



# Because NOTHING should come between you and your cat



**NEW** revolution<sup>®</sup> PLUS   
(selamectin and sarolaner topical solution)

**REVOLUTION PLUS broadens the scope of protection** for cats and kittens against fleas, ticks,\* ear mites, roundworms,† hookworms,‡ and heartworms. **REV UP Protection Inside and Out.**



**IMPORTANT SAFETY INFORMATION:** The safe use of REVOLUTION PLUS has not been established in kittens less than 8 weeks old or in breeding, pregnant or lactating cats. Reported side effects in clinical trials included lethargy and anorexia. Use with caution in cats with a history of neurologic disorders. Sarolaner, one of the ingredients in REVOLUTION PLUS, is a member of the isoxazoline class, which has been associated with adverse reactions such as tremors, ataxia, and seizures. Reactions have occurred in cats with or without a history of neurologic disorders. In humans, REVOLUTION PLUS may be irritating to skin and eyes. **See Brief Summary of Prescribing Information on page 03.**

\*Black-legged or deer tick (*Ixodes scapularis*), Gulf Coast tick (*Amblyomma maculatum*), and American dog tick (*Dermacentor variabilis*). †*Toxocara cati*. ‡*Ancylostoma tubaeforme*.

All trademarks are the property of Zoetis Services LLC or a related company or a licensor unless otherwise noted. ©2019 Zoetis Services LLC. All rights reserved. RVP-00130.



# REVOLUTION PLUS combines the proven broad-spectrum protection of selamectin with the advanced flea- and tick-killing power of sarolaner

## BUILDING ON THE TRUSTED LEGACY OF REVOLUTION® (selamectin)

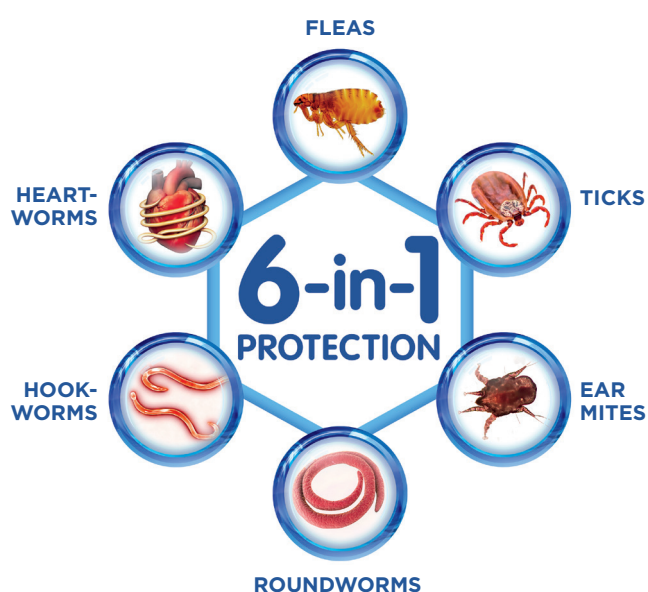


Veterinarians'  
**#1 CHOICE**  
for Cats<sup>1</sup>



**20 YEARS** of  
Proven Protection

- **Safe for cats and kittens** as young as 8 weeks of age, weighing 2.8 lbs or greater
- **Simple-to-apply**, quick-drying, small-volume, monthly topical solution
- **Helps protect the special bond** between cats and their families; no separation required after applying



**NEW**

**revolution PLUS**  
(selamectin and sarolaner topical solution)

**IMPORTANT SAFETY INFORMATION:** The safe use of REVOLUTION PLUS has not been established in kittens less than 8 weeks old or in breeding, pregnant or lactating cats. Reported side effects in clinical trials included lethargy and anorexia. Use with caution in cats with a history of neurologic disorders. Sarolaner, one of the ingredients in REVOLUTION PLUS, is a member of the isoxazoline class, which has been associated with adverse reactions such as tremors, ataxia, and seizures. Reactions have occurred in cats with or without a history of neurologic disorders. In humans, REVOLUTION PLUS may be irritating to skin and eyes. **See Brief Summary of Prescribing Information on page 03.**

[RevolutionPlusDVM.com](http://RevolutionPlusDVM.com)





# Retail Revolution

A pet's life is enriched by regular veterinary visits and medical care, but is the circle of care really complete if you don't take into account the work of other pet service professionals? Let's dig into the wild and woolly world of the building down the street: the pet store.

- » From the retailers: Completing the circle of care for your veterinary patients **page 18**
- » Data: Selling retail for the greater good of your clients and their pets **page 24**
- » A rundown of what you'll find in dvm360's sister publications **page 25**



The dvm360 Toolkit:  
A 2019 update on  
otitis management  
**page 19**



Commentary:  
Veterinarians need  
better boundaries  
**page 26**



'DVM needed': A  
closer look at the  
associate shortage  
**page 8**



The great squirrel  
eviction: An unusual  
call for Dr. Bo Brock  
**page 50**



TRESADERM® (thiabendazole, dexamethasone, neomycin sulfate solution) Dermatologic Solution Brief Summary: Before using TRESADERM, please consult the product insert, a summary of which follows: CAUTION: Federal (U.S.A.) law restricts this drug to use by or on the order of a licensed veterinarian. WARNING: For topical use in dogs and cats. Avoid contact with eyes. Keep this and all drugs out of the reach of children. DESCRIPTION: TRESADERM Dermatologic Solution contains the following active ingredients in units per mL: 40mg thiabendazole, 1mg dexamethasone, 3.2mg neomycin (from neomycin sulfate); and inactive ingredients: glycerin, propylene glycol, purified water, hypophosphorus acid, calcium hypophosphite, about 8.5% ethyl alcohol and about 0.5% benzyl alcohol. INDICATIONS and USAGE: TRESADERM aids in the treatment of certain bacterial, mycotic, and inflammatory dermatoses and otitis externa in dogs and cats. The amount to apply and frequency of treatment are dependent upon the severity and extent of lesions. Five to fifteen drops of TRESADERM should be instilled in the ear twice daily. In treating dermatoses affecting areas other than the ear, the surface of the lesions should be well moistened (2-4 drops per square inch) twice daily. The volume required will be dependent upon the size of the lesion. PRECAUTIONS: Application of TRESADERM should be limited to a period not longer than 1 week. On rare occasions, application of the product may result in erythema or discomfort in the treated area. Erythema of the treated area can last from 24 to 48 hours. When applied to fissured or denuded areas, transient discomfort can follow with the expression of pain usually lasting 2-5 minutes. While systemic side effects are not likely with topically applied corticosteroids, the possibility of such side effects should be considered if use is prolonged or extensive. If signs of salt and water retention or potassium excretion are noticed, such as increased thirst, weakness, lethargy, reduced urine output, gastrointestinal disturbances or increased heart rate, treatment should be discontinued and appropriate measures taken to correct the electrolyte and fluid imbalance. The full FDA-approved product insert can be found at <http://www.merial.us/SiteCollectionDocuments/TRESADERM-PI.pdf>. For technical assistance, to request a Safety Data Sheet or to report suspected adverse events, call 1-877-217-3543. For additional information about adverse event reporting for animal drugs, contact FDA at 1-888-FDA-VETS, or <http://www.fda.gov/AnimalVeterinary>.

**IMPORTANT SAFETY INFORMATION:** TRESADERM is for topical use only in dogs and cats. On rare occasions, application of the product may result in erythema or discomfort in the treated area. Discomfort in the treated area can last from 24 hours to 48 hours.

**Tresaderm®**  
thiabendazole-dexamethasone-neomycin sulfate  
**TRIPLE ACTION FORMULATION**

## TRUST TRIPLE ACTION TRESADERM



**TRESADERM® Dermatologic Solution aids in the treatment of certain bacterial, mycotic, and inflammatory dermatoses, such as:**

- ✓ Flea Allergy Dermatitis
- ✓ Focal Pyoderma
- ✓ Otitis Externa
- ✓ Ringworm
- ✓ Hot Spots

• **Anti-fungal**

• **Anti-inflammatory**

• **Anti-bacterial**

**Approved for use on dogs and cats.**

TRESADERM® is a registered trademark of Boehringer Ingelheim Animal Health USA Inc. ©2019 Boehringer Ingelheim Animal Health USA Inc., Duluth, GA. All rights reserved. TRE17TRADEAD (09/17).

 **Boehringer  
Ingelheim**







Can't stop,

won't stop.

The best education, in a conference environment that's actually *fun*.







Do you...

See your continuing education as a chance to learn, grow and become the best veterinary professional you can be?

Put in long hours; enduring failures, angry clients, toxic teams and the perils of student debt?

Need to take a break from your daily grind and remember why you love vet med?

If you answered yes to any of these questions, you need a Fetch conference in your life. You've made it this far. Let's get you to a place where you can **thrive**.

Learn more and register for upcoming events in Baltimore, Kansas City and San Diego.

Visit [fetchdvm360.com](http://fetchdvm360.com) for more details.

Register today.





## NEWS

### 8 | Spotlight Series

'DVM needed': A look at the associate shortage



### 11 | Industry watch

dvm360 adds Atlantic City Veterinary Conference

### 12, 16 | Veterinary headlines

- » René Carlson, former AVMA president, dies
- » UC Davis tops list of veterinary school rankings for second time
- » Just can't get enough: Pet spending reaches (another) all-time high
- » "Taxpayer-funded kitten slaughter" to end, USDA says

### 34 | Parasitology

Image Quiz: Name the tick-borne disease

### 35 | Dentistry

When it comes to dental radiography, do you know what's normal?

### 38 | Equine

Cloning: Your new reproductive tool?

### 40 | Exotic medicine

What's with the recent hedgehog *Salmonella* outbreak?

### 42 | Veterinary products

Do you need a CT scanner?



## COMMUNITY

### 26 | Commentary

Veterinarians need better boundaries



## dvm360 LEADERSHIP CHALLENGE

- » Retail revolution: Completing the circle of care for patients **page 18**
- » Exclusive data: Selling retail for the greater good **page 24**

## MEDICINE360

The small animal section begins after **page 34**.

