (avdc.org) for help and additional resources. **dvm360**



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College and the American Board of Veterinary Practitioners. He can be reached at (954) 349-5800; or via email at: dentalvet@aol.com.

EQUINE | Dermatology

A closeup look at equine skin diseases

From ringworm to allergies to skin cancer, a veterinary dermatologist walks you through some updates on the most common conditions you might face in your equine patients. *By Ed Kane, PhD*

Skin diseases in horses are prevalent throughout the year, though some may be seasonal. They may be due to various infectious agents—bacteria, viruses, fungi, parasites or environmental irritants. The need to promptly treat the disease is important not only to alleviate the discomfort experienced, such as itchiness and soreness, but also to improve the horse's overall health. Remember: The skin is a critical organ, a natural barrier to disease. Here are some commonly encountered equine skin diseases and conditions seen in horses.

Dermatophytosis (ringworm)

Ringworm usually manifests as a crusting dermatosis with hair loss and circular lesions on the body. Christine Rees, DVM, DACVD, of Dallas Veterinary Specialists in Dallas, Texas, says it's normally seen in a stressed animal or in one whose immune system is slightly compromised, making it more common in older or younger horses.

Specifics on species. Ringworm is common to most animals, does not seem to be species-specific and is zoonotic, so it is fairly easily passed

between individuals, says Rees. "Sometimes you can see lesions that almost look more hivelike," says Rees. "Since there are various ringworm fungal genus species, the best method to diagnose the disease is to do a fungal culture, which also helps to determine the potential source."

Rees says she sees more cases of ringworm caused by *Microsporum canis*, the type found prevalently in cats, than by *Trichophyton equinum*, the equine species. "If it is the type usually seen in cats, evaluate any barn cats to determine if one has skin lesions,



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

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

PRECAUTIONS

Approximately 30-40% of horses administered Tildren® will demonstrate transient signs consistent with abdominal pain (colic). Horses should be observed closely for 4 hours post-infusion for the development of clinical signs consistent with colic or other adverse reactions. Colic signs can last approximately 90 minutes and may be intermittent in nature. Hand walking the horse may improve or resolve the colic signs in many cases. If a horse requires medical therapy, non-NSAID treatment should be administered due to the risk for renal toxicity. Avoid NSAID use.

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

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

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

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

DOSAGE AND ADMINISTRATION

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

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

STORAGE

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

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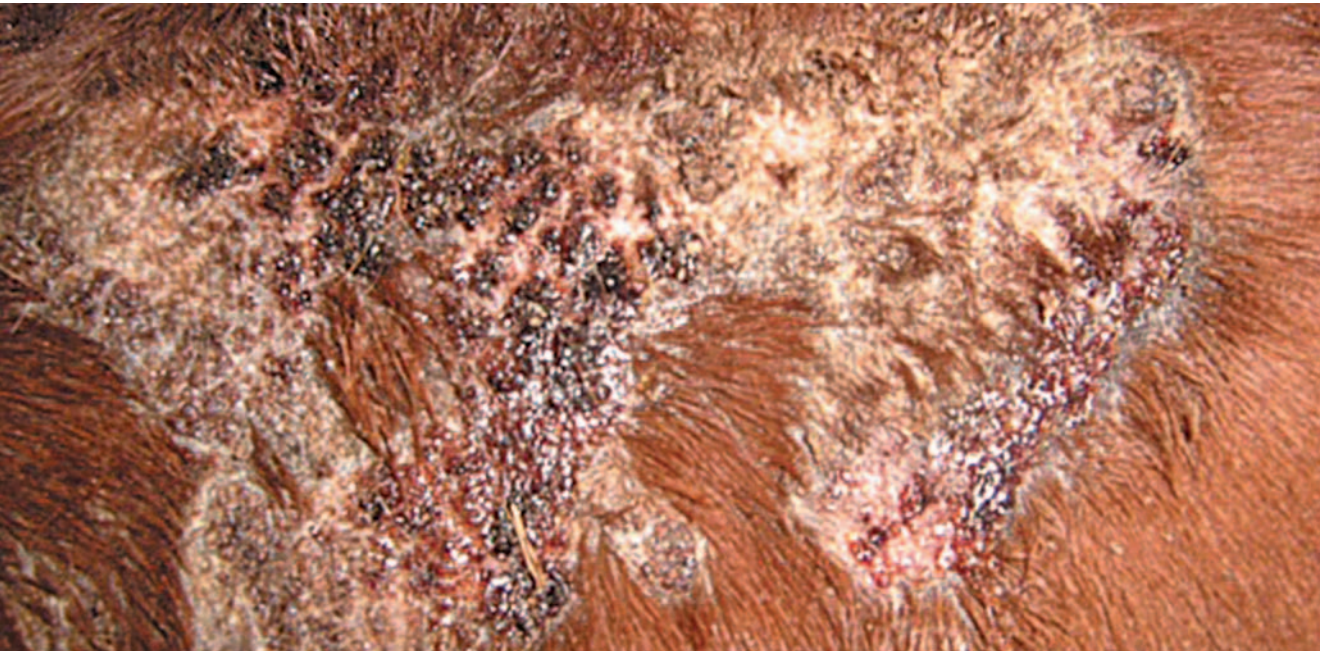
Tildren® is supplied in a 30mL glass vial as a white, sterile lyophilized powder containing 500mg tiludronic acid (as tiludronate disodium) packaged in a folding carton. For technical assistance or to report suspected adverse reactions, call 1-888-524-6332.