### M1 | Oncology

TCC: When 'Gotta go, gotta go right now' is a malignant matter  
*Hilal Dogan, BVSc, CCTP*

### M3 | Dermatology

5 vile derm conditions that get under my skin  
*Melissa Hall, DVM, DACVD*

### M6 | Feline medicine

Q&A: What's an alternative to Clavamox drops?  
*Dawn Merton Boothe, DVM, MS, PhD, DACVIM, DACVCP*

## PRODUCTS360

**43 |** The latest veterinary products

## SPECIAL CONTRIBUTORS

### 28 | AVMA Eye on Economics

Improve your financial outcomes by looking at human behavior  
*Matthew Salois, PhD, and Lisa Greenhill, MPA, EdD*

### 30 | The Dilemma

'Teamwork makes the dream work': How to deal with staff nightmares  
*Marc Rosenberg, VMD*

### 32 | Letter of the Law

Could veterinary malpractice change forever?  
*Christopher J. Allen, DVM, JD*

### 50 | Stampede

The great squirrel eviction  
*Bo Brock, DVM*

## READER SERVICES

**49 |** Calendar



— It's time to —

# GET IT ON

*Recommend **8 months**  
of flea and tick protection  
for your patients.*



**Seresto®**

*No Odor • No Greasy Mess • No Monthly Doses*

*Bring beautiful, long-lasting flea and tick protection to your clinic.  
Contact your Bayer sales representative today.*



©2019 Bayer, Shawnee Mission, Kansas 66201.  
Bayer, the Bayer Cross and Seresto are registered trademarks of Bayer.  
S19656





# 'DVM needed': A look at the associate shortage

Right now, there are more positions than doctors to fill them. Here's some insight from both perspectives—understaffed clinic and in-demand candidate. *By Maureen McKinney*

Just over five years ago, the National Research Council released the results of a study of current and future workforce needs in the profession. The conclusion was clear: There was little evidence of workforce shortages in most areas of veterinary medicine. "True personnel shortages are indicated when salaries rise sharply to attract qualified candidates," the report noted. "That is not occurring in any sector of veterinary medicine, except industry," which often requires a PhD or other specialized training.

Fast-forward to today, with our booming economy, record pet ownership and increasing desire of pet owners to provide the very best veterinary care possible for their four-legged family members, and that exact scenario is playing itself out in companion animal practices throughout the country.

In fact, data from the Bureau of Labor Statistics indicate that employment opportunities in the veterinary profession are exploding, with a projected increase of 15,000 veterinarian positions between 2016 and 2026.

## Factors pushing growth

Pet ownership statistics are a clear indicator that the demand for veterinary services is growing. Indeed, data from the American Pet Products Association show that pet ownership is on the rise everywhere, with 68 percent of all U.S. households—or 84.6 million homes—owning a pet in 2018 compared with just 50 percent in 1988.

And those pets are treated largely like a part of the family, as evidenced by consumer pet spending data. Annual household expenditures on pet care continue to rise year over year, with a record-breaking total spend of \$72.56 billion in 2018—a 4 percent increase over 2017 spending. Veterinary care accounts for one-quarter of that amount, or \$18.1 billion, an increase of 6 percent over 2017 numbers.

Generational differences are also at play, Stacy Pursell, BA, CPC, CERS, founder and CEO of The Vet Recruiter, told *dvm360*. When baby boomers were young, they would get married, buy a house, have kids and then get a pet. Conversely, millennials get a pet before

getting married, having kids and buying a house, making this group today's largest pet-owning demographic. "They're practically getting a pet in their dorms," Pursell says, "driving the increasing demand for veterinary services."

She also notes that the baby boomers—many of whom are used to putting in long hours—are retiring, and younger veterinarians are often unwilling to put in so much time.

Finally, diagnostic and treatment advances, coupled with the increased willingness of owners to provide optimal care throughout a pet's life, have increased the longevity of both dogs and cats. Between 2002 and 2016, the average life expectancy for dogs rose by 12.4 percent, from 10.5 to 11.8 years. Feline longevity saw an even bigger increase during the same period, from 11.0 to 12.9 years—a leap of 17.3 percent.

What does all this mean for today's veterinary practices? While the national unemployment rate has remained steady at 4 percent since 2017, unemployment for veterinarians hovers at just over 1 percent, according

to an April 1 article in the *Journal of the American Veterinary Medical Association*. That means a lot of open positions with seemingly not enough companion animal practitioners to fill them. "While it's very easy for veterinarians to find jobs today, it's tremendously difficult for many practices to find and hire qualified candidates," Pursell says.

## Opportunities for new grads

Jessi Farris, DVM, a 2017 University of Missouri College of Veterinary Medicine graduate, landed her first job at Bentley Animal Hospital in Fenton, Missouri, while she was still in school. "I found Bentley through a pharmaceutical rep who highly recommended the practice and mentioned they were looking to add another veterinarian," she told *dvm360*. Dr. Farris now works at the practice part time while she pursues her MBA at nearby St. Louis University.

Similarly, 2018 University of Pennsylvania School of Veterinary Medicine graduate Jill Giunco, VMD, began an internship at Red Bank Veterinary Hospital in Tinton Falls, New Jersey, a



# Treat Their Hyperadrenocorticism. Help Restore Their Vitality.



Prior to treatment with  
VETORYL Capsules



Following 3 months of treatment  
with VETORYL Capsules



Following 9 months of treatment  
with VETORYL Capsules



  
**VETORYL® CAPSULES**  
(trilostane)

**VETORYL Capsules are the only FDA-approved treatment for pituitary-dependent and adrenal-dependent hyperadrenocorticism in dogs (Cushing's syndrome). They contain the active ingredient trilostane, which blocks the excessive production of cortisol.**

As with all drugs, side effects may occur. In field studies and post-approval experience, the most common side effects reported were: anorexia, lethargy/depression, vomiting, diarrhea, elevated liver enzymes, elevated potassium with or without decreased sodium, elevated BUN, decreased Na/K ratio, hypoadrenocorticism, weakness, elevated creatinine, shaking, and renal insufficiency. In some cases, death has been reported as an outcome of these adverse events. VETORYL Capsules are not for use in dogs with primary hepatic or renal disease, or in pregnant dogs. Refer to the prescribing information for complete details or visit [www.dechra-us.com](http://www.dechra-us.com).

To order, please contact your Dechra representative or call (866) 683-0660.  
For full prescribing information please visit [www.dechra-us.com](http://www.dechra-us.com).

24-hour Veterinary Technical Support available (866) 933-2472.  
Nonurgent Technical Support available via email [support@dechra.com](mailto:support@dechra.com).

CAUTION: Federal law restricts this drug to use by or on the order of licensed veterinarian. Vetoryl is a registered trademark of Dechra Limited. Dechra is a registered trademark of Dechra Pharmaceuticals PLC.

  
**Dechra**  
Veterinary Products

## VETORYL® CAPSULES (trilostane)

5 mg, 10 mg, 30 mg, 60 mg and 120 mg strengths  
Adrenocortical suppressant for oral use in dogs only.

**BRIEF SUMMARY** (For Full Prescribing Information, see package insert.)

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

**DESCRIPTION:** VETORYL Capsules are an orally active synthetic steroid analogue that blocks production of hormones produced in the adrenal cortex of dogs.

**INDICATION:** VETORYL Capsules are indicated for the treatment of pituitary- and adrenal-dependent hyperadrenocorticism in dogs.

**CONTRAINDICATIONS:** The use of VETORYL Capsules is contraindicated in dogs that have demonstrated hypersensitivity to trilostane. Do not use VETORYL Capsules in animals with primary hepatic disease or renal insufficiency. Do not use in pregnant dogs. Studies conducted with trilostane in laboratory

animals have shown teratogenic effects and early pregnancy loss.

**WARNINGS:** In case of overdosage, symptomatic treatment of hypoadrenocorticism with corticosteroids, mineralocorticoids and intravenous fluids may be required. Angiotensin converting enzyme (ACE) inhibitors should be used with caution with VETORYL Capsules, as both drugs have aldosterone-lowering effects which may be additive, impairing the patient's ability to maintain normal electrolytes, blood volume and renal perfusion. Potassium sparing diuretics (e.g. spironolactone) should not be used with VETORYL Capsules as both drugs have the potential to inhibit aldosterone, increasing the likelihood of hyperkalemia.

**HUMAN WARNINGS:** Keep out of reach of children. Not for human use. Wash hands after use. Do not empty capsule contents and do not attempt to divide the capsules. Do not handle the capsules if pregnant or if trying to conceive. Trilostane is associated with teratogenic effects and early pregnancy loss in laboratory animals. In the event of accidental ingestion/overdose, seek medical advice immediately and take the labeled container with you.

**PRECAUTIONS:** Hypoadrenocorticism can develop at any dose of VETORYL Capsules. A small percentage of dogs may develop corticosteroid withdrawal syndrome within 10 days of starting treatment. Mitotane (o,p'-DDD) treatment will reduce adrenal function. Experience in foreign markets suggests that when mitotane therapy is stopped, an interval of at least one month should

elapse before the introduction of VETORYL Capsules. The use of VETORYL Capsules will not affect the adrenal tumor itself. Adrenalectomy should be considered as an option for cases that are good surgical candidates. The safe use of this drug has not been evaluated in lactating dogs and males intended for breeding.

**ADVERSE REACTIONS:** The most common adverse reactions reported are poor/reduced appetite, vomiting, lethargy/dullness, diarrhea, elevated liver enzymes, elevated potassium with or without decreased sodium, elevated BUN, decreased Na/K ratio, weakness, elevated creatinine, shaking, and renal insufficiency. Occasionally, more serious reactions, including severe depression, hemorrhagic diarrhea, collapse, hypoadrenocortical crisis or adrenal necrosis/rupture may occur, and may result in death.

  
**VETORYL® CAPSULES**  
(trilostane)

Distributed by: **Dechra Veterinary Products**  
7015 College Boulevard, Suite 525, Overland Park, KS 66211

VETORYL is a trademark of Dechra Ltd. © 2015, Dechra Ltd.

NADA 141-291, Approved by FDA

01AD-VET50167-0419





## Putting a spotlight on dvm360's new Spotlight Series

Sometimes the *whole* story can't be told in *one* story. You need a variety of sharp perspectives, actionable advice and a path forward on a fascinating or stressful topic in the veterinary profession. That's where the dvm360 Spotlight Series come in. Check out more for this one at [dvm360.com/shortage](http://dvm360.com/shortage):

> **Can't find an associate? Adopt these three hiring strategies right now**  
*Veterinary recruiting is as intensely competitive as it's ever been. Step up your game or get left in the dust.*

> **Veterinary recruiting: How one hospital group makes it work.** *O'Brien Veterinary Group invests in the long game and the short game to fill its need for DVMs.*

Watch for more Spotlight Series in future issues of dvm360 and our sister magazines *Firstline* and *Vetted*.

*"My clinic offered me a very structured mentoring plan that eased my qualms, as it was mutually understood I would need time to learn the flow of the practice and the platforms used."* —Jessi Farris, DVM, '17 grad

Program (SNAP) in Houston for about a year. Although the high-volume surgery practice has made a few offers, the positions remain unfilled.

Melissa Wells, CVPM, has been trying to fill an open associate position at Coats Veterinary Hospital, a four-doctor practice in eastern North Carolina, since October. She interviewed three young veterinarians during that time and made offers to two of them. "One candidate declined because the practice was not offering ownership possibilities, and the other because she received an offer considerably higher than Coats' initial offer," Wells says.

Both Pursell and Victoria Travis, MS, CPC, owner of Travis Veterinarian Recruiting, say starting salaries in the range of \$75,000 to \$110,000 are not uncommon. "The lowest offer I recall recently was \$85,000," Pursell says, "and we have seen some [new veterinarians] get six, eight or 10 job offers," she adds.

### What do associates want?

In light of the tremendous debt saddling new graduates, salary is certainly an important consideration. Other monetary benefits that are helping some practices entice qualified candidates include full healthcare and dental coverage, sign-on bonuses, relocation packages, matching 401(k) or IRA plans, paid time off, and a stipend for continuing education (CE).

Among the reasons Dr. Hirsch believes SNAP is having such difficulty finding associates is the glut of available jobs and the slightly lower compensation the nonprofit offers. "Although we're fairly competitive with salary and benefits, we can't offer signing bonuses, relocation reimbursement or other perks that private and corporate practices can afford to offer," she says.

But it's not all about the money. Not by a long shot. For many younger veterinarians, factors such as practice culture, work-life balance and mentorship are crucial.

Travis recently worked with a new grad who turned down an offer in excess of six figures. Her reason? "When she asked the staff if they were happy

working there, she got very lukewarm responses," Travis recalls. "That veterinarian chose a position with a lower salary that offered a collaborative team, buy-in potential down the road and a slower pace."

Like many other new grads, Dr. Farris was looking for a job with a team of veterinarians who would help guide and support her through the first few months of practice. She also wanted clients who allowed her to practice the standard of medicine she learned in school, such as dental radiographs with every oral procedure and routine blood work as part of wellness exams. Also important to her was balance: "I was happy to work longer days for the occasional three-day weekend," she says.

For Dr. Guinco, the signing bonus, mentorship plan and money for CE were appealing, but not her sole reasons for accepting the position at Red Bank. "I knew that I wanted to work as an emergency veterinarian, and after completing my internship I knew that I wanted to be in a facility that has multiple specialties where I can learn and develop as a veterinarian," she says.

Today's younger veterinarians see every job as an opportunity for growth, both personally and professionally. "We want to feel like we are making a difference and are able to grow in our roles, and for that mentorship is key," Dr. Farris says. "My clinic offered me a very structured mentoring plan that eased my qualms, as it was mutually understood I would need time to learn the flow of the practice and the platforms used. I was also encouraged to build up our social media presence, which allowed me to develop a new skill that added unique value to the hospital."

Culture is another key factor for attracting and retaining associates. "There are inherent stresses in our profession, so any toxicity in the workplace amplifies this stress and erodes the overall morale and productivity of associates," Dr. Farris says. "A successful culture allows employees to enjoy their work."

Travis believes the No. 1 attribute of a great practice is a happy staff. "When

owners and hospital managers/administrators understand and value their staff and show it through education, training and flexible work schedules, the staff feels like family," Travis says. "Just throwing money or giant relocation packages at candidates doesn't do it."

Cultural fit is a consideration that cuts both ways, says Dr. Hirsch. "You spend a lot of time at work, so you want it to be pleasant for everyone," she says. "We've chosen not to make offers to some qualified candidates who didn't seem like the right fit for our practice, and I'm sure candidates have turned down offers for the same reason."

For his part, Dr. Hodges started doing relief work after graduation to explore his options before committing to full-time employment. Relief work was a way to "try out" practices before signing on, he says, but he found that many places would not have been a good fit. "Sometimes it was due to an individual person," he says. "Other times the culture of the practice simply was not welcoming or progressive enough."

### So what's a practice to do?

New grads bring a lot to the table, from their knowledge of new medicine to their fresh ideas and outlook, notes Wells. "They tend to have lots of energy, and they're not burnt out like more seasoned docs might be," she says.

That's why it's so important to consider the needs of younger veterinarians in the hiring process. Coats Veterinary Hospital offers a flexible schedule, with doctors averaging 36 to 37 hours a week. "We need to give young vets what motivates them—mentorship, collaboration, a positive culture and work-life balance," Wells says.

To attract candidates, Travis says, practices have to seem like a place where someone wants to work. "Practice owners can do this by making their job postings friendly, warm, professional and fun," Travis advises. "If you post only a basic job description, candidates are not going to be attracted to working with you, regardless of location or salary."

Also think about offering benefits that send a message to candidates that employee well-being is important. "My generation does not get as much satisfaction from our work as older generations did," Dr. Hodges says. "We get a lot more from our community. So gym memberships, cleaning services for our homes and paying for organizations we want to be part of are more important."

month after graduation and will continue working there after her internship.

Self-employed emergency relief veterinarian William Hodges, DVM, a 2014 graduate of Texas A&M University College of Veterinary Medicine who works in North Carolina, says he could probably get a full-time job at almost every practice he works with. "The market is open to me right now," he says. "Many of the practices where I work actively try to hire me full time."

Life is not quite so rosy from the practice perspective, says Chaya Hirsch, DVM, who has been trying to hire associates for the Spay Neuter Assistance



# dvm360 adds Atlantic City veterinary show

ACVC follows MJH Associates' recent acquisition of media assets from UBM Life Sciences Group.

**M**JH Associates Inc. (MJH)—a leading independent full-service healthcare education, market research and multichannel medical communications company—recently acquired media assets from the UBM Life Sciences Group (part of Informa plc and, before that, UBM plc), including its market-leading dvm360 brands: dvm360.com, dvm360 magazine, *Vetted*, *Firstline* and the Fetch dvm360 conferences. With this acquisition, dvm360 is now part of the MultiMedia Healthcare Group and will add the Atlantic Coast Veterinary Conference (ACVC) to its portfolio.

“We are excited to add the Atlantic Coast Veterinary Conference to our Rolodex of leading educational veterinary conferences across the country. We look forward to using *American Veterinarian's* assets along with ours to continue to propel this conference further,” says Tom Ehardt, president of MultiMedia Healthcare Group.

In the veterinary space, the dvm360 group plans to blend *American Veterinarian* assets into its portfolio by leveraging key strengths to support dvm360's No. 1 readership and engagement position. This follows the addition of the Atlantic Coast Veterinary Conference to the list of premier conferences. ACVC will take place Oct. 14 to 17 at the Atlantic City Convention Center in New Jersey.

ACVC, now in its 30th year, is a four-day event that offers over 200 hours of RACE-approved veterinary CE. Attendees have access to more than 200 exhibitors and many opportunities to network and collaborate with their peers. For more information and to register for early bird pricing through July 4, visit [acvc.org](http://acvc.org).



## Why treat just the signs of canine osteoarthritis when you can proactively treat the disease?

Only Adequan® Canine (polysulfated glycosaminoglycan) empowers you to proactively treat the disease and not just the signs of canine osteoarthritis (OA). In fact, it's the only FDA-approved injectable, disease-modifying osteoarthritis drug (DMOAD) that inhibits cartilage loss in a dog's joint.\* It may also help to:<sup>1</sup>

- **restore** joint lubrication
- **relieve** inflammation
- **renew** the building blocks of healthy cartilage

\*The specific mechanism of action of Adequan® in canine joints is not known. Discover if Adequan® Canine is the right choice for your patients.

The difference between feeling better and getting better.™  
Visit [adequancanine.com](http://adequancanine.com) or contact your distributor.

 **Adequan® Canine**  
polysulfated glycosaminoglycan®

**INDICATIONS** Adequan® Canine is recommended for intramuscular injection for the control of signs associated with non-infectious degenerative and/or traumatic arthritis of canine synovial joints.

**IMPORTANT SAFETY INFORMATION** Adequan® Canine should not be used in dogs who are hypersensitive to PSGAG or who have a known or suspected bleeding disorder. It should be used with caution in dogs with renal or hepatic impairment. Adverse reactions in clinical studies (transient pain at injection site, transient diarrhea, and abnormal bleeding) were mild and self-limiting. In post approval experience, death has been reported in some cases; vomiting, anorexia, depression/lethargy and diarrhea have also been reported. The safe use of PSGAG in breeding, pregnant or lactating dogs has not been evaluated. Please see Full Prescribing Information at [adequancanine.com](http://adequancanine.com).