INFORMATION FOR OWNERS

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

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>>> **Figure 1.** A resistant staphylococcal infection on the side of a horse's neck.

thereby transmitting it to the horses,” she says.

It’s helpful to know if the horse has contracted the soil-borne ground-type *Microsporium gypsum*. “In a horse affected by *Microsporium gypsum*, if there’s a particular area where a horse roots around or rolls, then you want to aggressively treat that area—the ground or stall floor—with some dilute bleach to try to eliminate it,” Rees says.

Tactics on treatment. Various systemic ringworm treatments are available, such as oral griseofulvin, terbinafine and fluconazole. “The only problem with griseofulvin is that I have not seen a pharmacokinetic study for it,” Rees says. If you use terbinafine, keep in mind it may cause elevated liver enzyme activities, says Rees. Occasionally, fluconazole is used, though its cost has increased to where it’s not a reasonable option in today’s market.

Rees prefers topical therapies to systemic drugs. “In my opinion, miconazole works a bit better than ketoconazole,” she says, though the latter is a reasonable alternative despite some concerns about resistance, especially for horses infected with *Microsporium canis*.

If owners don’t want to shampoo their horses two to three times a week, they can also use a lime-sulfur dip. Although it has a fairly pungent, rotten egg-like odor, this treatment is very effective against fungus (and bacteria and parasites) at a higher concentration. A dilute bleach-solution rinse is an alternate treatment option.

Keep in mind that ringworm can

be difficult to treat since the organism can linger. “One has to treat the entire environment as a source of infection, which is as important as treating the animal,” Rees says. If more than one animal is affected, make sure to carefully disinfect various items shared by those horses in the barn to try to minimize the spread of the disease.

Product picks. Newer shampoos include BioHex broad-spectrum cleansing shampoo (VetBiotek), which combines a proprietary formulation of 2% chlorhexidine digluconate, 2% miconazole nitrate and MicroSilver BG for enhanced antiseptic activity. “The silver, per se, is antifungal, as well as antibacterial,” says Rees. “It works well in the more difficult ringworm cases.”

EquiShield CK spray (Kinetic Vet), which contains 2% chlorhexidine and 1% ketoconazole, is a topical antiseptic solution formulated for horses, dogs and cats. It can be easily sprayed with a hose on horses.

Staphylococcus aureus infection

Staphylococcus aureus infection can manifest in horses as warm, painful skin, with focal crusts most commonly noted in the pastern region, though similar lesions may occur elsewhere on the skin.

Methicillin-resistant *S. aureus* (MRSA) is a concern in horses. “Some of the horses that get recurrent infections seem to get MRSA, especially those that have been repeatedly treated with various antibiotics,” Rees says.

Though MRSA is being more com-

monly seen in horses (Figure 1), it is not as common as in dogs and cats. The way to ensure the diagnosis is by performing a culture. “If you have a nonhealing wound or one that doesn’t look quite right—or one that you never can quite get healed—then you must do a bacterial culture to make sure there is no MRSA,” says Rees.

“Usually, when you have a resistant *Staphylococcus* infection, normally you have to use the antibiotic based on the culture results,” says Rees. “Sometimes it’s most effective to treat it a week longer than you normally treat it, just to make sure it’s completely killed. In an ideal situation, it would be effective to reculture it, especially since it is potentially zoonotic, just to make sure it’s totally gone before you stop the treatment—otherwise it potentially could come back again.”

Rees’ solution for owners who find the cost of treatment prohibitive? “They can bathe the horse with a 2% to 3% chlorhexidine or with a benzoyl peroxide shampoo, using it more aggressively every other day before trying a more expensive injectable or oral antibiotic to treat the infection.”

Environmental concerns are important as well. “As MRSA is zoonotic, horses can become infected from human handlers, particularly those who work in the human health field, carrying the bacteria to the stall via their nasal passages,” says Rees. People working with an affected horse should wear heavy latex gloves, as they might get infected via scratches on their hands or other skin wounds.



>>> **Figure 2.** Insect allergies with secondary alopecia and mild bacterial skin infection.

Product picks. Vetericyn Plus VF hydrogel (Innovacyn) is designed to adhere to the site of application, allowing this advanced hypochlorous formula to penetrate the wound bed. The hydrogel does not cause dermal irritation and is safe for use in sensitive areas.

A dilute bleach shampoo, Command (VetriMax), formulated with sodium hypochlorite and salicylic acid, is an effective monotherapy for the treatment of superficial canine pyoderma associated with MRSA. “I have not used Command that much in horses, so I don’t really know how well it works. In small animals it has been effective in some cases, but not always,” Rees says. “I prefer Biohex rather than Command.”

Insect bite hypersensitivity

Insect bite hypersensitivity, caused by flies and other insects, is a major cause of allergy in horses (Figure 2). Some fly species (black flies, deer flies, horse flies) produce this condition, but there is debate whether it is a true hypersensitivity or allergy or just an irritation, as several fly species deliver painful bites.

Although several insects produce hypersensitivity, the one most studied is from the *Culicoides* genus. It has been shown that certain proteins from the saliva of these insects will induce an allergic response in horses. Some of them are ventral feeders, while others feed along the dorsum.

“If horses are solely allergic to *Culicoides* species, immunotherapy or allergy shots don’t seem to work as well because the allergen

is not only derived from the insect saliva but the entire insect ground within it, making it less effective,” says Rees. “Usually steroids or antihistamines are helpful. Some use methylsulfonylmethane, an anti-inflammatory medication, or omega-3 fatty acids.