1. Adequan Canine Prescribing Information, Rev. 1/18.  
Adequan and the Dog Head design are registered trademarks of American Regent, Inc.  
© 2019, American Regent, Inc. PP-AC-US-0061 11/2018



# René Carlson, former AVMA president, dies

In addition to practicing for 30 years in the small rural community she called home, Dr. Carlson played a major role on the international veterinary medicine stage.

**R**ené Carlson, DVM, former president of the American Veterinary Medical Association (AVMA) and World Veterinary Association (WVA), died peacefully at her home in Chetek, Wisconsin, in March, the AVMA reports.

“René was an exceptional leader and voice for our profession,” says AVMA president John de Jong, DVM, in a press release from the organization. “I will always remember her positive energy, her humility and her love of her husband, the AVMA and the profession.”

In her own words on the WVA website, Dr. Carlson said she has “enjoyed broad experiences within the veterinary medical profession both in private practice and as a leader of organized veterinary medicine.”

A lifelong member of the AVMA,



Dr. René Carlson

She also served as a member of the House of Delegates, in the Council on Education and, most recently, as director of international affairs, a post she held from 2013 to 2016.

After graduating from the University of Minnesota College of Veterinary Medicine in 1978, Dr. Carlson worked for nearly two decades as an associate veterinarian in several Wisconsin practices. In 1996 she opened her own small animal private practice in Chetek,

Wisconsin, chosen in 2000 as a Veterinary Economics Practice of Excellence. At the 2018 AVMA Convention in Denver, Dr. Carlson was bestowed with a lifetime honorary membership in the WVA and awarded the AVMA’s Global Veterinary Service Award for promoting veterinary medicine on the worldwide stage.

In addition to her mentorship of young veterinarians, Dr. Carlson also enjoyed sailing, birdwatching, cross-country skiing, bicycling and reading.

She is survived by her husband, Mark Carlson, DVM.

Memorial contributions in Dr. Carlson’s name may be sent to the American Veterinary Medical Foundation, the Chetek Lutheran Church or the University of Minnesota, which will be establishing a scholarship in Dr. Carlson’s name.

## UC Davis tops list of veterinary school rankings for second time

*U.S. News and World Report* releases school list every four years.

**R**eceiving a 4.7 out of a possible 5, the University of California, Davis, School of Veterinary Medicine has topped the list of best veterinary schools in the nation for a second time, according to a list published by *U.S. News and World Report*.

In 2015, the last time the schools were ranked, the organization faced criticism for its methodology, which remained the same for the current list. Schools that participated were scored on academic quality by peer assessment surveys sent to deans and other administrators on a scale from 1 (marginal) to 5 (outstanding), and scores were then averaged. If a respondent didn’t know

enough about the program to judge it, they were instructed to reply “don’t know,” according to the magazine.

“The continued recognition of UC Davis as the national leader in veterinary medicine is a tribute to the reputation of our exceptional people and programs that advance the health of animals, people and our planet,” says the school’s dean, Michael D. Lairmore, DVM, PhD, in a university release.

Here are the top 10 veterinary schools as listed in the magazine:

1. University of California, Davis | 4.7
2. Cornell University in Ithaca, New York | 4.4

3. Colorado State University in Fort Collins, Colorado | 4.2
4. **Tie:** North Carolina State University in Raleigh, North Carolina; The Ohio State University in Columbus, Ohio; Texas A&M University, College Station in College Station, Texas; University of Pennsylvania in Philadelphia, Pennsylvania | 3.9
8. University of Wisconsin, Madison in Madison, Wisconsin | 3.8
9. University of Florida in Gainesville, Florida | 3.6
10. **Tie:** University of Georgia in Athens, Georgia; University of Minnesota, Twin Cities, in St. Paul, Minnesota | 3.5



**Questioning methods**  
U.S. News and World Report defended its method of scoring veterinary schools back in 2015. Read what they said at [dvm360.com/usnews](http://dvm360.com/usnews).



# A closer look at



## Duralactin®

*The inflammation tamer*

### **Whole Body Health Means Managing Inflammation**

Canine health problems such as joint pain have many causes, but a mono-modal approach can be incomplete. Managing joint health often involves the use of pharmacological therapies and nutritional supplements to reduce pain and inflammation, as well as to strengthen cartilage and connective tissue. That's why Duralactin products should be part of your treatment plan in canines with joint issues including other inflammatory-related conditions.

### **Duralactin products are different**

In choosing a multi-modal approach to controlling inflammation, the patented and documented technology in Duralactin differentiates itself. Only Duralactin products contain MicroLactin® to support joint health and help tame inflammation.

#### **SATISFACTION GUARANTEED**

Duralactin® products come with a risk-free, 100% money-back guarantee. If your clients are not completely satisfied with any of the products, they are eligible for a refund or product replacement.



To find out more about Duralactin products to help tame inflammation and maintain joint health, contact your sales representative or visit [duralactin.com](http://duralactin.com).

This product has not been approved by the FDA nor is it intended to diagnose, treat, cure, or prevent any disease. Should only be used through consultation of a veterinarian and in conjunction with an overall wellness program.

MicroLactin is a registered trademark of Stolle Milk Biologics, Inc. Duralactin is a registered trademark of Pegasus Laboratories, Inc. ©2019 PRN Pharmacal, Inc. All rights reserved.

DURA-0419-47

800-874.9764  
UniversityPRN.com  
CE as needed, when needed.







— Dr. W. Chase Coale III,  
Greater Annapolis Veterinary Hospital.  
NVA partner since 2016.





# What's your vision for the future of your business?

## 3 Questions to ask as you enter discussions with potential partners.

### NO. 01

#### Is it the right culture fit for your team?

As you begin considering your options for selling your pet hospital business, it's important to find a partner aligned with your values, respectful of the individuality of what you've built, and equipped to grow your business, while your team and culture remain intact.

Ask around to find out which buyers have the best reputation for caring for pets and the people who love them.

### NO. 02

#### Are there flexible deal structures?

Because selling your pet hospital is such a personal decision, you'll want to understand what types of options are available, and to what level they can tailor the terms to meet your needs.

##### **ASK IF THE BUYER CAN:**

- Make all cash offers with no finance contingency
- Offer Joint Venture partnerships for growth and flexibility
- Buy the real estate outright or lease from you

### NO. 03

#### How comprehensive are the support services?

As you contemplate transitioning your business, you'll want to know every aspect is covered. Seek out a partner with a dedicated team seasoned in marketing (including digital advertising and social media strategy), web development and hosting, client satisfaction surveys, IT, HR, accounting, taxes, legal and more.

We're confident that we can care for and grow your practice like no one else. We'd be more than happy to talk through your questions. You can reach us at:  
888.767.7755 | [NVA.COM](https://nva.com) | [INFO@NVA.COM](mailto:info@nva.com)

VISIT US AT  
FETCH EAST  
BOOTH #719



'Taxpayer-funded kitten slaughter' to end, USDA says

The Agricultural Research Service (ARS), an arm of the U.S. Department of Agriculture (USDA), announced this week that it has "redirected" its research on toxoplasmosis and will no longer use cats for experimental purposes in any ARS laboratory.

These experiments were the subject of public outcry last year after a media blitz by the White Coat Waste Project (WCW), whose mission is to "stop taxpayer-funded animal experiments," but the research came to a screeching halt following a scathing report released by the group in March. The report stated that nearly 4,000 kittens had been destroyed over the course of the ARS research and that the experimental animals were fed cat and dog meat from overseas in an effort to evaluate the prevalence of *Toxoplasma gondii* in other parts of the world. What's more, the research cost American taxpayers about \$650,000 per year, the report indicated.

The ARS says its toxoplasmosis research, ongoing since 1982, has yielded excellent results, according to a press release: *T. gondii* prevalence has been cut in half in the United States. According to the release, the lab stopped using research kittens in September 2018. The facility's remaining 14 uninfected kittens are available for adoption by employees.



# Just can't get enough: Pet spending reaches (another) all-time high

New numbers on pet expenditures show growth almost across the board, with Americans spending \$72.56 billion in 2018.

According to the American Pet Products Association (APPA), Americans spent \$21 billion on their pets in 1996. A mere two decades later, spending had more than tripled to \$66.75 billion. In 2018 pet owners outspent themselves again, shelling out a whopping \$72.56 billion on pet care and related services, according to an APPA press release, with no signs of slowing down anytime soon.

More money is spent on pet food than any other category, accounting for \$30.32 billion in 2018 (check out Table 1 below). The second-largest category was veterinary care, for which \$18.11 billion was spent, followed closely by pet supplies and OTC medications at \$16.01 billion. Bringing up the rear for 2018 spending were "other" services (such as grooming, boarding, training and pet sitting) at \$6.11 billion and live-animal purchases at \$2.01 billion.

APPA released these figures at the 2019 Global Pet Expo in Orlando, Flor-

ida, in March, including its prediction that pet spending will rise by another 4 percent this year.

Driving the growth are two overriding factors: the humanization of pets and millennial pet parents. The largest pet-owning demographic, millennials are prepared to spend beaucoup bucks for the best-quality products and services to maintain the well-being of their pets. "Today more than ever, pet owners view their pets as irreplaceable members of their families and lives," says APPA president and CEO Bob Vetere in the release.

Aside from the fact that more Americans own pets than ever before—and those pets need to eat—increased spending in the pet food category is thought to be due more to pet owners' desire to feed higher-priced, premium foods than to more food being sold. Vetere says growth in this category will stem from "opportunities ... in specialized diets, the aging

pet population and pets with unique dietary needs." Also contributing to anticipated spending in this category are fresh food options and subscription delivery programs.

At \$18.11 billion, the increased spending on veterinary care in 2018 surpassed growth in any other category. "The frequency of vet visits has likely increased as well," according to the release, "thanks to lower prices, making care more accessible to a broader audience."

**Those millennials ...**  
What's this about Gen Z pet owners spending more on their animals? We look at all the angles on that at [dvm360.com/petowner2point0](https://dvm360.com/petowner2point0).

Table 1: Pet spending: Year-over-year growth

Category	2016 actual	2017 actual	Growth over 2016	2018 actual	Growth over 2017	2019 estimate
Food	\$28.23 billion	\$29.07 billion	2.9%	\$30.32 billion	4.3%	\$31.68 billion
Supplies/OTC medications	\$14.71 billion	\$15.11 billion	2.7%	\$16.01 billion	6.0%	\$16.44 billion
Veterinary care	\$15.95 billion	\$17.07 billion	7.0%	\$18.11 billion	6.1%	\$18.98 billion
Live-animal purchases	\$2.01 billion	\$2.01 billion	0%	\$2.01 billion	-4.3%	\$1.97 billion
Other services	\$5.76 billion	\$6.16 billion	6.9%	\$6.11 billion	-0.8%	\$6.31 billion
Total	\$66.75 billion	\$69.51 billion	4.1%	\$72.56 billion	4.4%	\$75.38 billion



# The chew dogs love.

## *THE SCIENCE YOU CAN TRUST.*



Fight plaque, calculus and halitosis with  
ORAVET® Dental Hygiene Chews - *the only  
chew with the power of delmopinol!*

- Unique dual-action mechanism
- Highly palatable<sup>1</sup>
- Designed to provide an extended chew duration<sup>1</sup>
- Proven technology<sup>1, 2, 3</sup>

### UNIQUE DUAL-ACTION MECHANISM

1. Delmopinol creates a protective barrier against the bacteria that cause bad breath and are the basis for plaque
2. The scrubbing action of the chew works in parallel with the delmopinol to effectively remove plaque and calculus

<sup>1</sup> Data on file.

<sup>2</sup> Data on file.

<sup>3</sup> Data on file.





A pet's well-being is enriched by regular veterinary visits, but is its care complete if you don't take into account all the other pet service professionals in its life? Let's dig into the wild and woolly world of the building down the street: the pet store.

*By Brendan Howard*

**W**hy should you—a veterinarian, practice manager, veterinary technician or other team member—care about pet stores? First, your veterinary clients spend almost as much with them as they do with you. In 2018, the average dog owner spent about \$1,300 on boarding, grooming and pet retail items and about \$1,600 on veterinary products and services, according to the American Pet Products Association (see “What the average pet owner spends” on the facing page).





## OTITIS MANAGEMENT

May 2019

[dvm360.com/otitistoolkit](http://dvm360.com/otitistoolkit)

### Better otitis exams

How to start diagnostics in the waiting room..... 7

### Ear-related anxiety

And how the vet team can be prepared... 7

### Chronic otitis diagnostics and treatment

The clinical consult you've been waiting for..... 10

### Client handouts to the rescue

> Teaching clients to clean dogs' ears  
> 5 facts to fight ear infection fiction..... 15

### New study

Updates on breed predisposition for ear and skin issues..... 16

### Data updates

What pet owners say about their pets' dermatology woes..... 17

### Expert insight

Using the whole team..... 21

### Social media

> Tips from Instagram  
> Prewritten posts to use in practice..... 23

Overcoming the  
**3 biggest obstacles**  
when treating  
**otitis externa**

p3



**CLARO®**

(florfenicol, terbinafine, mometasone furoate)  
Otic Solution



# READY. AIM. CLARO®

Fight canine otitis externa with one big dose of love.  
Claro® (florfenicol, terbinafine, mometasone furoate)  
Otic Solution is the only FDA-approved, single-dose  
treatment administered by you with guaranteed  
compliance and no at-home treatments.



**SPREAD THE LOVE IN YOUR CLINIC.**

**USE CLARO® FOR YOUR MOST  
COMMON OTITIS CASES.**

Claro® is indicated for the treatment of otitis externa in dogs associated with susceptible strains of yeast (*Malassezia pachydermatis*) and bacteria (*Staphylococcus pseudintermedius*).

CAUTION: Federal (U.S.A.) law restricts this drug to use by or on the order of a licensed veterinarian. CONTRAINDICATIONS: Do not use in dogs with known tympanic membrane perforation. CLARO® is contraindicated in dogs with known or suspected hypersensitivity to florfenicol, terbinafine hydrochloride, or mometasone furoate.

**BayerDVM.com/Claro**

©2019 Bayer, Shawnee Mission, Kansas 66201  
Bayer, the Bayer Cross and Claro are registered trademarks of Bayer. CL19207





(florfenicol, terbutaline, mometasone furoate)

Otic Solution

Antibacterial, antifungal, and anti-inflammatory  
For Otic Use in Dogs Only

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

#### DESCRIPTION:

CLARO® contains 16.6 mg/mL florfenicol, 14.8 mg/mL terbutaline (equivalent to 16.6 mg/mL terbutaline hydrochloride) and 2.2 mg/mL mometasone furoate. Inactive ingredients include purified water, propylene carbonate, propylene glycol, ethyl alcohol, and polyethylene glycol.

#### INDICATION:

CLARO® is indicated for the treatment of otitis externa in dogs associated with susceptible strains of yeast (*Malassezia pachydermatis*) and bacteria (*Staphylococcus pseudintermedius*).

#### DOSEAGE AND ADMINISTRATION:

Shake before use.

CLARO® should be administered by veterinary personnel.

Administer one dose (1 dropperette) per affected ear. The duration of effect should last 30 days.

1. Clean and dry the external ear canal before administering the product.
2. Verify the tympanic membrane is intact prior to administration.
3. Remove single dose dropperette from the package.
4. While holding the dropperette in an upright position, remove the cap from the dropperette.
5. Turn the cap over and push the other end of the cap onto the tip of the dropperette.
6. Twist the cap to break the seal and then remove cap from the dropperette.
7. Screw the applicator nozzle onto the dropperette.
8. Insert the tapered tip of the dropperette into the affected external ear canal and squeeze to instill the entire contents (1 mL) into the affected ear.
9. Gently massage the base of the ear to allow distribution of the solution.
10. Repeat with other ear as prescribed.

Cleaning the ear after dosing may affect product effectiveness.

#### CONTRAINDICATIONS:

Do not use in dogs with known tympanic membrane perforation (see PRECAUTIONS). CLARO® is contraindicated in dogs with known or suspected hypersensitivity to florfenicol, terbutaline hydrochloride, or mometasone furoate.

#### WARNINGS:

**Human Warnings:** Not for use in humans. Keep this and all drugs out of reach of children. In case of accidental ingestion by humans, contact a physician immediately. In case of accidental skin contact, wash area thoroughly with water. Avoid contact with eyes. Humans with known hypersensitivity to florfenicol, terbutaline hydrochloride, or mometasone furoate should not handle this product.

#### PRECAUTIONS:

Do not administer orally.

The use of CLARO® in dogs with perforated tympanic membranes has not been evaluated. The integrity of the tympanic membrane should be confirmed before administering the product. Reevaluate the dog if hearing loss or signs of vestibular dysfunction are observed during treatment. Use of topical otic corticosteroids has been associated with adrenocortical suppression and iatrogenic hyperadrenocorticism in dogs (see **ANIMAL SAFETY**).

Use with caution in dogs with impaired hepatic function (see **ANIMAL SAFETY**).

The safe use of CLARO® in dogs used for breeding purposes, during pregnancy, or in lactating bitches has not been evaluated.

#### ADVERSE REACTIONS:

In a field study conducted in the United States (see **EFFECTIVENESS**), there were no directly attributable adverse reactions in 146 dogs administered CLARO®.

To report suspected adverse drug events and/or obtain a copy of the Safety Data Sheet (SDS) or for technical assistance, contact Bayer HealthCare at 1-800-422-9874.

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>.

#### PHARMACOLOGY:

CLARO® Otic Solution is a fixed combination of three active substances: florfenicol (antibacterial), terbutaline (antifungal), and mometasone furoate (steroidal anti-inflammatory). Florfenicol is a bacteriostatic antibiotic which acts by inhibiting protein synthesis. Terbutaline is an antifungal which selectively inhibits the early synthesis of ergosterol. Mometasone furoate is a glucocorticosteroid with anti-inflammatory activity.

#### MICROBIOLOGY:

The compatibility and additive effect of each of the components in CLARO® solution was demonstrated in a component effectiveness and non-interference study. An *in vitro* study of organisms collected from clinical cases of otitis externa in dogs enrolled in the clinical effectiveness study determined that florfenicol and terbutaline hydrochloride inhibit the growth of bacteria and yeast commonly associated with otitis externa in dogs. No consistent synergistic or antagonistic effect of the two antimicrobials was demonstrated. The addition of mometasone furoate to the combination did not impair antimicrobial activity to any clinically significant extent.

In a field study (see **EFFECTIVENESS**), at least 10 isolates from successfully treated cases were obtained for *S. pseudintermedius* and *M. pachydermatis*.

#### EFFECTIVENESS:

In a well-controlled, double-masked field study, CLARO® was evaluated against a vehicle control in 221 dogs with otitis externa. One hundred and forty six dogs were treated with CLARO® and 75 dogs were treated with the vehicle control. All dogs were evaluated for safety. Treatment (1 mL) was administered once on Day 0 to the affected ear(s). Prior to treatment, the ear(s) was cleaned with saline. The dogs were evaluated on Days 0, 7, 14, and 30. Blood work and urinalysis were obtained on Day 0 pre-treatment and Day 30 at study completion. Four clinical signs associated with otitis externa were evaluated: erythema, exudate, swelling, and ulceration. Success was based on clinical improvement at Day 30. Of the 183 dogs included in the effectiveness evaluation, 72.5% of dogs administered CLARO® solution were successfully treated, compared to 11.1% of the dogs in the vehicle-control group ( $p < 0.0001$ ).