“The treatment mainly involves trying to repel the flies with pyrethrin or similar drugs, though there are studies of varying success of these drugs,” Rees continues. “We probably ideally need to include more horses in the [insect bite hypersensitivity treatment] studies and to identify the species of the fly. It seems that horses that have hypersensitivity to *Culicoides* also have similar sensitivities to other allergens such as pollens, dust and mold.”

Another key is to reduce the prevalence of insects in the horse’s environment. Horse owners can place fish in stock ponds to reduce mosquitoes, fans in stalls to reduce flies (especially for *Culicoides* species) or use fly sprays or fly facemasks.

“*Culicoides* tend to be poor fliers and like water sources, so you want to remove the horse from free-standing water areas, if possible, putting it in a pasture without a pond or stream running through it,” Rees explains.

Some cases are difficult to diagnose, looking like typical insect allergy but actually ending up being atopic environmental allergies, Rees says.

Environmental allergies

“Atopic dermatitis and environmental allergies to dust, molds,

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Please see brief summary on page E2



>>> **Figure 3.** Fungal and bacterial infection around tail and hip area secondary to atopic dermatitis.

pollen and poor-quality hay are quite common equine allergic responses,” says Rees. Hives are common and can present anywhere on the body but are typically found on the face, neck, chest and upper legs.

Another consideration is allergic contact dermatitis, which occurs when irritating substances, such as fly sprays, shampoos, liniments or other substances come into direct contact with the skin of hypersensitive horses. Signs may include mild redness, flaky and itchy skin, severe hair loss, skin thickening, pain and occasionally skin sloughing.

Horses often get opportunistic secondary infections with itchy skin, especially horses with allergic skin conditions (Figure 3). “In an allergic individual, we don’t think the barrier function of the skin is exactly the

same as with a normal individual,” says Rees. “When they are having an allergic flare-up, they may be more predisposed to picking up bacteria or fungus that are out in the environment than a normal animal would be.”

An owner can try to minimize an inhalant (mold, pollen, dust) allergy by reducing exposure. Strategies include ensuring good-quality clean bedding, changing it often and wetting the bedding down to reduce dust. However, owners should be cautious of excessive wetting, which may encourage mold growth and exacerbate the situation.

With an inhalant-sensitive animal, the hay must be mold-free, and a confined horse must have sufficient air exposure. “Bathing them often to reduce the pollen to skin exposure

is useful also,” says Rees. “Unfortunately, some are so allergic that they need antihistamines, allergy shots or corticosteroids such as dexamethasone,” Rees says. “But in horses, one has to be careful with excessive use of steroids due to the concern for hoof issues and laminitis.”

Allergen specifics. Some horses are allergic to alfalfa, so Rees suggests sweet feed, Omolene (Purina) or rolled oats as an alternative to feed pellets containing alfalfa. She says in one unusual case, a horse owner had Guinea hens. As her horse was severely allergic to feathers, it was imperative to keep the horses separated from the hens. Rees says many of her cases respond to immunotherapy better if the allergen load is decreased in the horse’s environment.

“I do a lot skin testing, though



>>> **Figure 4.** *Pseudomonas* species infection on the side of a horse’s chest from bacteria being trapped in the neoprene saddle pad.



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horses are somewhat different from other species in that they can have both delayed as well as immediate hypersensitivity reactions,” says Rees. Thus, she does readings at 15 minutes and 30 minutes and then a delayed reaction reading four to six hours afterward. “I think it does make a difference to do so,” she says.

For both small animals and horses, storage mites are a larger potential cause than previously thought. “I’ve begun to add them to my diagnostic panel and to my immunotherapy based on the allergy test results,” says Rees.

Product picks. Rees says sublingual immunotherapy, a newer treatment form, appears to have helped in several of her allergy cases. “The problem with the sublingual treatment is that one has to do it daily, so it’s a matter of compliance regarding client usage and interest. Most horse owners will accept the allergy vaccine. The injection versus sublingual treatment due to compliance issues makes more sense for horse application.”

Platinum Performance makes a skin and allergy supplement for horses. Adding the powder to the feed seems to be beneficial to reduce itching and the allergy, Rees says.

Common skin cancers: squamous cell carcinoma and melanoma

Squamous cell carcinoma is a malignant tumor of the outmost layer of the skin. It is typified by reddened, roughened or ulcerated skin and is associated with exposure to the sun in horses (unlike melanoma). It’s often seen in sunny areas like Florida, Texas and Arizona on horses’ eyelids, nose, genital region, poorly pigmented areas or areas of lightly haired skin. It’s usually preceded by actinic dermatitis characterized by erosions or ulcers. Most clinicians are familiar with this condition and readily perform a biopsy. It’s important to protect susceptible horses from sun, Rees says—lighter-coated horses such as palominos and gray- or white-coated horses are particularly at risk.

With melanoma, surgical removal is the best form of treatment, Rees says. Some breeds, such as Appaloosas, get these tumors at the tail and they tend to be benign. Other lesions are locally aggressive. “Some veterinar-



>>> **Figure 5.** Photosensitization in a paint horse. Note that the skin lesions are limited to the white-haired areas.

ians will biopsy them to determine their mitotic rate or only remove them if they are located in a bad spot, such as the penis, the rectum or an area affecting a bodily function,” Rees says. “They are a little different than those seen in people in that there are some horses in which they are not as aggressive a cancer, especially grays. Some have tried a melanoma vaccine or use Tagamet (cimetidine) to try to shrink them. Some claim that it helps, though I have not seen that it does. The only way to properly treat it is surgically.”

Miscellaneous skin diseases

Keep an eye out for these possible causes of dermatologic issues as well:

***Pseudomonas* species infection.** “I commonly see horses that have hair loss and are itchy,” says Rees—infections are a concern in these cases. “I had one horse with *Pseudomonas* species infection [in which the bacteria] was getting trapped in the neoprene of the saddle pad blanket (Figure 4). It wasn’t until we started giving the right antibiotic and got more aggressive with cleaning the saddle pad that it resolved.”

Sarcoids. Sarcoids, which frequently occur in areas subject to trauma, are associated with bovine papillomavirus. Some speculate that the virus may be spread by biting flies or fomites. Sarcoids appear as wartlike, ulcerated nodular areas or flat plaque surfaces, usually on the ears, lips, neck and ventral abdomen or around the eyes.

Fungal infections. “Sometimes we

see opportunistic fungal infections when a horse gets a small puncture wound with resultant localized fungal infection,” says Rees.

Dermatophilosis. Rees says dermatophilosis, or rain rot, occurs if a horse has been out in the rain frequently during a particularly rainy season. Also known as rain scald or mud fever, dermatophilosis is a bacterial infection aggravated by prolonged exposure to moisture coupled with injured skin. Chronically infected animals are usually the source of the infection. Transmission may occur via flies, ticks, grooming equipment or tack. The lower layer of hair is firmly matted in small scabs, which leave a raw surface when removed. The roots of the hair can be seen protruding from the crust and may have a covering of yellowish-orange pus. The affected areas are sore to the touch but are not itchy to the horse.

Photosensitization. This condition is an abnormal inflammatory skin reaction to the sun’s ultraviolet rays that occurs in areas of white hair or pink skin (Figure 5).

The big picture

A theme echoing in many of these common skin conditions that can develop in horses is the importance of taking in a horse’s environment. Are known allergens prevalent? Is too much sun exposure causing damage? Are irritating bugs buzzing about too readily? Knowing the dangers of what this vital protective layer must fight off each day can help you prevent or reduce the potential for serious skin issues. **dvm360**

Ed Kane, PhD, is a researcher and consultant in animal nutrition. He is an author and editor on nutrition, physiology and veterinary medicine with a background in horses, pets and livestock. Kane is based in Seattle.





Clustering visits to clients in close proximity can't prevent those days when what you really need is a practice helicopter. One solution: the midlevel veterinary practitioner designation.

Rural equine docs: Get to the chopper!

Oh that's right. You don't have a helicopter. But there is someone who could chop away at your duties and increase efficiency—a midlevel practitioner. Is it time to consider an answer out of human healthcare's playbook? *By Kyle Palmer, CVT*

While the economy in the veterinary industry has largely rebounded—at least in my neck of the woods—it's still an open question as to whether the ambulatory equine-only practitioner will be able to survive outside more densely populated areas.

Why? Because travel time—between large pieces of property and far-flung pockets of development—eats into profitability. If veterinarians charged the same rate for travel time that they did for professional time, many clients might decide that the closest veterinarian was the best veterinarian.

Of course, proper scheduling is a big help—clustering visits to clients in close proximity on the same day. Unfortunately, even the best efforts can't prevent those days when what you really need is a practice helicopter. Furthermore, as the quality of medicine we provide continues to rise, so does the cost of equipment necessary to offer that level of care. In many cases, the only way this equipment can pay for itself is if it's used more frequently than a rural practitioner could ever manage.

What's the solution? Maybe it's time for veterinary medicine to explore a midlevel practitioner designation.



Bring in the middleman (or middlewoman)

Human medicine has nurse practitioners and physician assistants, both designed to take some of the burden off physicians. Veterinary medicine may be served by some-



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thing similar yet different.

Currently, veterinary technicians (who may soon be known as veterinary nurses) can perform many tasks only under various levels of veterinary supervision. An obstacle in sending out a technician alone on a farm call is the very real possibility that the horse owner will think of other needs on the spot—tasks that require a doctor by law but could be handled by a midlevel practitioner with a little more schooling and experience. Maybe the horse scheduled for vaccination or deworming is showing signs of a complication that was previously unknown—a midlevel practitioner could manage these situations if law allowed.

There's no reason why our industry can't create a new distinction, expand the existing technician role or, better yet, embrace the growing veterinary technician speciality (VTS) distinctions with some expanded responsibilities. More education, different education or specific training could help equine veterinary professionals build a model more similar to human healthcare.



Think of the efficiency!

Many state practice acts draw a fine line between the technician's ability to measure and record findings and the ability to diagnose. In many, many conditions, that line exists as an administrative distinction only. Either a veterinarian or a technician can measure elevated breathing, nasal discharge and ocular discharge and observe the cough the client has been seeing for days. Deciding what to prescribe is another matter, but that could be done remotely by a conversation between the technician

and the veterinarian.

I'm not advocating for the existing technician guidelines to be expanded to that of a midlevel practitioner—though that argument could be made. But a new designation that required more initial education and continuing education could enhance equine practices' efficiency, profitability and medical care offerings.

Think about a day when there are six challenging visits already scheduled, and suddenly Mrs. Jones (who lives in the opposite direction) needs someone to vaccinate her horse and look at a skin mass. Is the industry better served by making that veterinarian cover an entire county in one day, or could a midlevel practitioner visit Mrs. Jones, administer the vaccine, examine the mass, take a detailed history and perhaps take an aspirate? When we talk about the shrinking pool of equine-only veterinarians graduating, or worse, the rising number of equine-only associates who move on to mixed-animal or companion-animal-only practice because of time and money problems, this is one small option that could help.



Do we all need one of everything?