#### ANIMAL SAFETY:

In a target animal safety study, CLARO® was administered orally to 12-week-old Beagle puppies (4 dogs/sex/group) at DX, 1X, 3X, and 5X the recommended dose once every 2 weeks for a total dosing period of 28 days (5 times the treatment duration). No clinically relevant treatment-related findings were noted in hearing tests, body weight, weight gain, or food consumption. CLARO® administration was associated with post-treatment ear wetness or clear auricle exudate, increased absolute neutrophil count, decreased absolute lymphocyte and eosinophil counts, suppression of the adrenal cortical response to ACTH-stimulation, decreased adrenal weight and atrophy of the adrenal cortex, increased liver weight with hepatobiliary enlargement/proliferative change and decreased thymus weight. Other potentially treatment-related effects included mild changes to AST, total protein, inorganic phosphorus, creatinine, and calcium.

#### STORAGE INFORMATION:

Store between 20°C – 25°C (68°F – 77°F); excursions are permitted 15°C – 30°C (59°F – 86°F).

#### HOW SUPPLIED:

CLARO® solution is supplied in a single-use dropperette in a blister. Each dropperette contains one 1 mL dose.

CLARO® is available in cartons of two, ten, or twenty dropperettes.

Manufactured for  
Bayer HealthCare LLC, Animal Health Division  
P.O. Box 390 Shawnee Mission, Kansas 66201 USA.  
Bayer, the Bayer Cross and CLARO are registered trademarks of Bayer

© 2018 Bayer

NADA 141-440, Approved by FDA  
LV1802

**Bayer**



# Overcoming the 3 biggest obstacles when treating otitis externa

Treating otitis can sometimes feel as comically hopeless as an overexcited puppy trying to complete an obstacle course. Ooof, right? In the pages that follow, two experts offer practical advice to overcome treatment obstacles and achieve top-dog status in the eyes of clients.



**Y**ou know the drill: You start off great—it's an easy case of traditional otitis externa. And then ... you and the pet owner circle around the ear cleaning drill a little. And then... you find out the patient's shaken most of the medication out of its ears. And then... you're in the endless tunnel of scheduling a recheck appointment.

Since canine otitis externa is a such common presentation in general veterinary practice, you can't just throw your hands in the air and call it a day. Most experts agree that treatment failure usually results from insufficient ear cleaning, improper or inadequate treatment and poor client compliance—a veritable obstacle course of potential pitfalls. Let's break it down.

### **Obstacle No. 1: Insufficient ear cleaning**

Healthy ears are self-cleaning, but diseased ears are

not. That's why thorough ear cleaning is one of the keys to successful treatment, says James Noxon, DVM, DACVIM. "Without a thorough cleaning, any topical medication is less likely to be effective," he says. Thoroughly cleaning the ear helps to remove purulent discharge, debris and biofilm that may block movement of the medication into the horizontal canal.

In patients with proliferative, end-stage OE, it can be very difficult to get cleansers deep into the ear canal, says Craig Griffin, DVM, DACVD. To achieve this when a dog is anesthetized, he advises, use a 3-mm otoscope cone to dilate the ear and place the cone as far into the canal as possible. "You can pass an ear loop down the canal just past the tip of the cone and then fill the cone with cleanser and slowly pull the cone out," he says. This allows a layer of cleanser to be deposited on many canal folds as they fall back in place as the cone is removed.

Owners of pets that require multiple in-clinic ear flushes may be reluctant to allow repeated general anesthetic episodes, Dr. Griffin says. Instead, sedatives and analgesics are sometimes used. "In these cases, even though a patient's laryngeal reflex may be present, it can be suppressed, so take precautions to prevent inhalation pneumonia and avoid spreading resistant *Pseudomonas* species and methicillin-resistant *Staphylococcus* species to the lungs," he advises.

Dr. Griffin also notes that any time you flush an ear with a ruptured tympanic membrane in a sedated dog and an endotracheal tube is not in place, the dog's head should be angled down because the flush can go through the auditory tube to the back of the throat and be aspirated. "We raise the racks on the wet table at one end and the dog is positioned in lateral recumbency with its nose at the low end of the rack," he says.



A Sheltie dog with orange and white fur is captured mid-jump, clearing a blue obstacle course. The dog's mouth is open, and its fur is slightly blurred from motion. The background is a blurred outdoor setting with green grass and other people in the distance.

# Obstacle #1

## Insufficient ear cleaning

"Without a thorough cleaning, any topical medication is less likely to be effective."

—Dr. James Noxon





# Obstacle #2

## Improper or inadequate treatment

"Shortsightedness by the veterinarian can lead to insufficient treatment. [We] must prevent relapse or recurrence while searching for the underlying cause."

—Dr. James Noxon

### Obstacle No. 2: Improper or inadequate treatment

Acute ear infections should be addressed aggressively at the first visit, says Dr. Noxon. The infection should not be allowed to become more chronic in nature.

Recheck exams and cytologies are needed to ensure total resolution of the infection. Ear cytology must be performed on initial examination and with each recheck, Dr. Noxon adds. Partially treated infections can become chronic or, worse, resistant to treatment. Some ear infections may require more than 14 days of treatment despite

many medications being labeled for 7- or 14-day regimens, he says.

Dr. Griffin advises extending the ears when cleaning or treating to elongate and straighten the horizontal and vertical canals; there is a small U-shaped "trap" between the canals that may harbor debris. Also vital to success is using sufficient volumes of cleaner and medication. In medium-sized dogs, the ear can hold about 4 to 6 mL; therefore, 1 mL of medication is insufficient.

Shortsightedness by the veterinarian can lead to insufficient treatment. "Veterinarians must prevent relapse or recurrence while

searching for the underlying cause," Dr. Noxon says, as chronic infections are often initiated by parasites, foreign bodies, hypersensitivities, keratinization disorders, or irritant reactions. These inciting causes can then allow disease states to build with problems such as atopy, *Staphylococcus* or *Malassezia* infection, or dry skin, worsening any original problem. Because of these multifaceted disease states, it is important to treat all components involved while educating the client appropriately.

Do not discontinue antiseptic, antibiotic or antifungal topical therapy until





cytologic examination shows no inflammatory cells or DNA strands. It is common for practitioners or clients to discontinue therapy too early, especially if the ear looks reasonably good and there is no obvious odor or discharge. "I see many cases when I think it is time to discontinue treatment, but because of the results of cytologic examination, I continue," Dr. Griffin says. "Be sure to caution owners to expect that, based on cytology, treatment may need to continue despite the ear looking better, and if all is clear they will be pleased and think you—or they—did a better job than expected."

# Practice tip:

## Start otitis exams in the waiting room.

—Darin Dell, DVM, DACVD

Ear appointments can be a real pain in the ... well, ear. The pain, fear and anxiety that often accompanies otitis can cause appointments to go from a cakewalk to chaos quickly. To ensure that ear appointments go as smoothly as possible, try starting the examination in the waiting area. Let's walk through it.

First, receptionists start the process by observing the dog in the waiting area. Then, technicians note behaviors when moving the patient to an exam room. Finally, the veterinarian must watch with a keen eye to pick up on subtle movements and actions in the exam room.

All of this helps the veterinarian ask more specific questions, such as:


- > "Our receptionist, Lauren, noticed that Spot was rubbing his head against the chair in the lobby, then whining. Does he do that at home?"
- > "Our technician, Molly, saw Spot with his head tilted a little and veering off to the side when you came to the exam room—have you seen him do this before?"
- > "I realize that Spot may be nervous today, but he seems to be avoiding your hand when you try to pet his head. Is this a change from his usual behavior?"

Make sure to gather as much information from the client and the patient as you can before the physical exam to avoid stressing out an already stressed-out pup.

### What factors increase ear-related anxiety?

- > **The breed.** If the breed is typically more anxious at the vet, it's likely going to experience anxiety during an ear appointment.
- > **Time spent suffering.** Not only does this include time spent suffering during the current episode, but the time spent suffering between the previous and current episode of otitis.
- > **The owner's anxiety.** Dogs pick up on their owner's anxiety about cleaning or medicating ears.





### **Obstacle No. 3: The client compliance conundrum**

Another fundamental aspect of successful OE treatment is pet owner compliance. And key to the buy-in? "Extensive communication that includes drawings and models helps clients fully understand the severity of the disease and the importance of their role in treating it," Dr. Noxon says.

Be sure the client understands that simply treating the clinical signs will not help the pet; addressing the underlying cause is what's crucial. Dr. Noxon recommends explaining it this way: "There's a what, and there's a why. The what is what's happening right now. If you treat the what and fail to address the why, the what comes back. If you try to treat the why without treating the what, it appears you have treatment failure, because you still have all that stuff on top that covers things up."





## Obstacle #3

### **The client compliance conundrum**

Extensive communication that includes drawings and models helps clients fully understand the severity of the disease and the importance of their role in treating it.



# Chronic otitis in dogs:

The clinical consult  
you have been  
waiting for

The agonizing wait is over. Here, find advice and best practices for diagnosing and treating otitis from veterinary dermatologists around the country.



**C**hronic otitis plagues dogs across the United States—this is nothing new—but good strategies do exist for both veterinary professionals and pet owners to combat the waiting game that is chronic otitis in dogs. We asked veterinary dermatologists from coast to coast to give us their best diagnostic and treatment advice.

### Can you hear me now?

Craig Griffin, DVM, DACVD, says the first thing he does when faced with a dog with chronic otitis is establish whether the dog can hear. If hearing loss seems permanent and irreversible, Dr. Griffin says, then total ear canal ablation and bulla osteotomy become better treatment options. "Hearing loss is the main side effect of these procedures, so if hearing loss were not an issue, I would spend less time and expense trying

medical therapy," he says. "In addition, hearing needs to be assessed before ear flushing and administering topical medications when otitis media is likely."

Dr. Griffin also notes that many owners of dogs with

---

After explaining how to clean a dog's ears, Dr. James Noxon always asks veterinary clients whether they think they can do it at home. Then comes the critical question for those who say yes: "While you're watching their eyes, ask, 'Will you?' Those are different things."

---

fairly apparent hearing loss or deafness are unaware of the issue. "Ask the owner about the pet's response to doors, cars pulling up, and

being called when outside and its ability to localize the sound, as well as whether the pet sleeps soundly and anything else that will help determine whether marked hearing loss has occurred," he says.