To take the concept a step further, when 10 different veterinarians cover a huge rural area, is it plausible for each of them to own a top-level ultrasound unit and digital radiography system? Many of the practitioners I talk to would love to be able to refer clients to a practitioner solely focused on imaging without risking the loss of a client.

A midlevel practitioner could help fill this need.

After one of those 10 veterinarians saw a horse that required radiographs, he or she could simply refer to that midlevel practitioner for imaging. The veterinarian would be free to move on to her next call, while the imaging midlevel practitioner would schedule the horse—along with referrals from

any of the other nine veterinarians in the area. It's a much more efficient use of time and money. The radiographs would be sent electronically to the referring veterinarian, who would then make a diagnosis and prescribe treatment. The same scenario could work for ultrasounds, although those require more interpretation in the moment. In either situation, sedation could be called for, which means the midlevel practitioner would need the ability to administer those medications.



Let's start bulldozing these roadblocks

In some ways, human healthcare is way ahead of us—and this is one of them. If human doctors can coexist with a medical staff that occupies various levels of training and authority, why can't we?

Should a midlevel practitioner have the ability to prescribe? That's a complicated issue and needs more discussion—but I don't believe it's out of the question. After all, those responsibilities are an integral part of the human nurse practitioner and physician assistant positions.

I don't doubt that this concept of the midlevel practitioner is potentially divisive (as seems to be the case with any big change), but that doesn't mean it's without merit. Many good ideas start to evolve and grow once the first few roadblocks are overcome. It may be time to start this conversation and evolution toward a new structure that can add value to an already amazing industry. **dvm360**

Kyle Palmer, CVT, is a Firstline Editorial Advisory Board member and a practice manager at Silver Creek Animal Clinic in Silverton, Ore. Please send your questions or comments to dvmnews@ubm.com.

Brakke Consulting, Inc.

Pain management product study

Brakke Consulting's latest study, "Pain Management Products for Dogs and Cats," profiles the veterinary market for analgesics (both veterinary and human products) as well as nutritional supplements, therapeutic diets for joint support, and complementary therapies. The report includes an overview of pain management in veterinary medicine, leading product sales and pricing, and a discussion of new and developing products, including Galliprant and Nocita, as well as a number of novel molecules. The report also includes a survey of 325 small animal veterinarians probing their use of analgesics for both acute and chronic pain.

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Heska Corp.

Immunodiagnostic analyzer with bile acids

Heska's Element i Immunodiagnostic Analyzer now tests for bile acids. Useful in the diagnosis of hepatobiliary dysfunction, bile acids is one of four immunodiagnostic parameters now offered, joining TSH solution, total T₄ and cortisol. The test finishes in 10 minutes or less per analyte. In addition, the Element i Immunodiagnostic Analyzer integrates with the HeskaView Integrated Software Program and the Heska Data Capture Utility. Veterinarians can use the software to select multiple test results over various dates to examine trend data from each patient record.

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Henry Schein Animal Health

Website redesign

Henry Schein has redesigned its website henryscheinvet.com. The new site features enhanced educational content, simplified navigation, new search capability, greater product information and a range of offerings to enhance veterinary customers' online experience. Customers also have access to more product information, product comparisons and ratings, and a resource center featuring webinars, white papers and blogs about animal health, industry trends and practice management. Developed using responsive design, the website is compatible with all mobile devices and tablets and is optimized for today's browsers. The update is the latest in a series of planned company website enhancements, following the relaunch of henryschein.com earlier this year.

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Virginia is for veterinary products

They'll tell you, "Virginia is for lovers," but that's not what I saw in the exhibit hall at CVC Virginia Beach. Well, maybe lovers of veterinary products. *By Brendan Howard, Business Channel Director*



'Your pal cannot have surgery yet still deserves the best'

That's the message from the makers of the Hero Brace to dog owners (and the veterinarians supporting them) when it comes to dogs with torn cruciate ligaments that can't have surgery for medical or financial reasons. Ace Ortho Solutions, headquartered in Benkelman, Nebraska, communicates directly with veterinarians working with a painful dog and fabricates a custom brace for the suffering patient.

Highlights of the braces include under-sleeve suspension and plastic design that "does a better job of applying proper corrective forces to the joint" than fabric.

Braces are \$799, with a free casting kit. Casting kits are \$30 each for practice owners who want to keep them on hand.

Can you hear me now?

The answer may be, yes you can—even in your veterinary hospital's busy treatment area or action-packed reception area. The sales rep for Jive at CVC Virginia Beach talked up this phone system's "acoustic fencing," which uses an onboard speaker on the phone's base to recognize when you pick up a call. It works to filter out any background noises other than your voice. Sounds handy.

Another cool feature lets you use a Jive smartphone app to send texts from a personal smartphone and have it ap-

pear to come from your practice's main phone number—no more fear of texts back to the phone you need for calls from your kid's school.

You can buy or rent the VoIP phones, according to the sales rep. Monthly fees for Jive phone service range from \$9.95 to \$19.95 per line.

Hold it right there!

This is not a stickup. It's just a reminder that cats and dogs don't like skidding around on your exam room counters and scales. (Hey, those Fear Free folks call for that too!)

And Ezee Visit Pet Vet Mat has something for that. The paw-print-embazoned mats (22-by-16-in, 36-by-23-in and 20-by-42-in for scales and lift tables) are made of an oilcloth top and antimicrobial, nonskid padded bottom. Wipe them down with sterilizing or cleaning agents, or hand- or machine-wash.

Cool story? The paw print in the



company's logo and all over the mats themselves is from creator Chris Fricke's dog Utley, who made lots of trips to the veterinary practice while facing cancer. Utley hated those slippery tile floors and stainless steel exam tables. Want something different than Utley's paws? Talk to the company about a custom logo (VCA got one).

The smallest mat is \$18.95; the two larger sizes are \$22.95 each.

You're out!

The French made the bug-removing tool O'Tom and brought it to America



as the Tick Twister. Ticks, begone!

The tick remover comes in two sizes for smaller and larger ticks and uses a simple technique: Sweep the plastic prong between the tick's engorged body and head, then slowly turn until the offending parasite pops out.

Unless you're a big fan of forceps or your fingernails, maybe give it a try? And pitch it to your clients if they're squeamish about getting rid of ticks off their family dogs.

If you're curious, you can see it in action on Youtube.

Scratching an itch in all 50 states

We wrote about Scratch after we saw this new smartphone-friendly payment plan for pet owners at WVC a few months ago. Since then, we've heard quite a few of you buzzing about the new player in helping clients pay. At the time, Scratch was live in a few states.

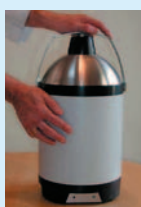
Now, Neil Stanga, VP of business development, says Scratch is in 10 states (Arizona, California, Florida, Maryland, Missouri, Montana, Oregon, Utah, Washington and Wyoming) and should be in 15 by the end of May. With applications moving in 45 states, the team at Scratch hope to be active in states covering roughly 75 percent of the pet-owning population in 30 to 45 days.

Basically, if Scratch isn't in your neck of the woods yet, it shouldn't be long. [dvm360](http://dvm360.com)

Find it all here
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Clarification

An article in the May 2017 issue of **dvm360** did not identify the manufacturer of the Medical Waste Machine, Medical Innovations. To read the updated article, go to dvm360.com/medicalwaste.



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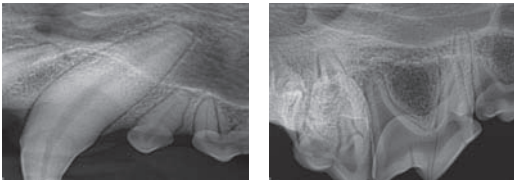


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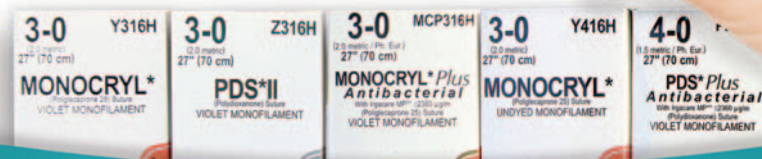
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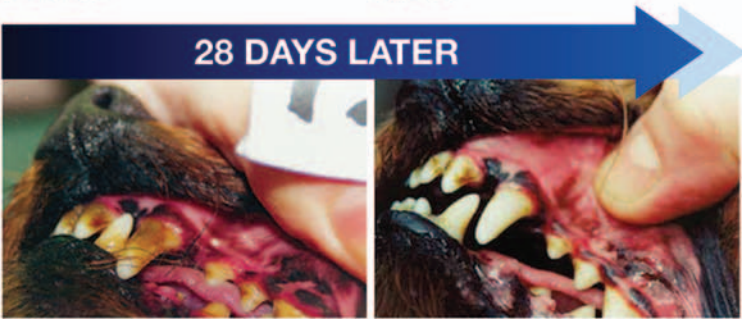
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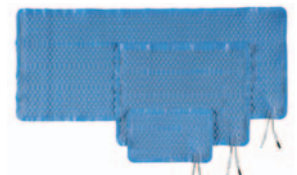
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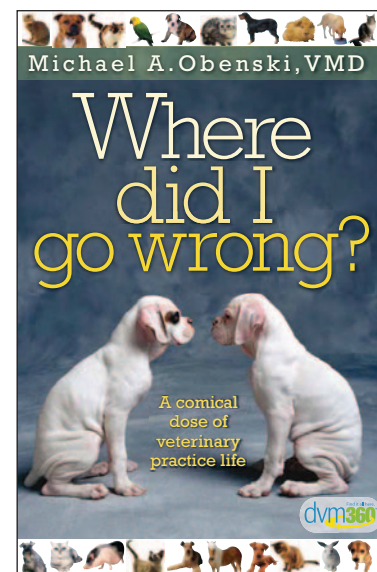


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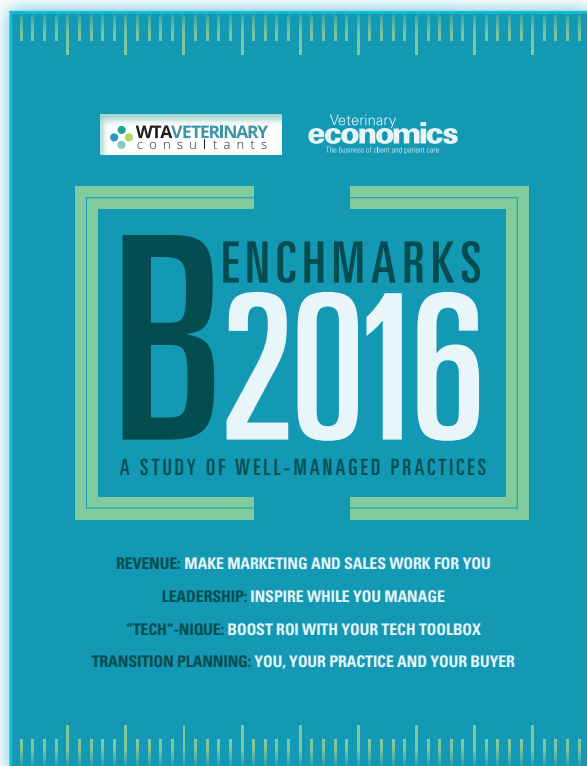
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Here are the CE opportunities coming in the next few months