When assessing hearing in the examination room, make sounds when the dog is not paying attention to you. It's important to not only see the dog respond to the sound—but also to determine whether it almost immediately localizes where the sound comes from.

### Culture and sensitivity: to test or not to test?

Dermatologist Wayne Rosenkrantz, DVM, DACVD, doesn't conduct culture and sensitivity testing in every case of otitis externa he sees. "I start with my otoscopic and cytologic examinations and my review of the history of medications





previously used to base my decision on whether culture and sensitivity testing is indicated," he says.

Why not? According to Dr. Rosenkrantz, culture and sensitivity testing does not always isolate the entire bacterial population. It also doesn't always yield accurate sensitivity testing depending on the site or level in the ear from where the sample was taken, he notes. "When I do take samples, I like to put a small amount of sterile saline solution in the ear, massage the canal, aspirate a small

amount of the fluid out, and then use this fluid to do my culture and sensitivity testing."

### **The compliance conundrum**

After explaining how to clean a dog's ears, James Noxon, DVM, DACVIM, always asks veterinary clients whether they think they can do it at home. Then comes the critical question for those who say yes: "While you're watching their eyes, ask, 'Will you?' Those are different things," Dr. Noxon says. "If they

won't, I'm not going to be judgmental, but I need to find something else to do."

Dr. Noxon doesn't worry if the question seems rude to pet owners—what's more important is the result. "My reputation is going to be based on whether they do what I asked them to do," he says. "If it fails, who do you think they blame?"

### **Avoid otoscope ouches**

Forcing the otoscope down the ear canal may result in a good view, but it hurts and leaves a red, raw area





in the canal. This makes the animal sensitive and renders everything that's done afterwards more difficult, says Michael Nappier, DVM, DABVP, assistant professor of community practice in the Department of Small Animal Clinical Sciences at the Virginia-Maryland College of Veterinary Medicine in Blacksburg, Virginia. "Instead of ram-rodging the otoscope," he advises, "extend the ear canal with your hand and adjust the canal to the cone, not the other way around."

### The role of corticosteroids

Stephen D. White, DVM, DACVD, professor of medicine and epidemiology at the University of California, Davis School of Veterinary Medicine, says the most common cause of otitis in dogs and cats is an underlying allergy. "It's usually atopic dermatitis or sometimes it's food allergy," he explains. The next most common cause is a severe and difficult-to-clear bacterial infection, such as *Pseudomonas*.

What he notes that veterinarians sometimes don't realize is that even though this is a severe bacterial infection, it's very important to put those dogs on corticosteroids. "We want to reduce inflammation, and steroids will make the dog far more comfortable," he says. If there's swelling of the ear canal, which is common, steroids will reduce that inflammation so the veterinarian has a less painful dog to examine and can do a decent otoscopic exam.



## Choosing a topical treatment

In most cases of infectious otitis externa, topical therapy alone is enough, says Lynette Cole, DVM, MS, DACVD, associate professor and section head of dermatology and otology at The Ohio State University College of Veterinary Medicine. When choosing a topical product, Dr. Cole advises considering the chronicity of the condition, the results of your otic examination, and your otic cytology results. The results of cytologic examination of otic exudate are the basis for your selection of the active ingredient. Keep in mind that ointment- or suspension-based otic preparations may not be as effective as those that are solution- or emulsion-based if the ears

are stenotic or hyperplastic, as may be the case in patients with chronic otitis externa, but they can be used if the ears aren't stenotic or hyperplastic or in patients with acute otitis externa.

Choose first-line topical otic medications for cases of acute or occasional otitis externa, reserving second-line otic medications, such as those containing fluoroquinolones, for cases of bacterial otitis due to *Pseudomonas* species or chronic infections that haven't responded to first-line topical otic antimicrobial products.

## A team effort

When it comes to an otitis diagnosis, Darin Dell, DVM, DACVD, from the Animal Dermatology Clinic in Indianapolis, Indiana,

recommends involving the entire staff. "Receptionists start the process by observing the dog in the waiting area," Dr. Dell says. "Then, technicians note behaviors when moving the patient to an exam room, and the veterinarian must watch with a keen eye to pick up on subtle movements and actions in the exam room." Any clinical signs noted, such as the patient rubbing its head against a chair in the waiting room, give the veterinarian clues for asking the client more specific diagnostic questions.





We developed these educational materials to help your team discuss important topics related to otitis.

## Help clients to be better ear-cleaners

Scan the QR code, right, to download these handouts right now. Then check out [dvm360.com/otitistoolkit](http://dvm360.com/otitistoolkit) for these tools and much more!



## Solid info on ear issues in pets

"All ear infections are the same, so I can use the same medicine that worked the last time."



Why **chocolate** might  
be especially bad for

# Labs' health

*By Maureen McKinney, Associate Editorial Director*





## A recent study found ear and skin disease to be more common in chocolate Labrador retrievers than in black or yellow Labs.

**B**y all accounts, Labrador retrievers make fantastic pets, despite their quirky side (chewing is cute, right?). Smart, playful and devoted, Labs have reigned supreme as the most popular dog breed in the United States since 1991, according to registration statistics from the American Kennel Club.

Like many breeds, Labs are prone to certain health problems, including orthopedic, ophthalmic, endocrinologic and nervous system conditions. But which health problems are the most prevalent? A collaborative study conducted by investigators at the University of Sydney in Australia and the Royal Veterinary College in London addressed this question by examining and comparing the demography, mortality and commonly recorded diseases in Labrador retrievers under veterinary care in the United

Kingdom in 2013, with an eye toward determining whether coat color is associated with disease development.

"This is the first study to include a large number of Labrador retrievers based on records gathered from hundreds of UK vet clinics," said study coauthor Paul McGreevy, BVSc, PhD, MRCVS, MACVS (animal welfare), professor of animal behavior and animal welfare science at the University of Sydney School of Veterinary Science, in a press release about the study. "It provides owners with information on the issues that they should look out for in Labrador retrievers."

### Demographics and mortality

Study data were extracted from the VetCompass database, which includes anonymized demographic and clinical data from

Do you know where your clients get their info when it comes to **their dog's skin issues?**



**54%**  
used online  
sources



**42%**  
asked  
someone

**76% of those:** asked someone at their veterinary practice

**59% of those:** asked friends or family



**39%**  
thought about  
past experiences/  
knowledge



**34%**  
read about it

**42% of those:** read product literature

**37% of those:** read a magazine or newspaper

**33% of those:** read product packaging



**6%**  
saw or heard  
an ad

pets throughout the United Kingdom. Of the 455,557 dogs that received veterinary care in 2013, a total of 33,320 (7.3%) were Labrador retrievers, including 15,427 females (46.4%) and 15,252 males (53.6%), with a collective mean body weight of 33 kg (72.8 lb).

Illness and mortality data elicited from a random sample of 2,074 (6.2%) of these Labradors revealed that 1,277 (61.6%) had at least one recorded disorder and 176 died during the study period. Mortality did not differ significantly between male and female Labs, but neutered dogs lived slightly longer than their intact counterparts (12.5 vs. 11.6 years).

Overall, the most commonly reported conditions in the sampled dogs, in order of prevalence, were ear infections (10.4%), overweight/obesity (8.8%), degenerative joint disease (5.5%), lameness (4.4%) and periodontal disease (4.2%).

The most commonly reported conditions in the sampled dogs, in order of prevalence, were ear

infections (10.4%), overweight/obesity (8.8%), degenerative joint disease (5.5%), lameness (4.4%) and periodontal disease (4.2%).

### **The role of coat color**

Of the three coat colors recorded for Labrador retrievers in VetCompass, black was the most common, at 44.6% of the Lab population; yellow Labs made up 27.8% and chocolate 23.8%. Data analysis

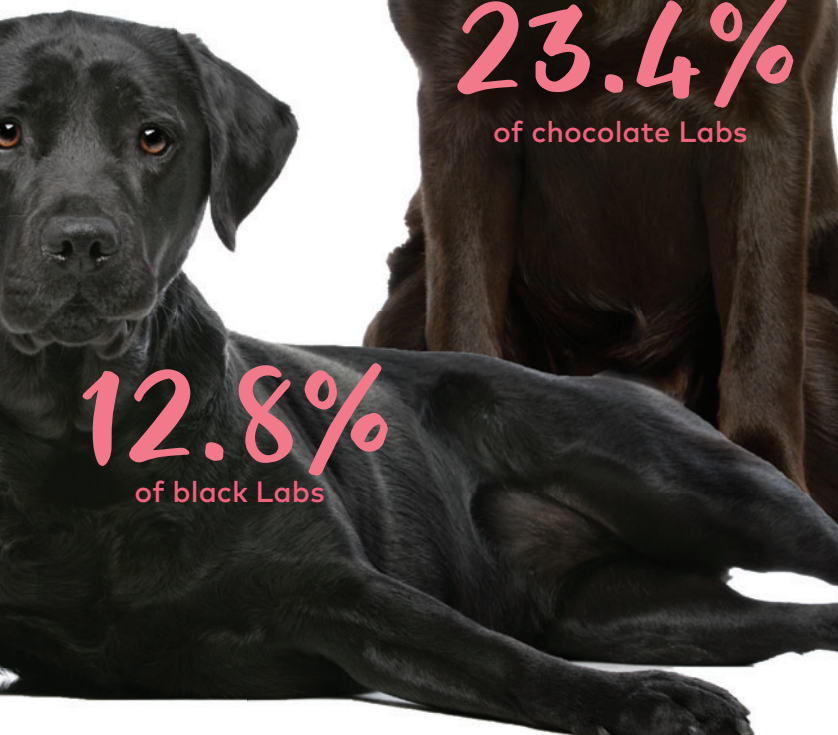
revealed that chocolate Labs are more prone to certain health conditions than black or yellow Labs. The median overall lifespan for all Labrador retrievers in the database was 12 years, but chocolate Labs lived about two years less than non-chocolate Labs (10.7 vs. 12.1 years). The most common causes of death in the 2,074-dog sample were musculoskeletal disorders and cancer.