| | | | | |
|---|--|--|---|--|
| August 2-5 2017 Therio Conference Fort Collins, CO (334) 395-4666 therio.org/ event/2017Therio | Skills Workshop Oakdale, MN (800) 883-6301 aaha.org/associate | Trip Vernal, UT (800) 833-6301 aaha.org/professional/ education/aaha_raft_ trip.aspx | tion Course Hartford, CT (941) 276-9141 veterinarydentistry.net | (816) 753-7700 kclifesciences.org |
| August 5-6 Clinical Advantage— Technician's Workshop Baltimore, MD (410) 828-1001 AnimalDentalTraining. com | August 11-13 Animal Chiropractic Module 6—Parker University Dallas, TX (800) 266-4723 ce.parker.edu/courses/ animal-chiropractic/ animal-chiropractic- program/ | August 20 Vet and Tech Dental Course—Veterinary CE for Veterinarians and Technicians Providence, RI (941) 276-9141 veterinarydentistry.net/ vet-tech-dental-course- providence-rhode- island-2017/ | August 26-27 Veterinary Ophthalmic Surgery for the General Practitioner: Surgery of the Eyelids and Orbit Las Vegas, NV (866) 800-7326 wvc.org/course/ ophthalmic-surgery-for- the-general-practitioner- surgery-of-the-eyelids- orbit-2/ | August 28-29 Fracture Repair in Toy Breed Dogs and Cats Las Vegas, NV (866) 800-7326 wvc.org/course/frac- ture-repair-in-toy-breed- dogs-cats-3/ |
| August 6 Comprehensive Canine and Feline Dental Extraction Course Columbus, OH (774) 230-4195 securosuniversity.com | August 13 Veterinary Dental Extraction Course Seattle, WA (941) 276-9141 veterinarydentistry.net | August 20-22 Comprehensive Small Animal Dentistry Las Vegas, NV (866) 800-7326 wvc.org/course/ comprehensive-small- animal-dentistry-2/ | August 27 Comprehensive Extra- capsular Stifle Stabiliza- tion Course Boston, MA (774) 230-4195 securosuniversity.com | September 8-9 Equine Pre-Purchase Examination—A Discipline-Specific Interactive Approach Dover, NH (844) 870-6097 vetpd.com |
| August 6 It's What's Up Front That Counts! Baltimore, MD (303) 674-8269 vmc-inc.com | August 13 It's What's Up Front That Counts! Spokane, WA (303) 674-8169 vmc-inc.com | August 23-25 The Veterinary Economics Hospital Design Conference Kansas City, MO (800) 255-6864, ext. 6 thecvc.com | August 27 Vet and Tech Dental Course—Veterinary CE for Veterinarians and Technicians Hartford, CT (941) 276-9141 veterinarydentistry.net/ vet-tech-dental-course- hartford-connecti- vut-2017/ | September 8-10 Fundamentals of Dentistry—3-Day RACE Accredited Series Baltimore, MD (410) 828-1001 animaldentaltraining. com |
| August 6 Vet and Tech Dental course—Dentistry CE for Veterinarians and Technicians Portland, OR (941) 276-9141 veterinarydentistry.net/ vet-tech-dental-course- portland-oregon-2017 | August 13 Vet and Tech Dental Course—Veterinary CE for Veterinarians and Technicians Seattle, WA (941) 276-9141 veterinarydentistry. net/vet-tech-dental- course-seattle-washing- ton-2017 | August 25-28 CVC Kansas City Kansas City, MO (800) 255-6864, ext. 6 thecvc.com | August 27-28 One Health Innovations Research Symposium: Preventing the Next Pandemic Kansas City, MO | September 9-10 Dermatology for the General Practitioner San Diego, CA (619) 640-9583 sdcvma.org |
| August 10 Indispensable Associate: Professional | August 19-22 AAHA Adventure CE Raft | August 26 Veterinary Dental Extrac- | | September 9 Veterinary Dental Extraction Course Charlotte, NC (941) 276-9141 veterinarydentistry.net |

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STAMPEDE | Bo Brock, DVM



Veterinary surgery, junior high edition

Wood-n't you know, I credit my capabilities in the veterinary surgical suite to my junior high school woodworking teacher.

In 1978 I walked into a woodworking class at Fannin Junior High School in Amarillo, Texas, with no idea how it would influence my life. The shop was in the northeast corner of the school, far enough away from the rest of the campus that the constant noise of power tools wouldn't interrupt other classes.

The woodworking teacher, George Howle—a big man who'd played college football—was the largest man I'd ever seen as a scrawny eighth-grader. Equipped with a giant mustache and cowboy boots, he spent the entire first class talking tough to us about safety around power tools and the dangers of shop class.

Mr. Howle had developed a thriving industrial arts club at the school and would spend countless hours in the shop almost every night helping students with projects for competitions or for class. Even though he put on a tough cowboy act, he had the heart of a teddy

bear and never seemed to quit teaching.

I became very involved with woodworking and, though I probably wasn't very good at it, Mr. Howle made me feel like a master. I built projects and took them to state competitions. For the two years I took shop from Mr. Howle, I kept trying and learning.

What has all this to do with being a veterinarian? Twelve years later I was standing in front of a group of friends and professors at a banquet toward the end of my fourth year of veterinary school. I had been given an award, voted on by the professors, for being the most outstanding student surgeon that year. I knew I was not the most talented surgeon in that class, but I was the most prepared to do surgery, all because of Mr. Howle.

I had to say a few words as I accepted this award, and I spent every word I had praising my junior high shop teacher. I explained that he had already taught me most of the things we did

in surgery—lag screw fixation, tapping and drilling, estimating and measuring angles for fixation and applications. He had taught me how to cut with and against the grain and which blade worked best for each. He had taught us plumbing and how to join pipes of different diameters as well as how to suture leather and

work with pleats. He had taught me to think like a draftsman and have all of the plans ready in my mind before I started the building.

I didn't realize until near the end of my veterinary training that almost every surgery we performed on animals was borrowed from someone like Mr. Howle who was already doing it on wood or metal or pipes. I was ready to be a builder using wood and steel long before I got a chance to do almost the exact same things on living tissue.


As luck would have it, Mr. Howle retired a few years back and now lives just 30 miles from me. I go to his shop and build projects even to this day. He is still teaching me, and I still learn new ways to be a better surgeon from him. I love bending wood and building rocking chairs with George Howle, and I can't thank him enough for taking me under his wing all those years ago.

A few weeks ago, Mr. Howle was inducted into the Technology Student Association Hall of Honors, the highest award that can be given to someone who's spent their life teaching students in ways that changed them forever.

In recent weeks I've been pondering the effects of a good teacher. Good teachers show us how to think and how to do things, even more than they realize when they're doing it. There's no way Mr. Howle had any idea he was teaching a puny eighth grader named Bo how to be a surgeon someday—but he was. **dvm360**

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





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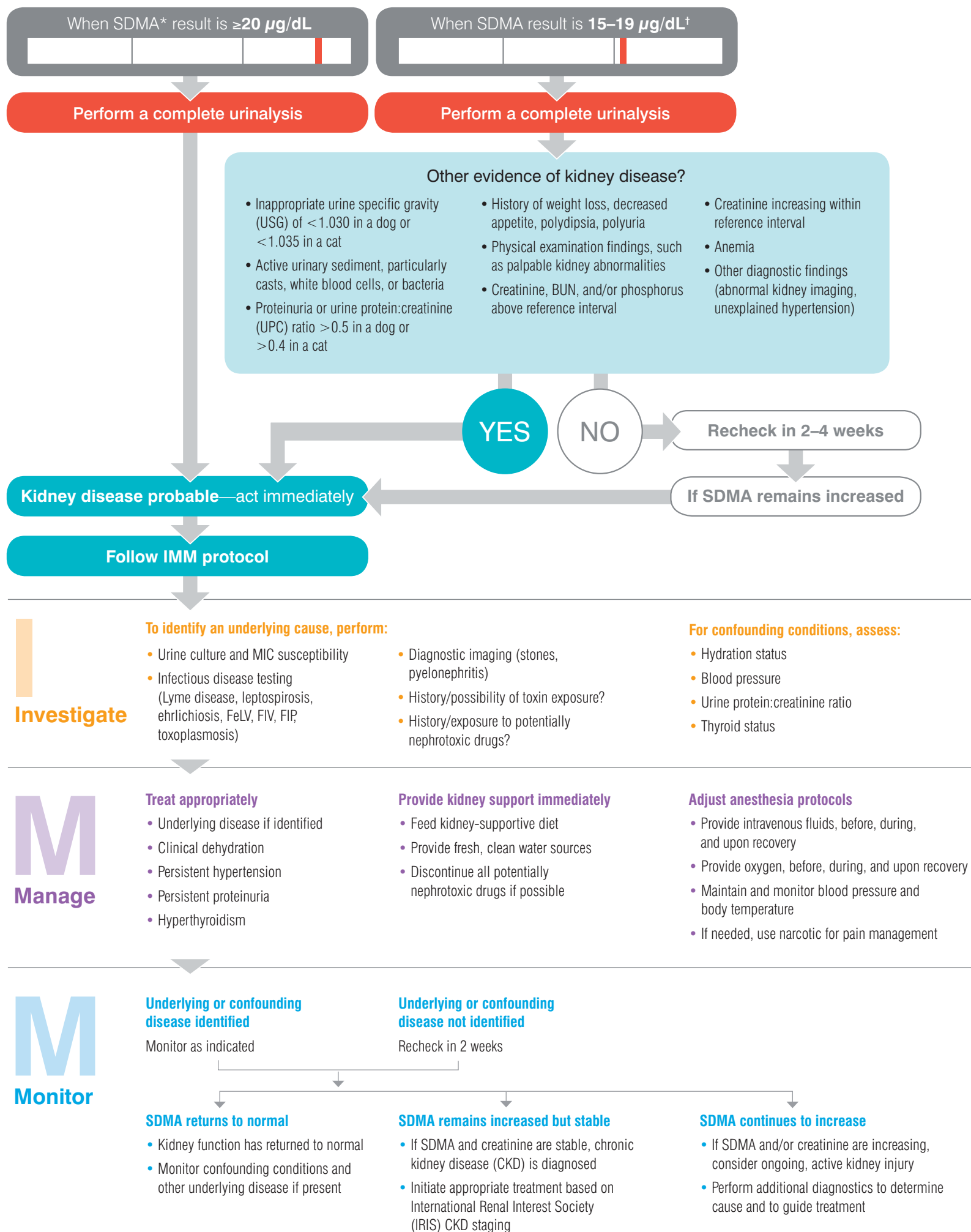
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