## **Otitis externa was identified in:**





In particular, chocolate Labs seemed more prone to skin and ear disease. Otitis externa was identified in 23.4% of chocolate Labs, 17.0% of yellow Labs and 12.8% of black Labs. Likewise, the prevalence of pyotraumatic dermatitis in chocolate Labs (4.0%) was more than double that in black and yellow Labs (1.1% and 1.6%).



Percentage of clients you talked to about dermatology in the last week:



60% scheduled because of a **dermatological issue**  
40% scheduled for **preventive care or other reason**

What percentage of clients looking for a dermatological solution end up buying a product from you?

(All, three-quarters, half or quarter?)



6% said a **quarter**  
25% said **half**  
56% said **three-quarters**  
13% said **all**

\*Respondents selected all that applied

SOURCE: PET OWNER PATHS, SPONSORED BY MERCK, UNFENCED, KYNETEC



## “Breeding for color is questionable.”

The authors speculated that the higher number of dermatologic and otic infections in chocolate Labradors may be the result of genetics. “The chocolate Labs were diagnosed with more otitis and much more skin disease,” Professor McGreevy said in an email to dvm360.

“Whether this reflects

compromised immune responses more generally merits further investigation.”

---

“The chocolate Labs were diagnosed with more otitis and much more skin disease. Whether this reflects compromised immune responses more generally merits further investigation.”

— Paul McGreevy,  
BVSC, PHD, MRCVS, MACVS

---

Chocolate color is recessive in dogs, meaning that both parents must carry the gene for chocolate color in order for puppies to be chocolate in color. Breeders targeting for the chocolate coat color may be more likely to use only those Labs that carry the chocolate coat gene, and the resultant reduced gene pool may include a higher proportion of genes involved in ear



and skin conditions. Professor McGreevy's take? "Breeding for color is questionable."

### Study limitations and implications

Despite the large size of the study, it excluded dogs not in the VetCompass database (i.e., those that didn't receive veterinary care in 2013).

In addition, Professor McGreevy noted, the results relied "entirely on the accuracy of practitioners' diagnoses and the details in the patients' electronic medical records." Therefore, the findings may underestimate the true prevalence of disease in this breed. Nevertheless, the data provide a basis for identifying specific health concerns in Labrador retrievers and offer insight into devising campaigns that could improve the overall health and welfare of this beloved breed.

# A moment of insight on otitis

**When everyone on your veterinary team is in the know, you're more likely to solve problems.** *By Andrew Rollo, DVM*

We are re-educating our staff about pillars, or core topics we want all the staff to know. This renewed interest was spurred by an incident concerning a recent case of otitis.

An elderly couple has a cocker spaniel with chronic ear infections, and we have talked endlessly about food allergies and getting to the root of the problem. They don't want to do anything except treat the infection.

At the receptionist meeting yesterday, one of the receptionists said that at checkout this client mentioned how she applies the medication, which is basically at the outer pinnae. She thus discovered that the owner had not been applying the medication appropriately, which she would not have caught until a few weeks ago when she heard my ear care talk.

She was able to step in on the spot and instruct the owner on how to apply the medications appropriately—something that obviously has been lost in translation with myself, the technicians and the owners. So maybe this dog doesn't have underlying allergies and just had an ongoing infection we had never treated to completion. A good example of why you invest in team education.



# Dig into these instant otitis tips from Instagram

We asked our dvm360 Instagram followers for some tips on managing otitis. Lend your ears—or your patients' ears—to these nuggets of advice from your veterinary colleagues.

**Tip 1:** "I place a small amount of cotton in both ears before bathing to help prevent water from accumulating in the horizontal ear canal. After the bath, I remove the cotton and follow up with an ear cleanser that contains a drying agent."

**Tip 2:** "I use cytologic examination to determine whether the infection is primarily yeast or bacteria, and treat accordingly. For example, I prescribe either an antifungal or antibacterial otic flush once a day for seven days, instruct owners to let the ears dry thoroughly for 30 minutes, then apply a combination antifungal/antibacterial/corticosteroid otic suspension twice a day for 10 days."

**Tip 3:** "We prescribe a ceruminolytic flush every other day, and we also combine 15 ml of the flush with 15 ml of a combination antibiotic/antifungal/anti-inflammatory ointment and tell owners to place a small amount in both ears once a day for 10 days."

## Posts & tweets about otitis externa







## Baytril® Otic

(enrofloxacin/silver sulfadiazine)  
Antibacterial-Antimycotic Emulsion

For Otolopical Use In Dogs

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

▶ Federal law prohibits the extra label use of this drug in food-producing animals. ◀

### PRODUCT DESCRIPTION:

Each milliliter of Baytril® Otic contains: enrofloxacin 5 mg (0.5% w/v), silver sulfadiazine (SSD) 10 mg (1.0% w/v), benzyl alcohol (as a preservative) and cetystearyl alcohol (as a stabilizer) in a neutral oil and purified water emulsion. The active ingredients are delivered via a physiological carrier (a nonirritating emulsion).

### MICROBIOLOGY:

In clinical field trials, Baytril® Otic demonstrated elimination or reduction of clinical signs associated with otitis externa and *in vitro* activity against cultured organisms. Baytril® Otic is effective when used as a treatment for canine otitis externa associated with one or more of the following organisms: *Malassezia pachydermatis*, coagulase-positive *Staphylococcus* spp., *Pseudomonas aeruginosa*, *Enterobacter* spp., *Proteus mirabilis*, *Streptococci* spp., *Aeromonas hydrophila*, *Aspergillus* spp., *Klebsiella pneumoniae*, and *Candida albicans*.

### INDICATIONS:

Baytril® Otic is indicated as a treatment for canine otitis externa complicated by bacterial and fungal organisms susceptible to enrofloxacin and/or silver sulfadiazine (see Microbiology section).

### EFFECTIVENESS:

Due to its combination of active ingredients, Baytril® Otic provides antimicrobial therapy against bacteria and fungi (which includes yeast) commonly encountered in cases of canine otitis externa.

### CONTRAINDICATIONS:

Baytril® Otic is contraindicated in dogs with suspected or known hypersensitivity to quinolones and/or sulfonamides.

### HUMAN WARNINGS:

Not for human use. Keep out of the reach of children. Avoid contact with eyes. In case of contact, immediately flush eyes with copious amounts of water for 15 minutes. In case of dermal contact, wash skin with soap and water. Consult a physician if irritation develops or persists following ocular or dermal exposures. Individuals with a history of hypersensitivity to quinolone compounds or antibacterials should avoid handling this product. In humans, there is a risk of user photosensitization within a few hours after excessive exposure to quinolones. If excessive accidental exposure occurs, avoid direct sunlight.

### PRECAUTIONS:

The use of Baytril® Otic in dogs with perforated tympanic membranes has not been evaluated. Therefore, the integrity of the tympanic membrane should be evaluated before administering this product. If hearing or vestibular dysfunction is noted during the course of treatment, discontinue use of Baytril® Otic.

Quinolone-class drugs should be used with caution in animals with known or suspected Central Nervous System (CNS) disorders. In such animals, quinolones have, in rare instances, been associated with CNS stimulation which may lead to convulsive seizures.

Quinolone-class drugs have been associated with cartilage erosions in weight bearing joints and other forms of arthropathy in immature animals of various species.

The safe use of Baytril® Otic in dogs used for breeding purposes, during pregnancy, or in lactating bitches, has not been evaluated.

### ADVERSE REACTIONS:

During clinical trials, 2 of 113 (1.7%) dogs exhibited reactions that may have resulted from treatment with Baytril® Otic. Both cases displayed local hypersensitivity responses of the aural epithelium to some component within the Baytril® Otic formulation. The reactions were characterized by acute inflammation of the ear canal and pinna.

For medical emergencies or to report adverse reactions, call 1-800-422-9874. For customer service or to obtain product information, including Material Safety Data Sheet, call 1-800-633-0736.

### SAFETY:

#### General Safety Study:

In a target animal safety study, Baytril® Otic was administered in both ears of 24 clinically normal beagle dogs at either recommended or exaggerated dosages: 10, 30 or 50 drops applied twice daily for 42 consecutive days. A control group of 8 beagle dogs was treated by administering 50 drops of vehicle in one ear twice daily for 42 consecutive days, with the contralateral ear untreated. Erythema was noted in all groups, including both treated and untreated ears in the controls, which resolved following termination of treatment.

#### Oral Safety Study:

In order to test safety in case of ingestion, Baytril® Otic was administered, twice daily for 14 consecutive days, to the dorsum of the tongue and to the left buccal mucosa of 6 clinically normal dogs. No adverse local or systemic reactions were reported.

#### DOSAGE AND ADMINISTRATION:

Shake well before each use.

Tilt head so that the affected ear is presented in an upward orientation. Administer a sufficient quantity of Baytril® Otic to coat the aural lesions and the external auditory canal. As a general guide, administer 5-10 drops per treatment in dogs weighing 35 lbs. or less and 10-15 drops per treatment in dogs weighing more than 35 lbs. Following treatment, gently massage the ear so as to ensure complete and uniform distribution of the medication throughout the external ear canal. Apply twice daily for a duration of up to 14 days.

Bayer HealthCare, LLC  
Animal Health Division  
Shawnee Mission, Kansas 66201 U.S.A.  
NADA # 141-176, Approved by FDA

©2017 Bayer  
LV1703 20538

Bayer

Help clients understand what could be causing their pet's head-shaking and ear-scratching through social media. Find these tools and many more at [dvm360.com/otitistoolkit](http://dvm360.com/otitistoolkit).



It's a common belief that only droopy-eared dogs get ear infections, but that's not true! Even dogs with pointy ears can get them. [#petsears](#) [#healthypets](#)



Does your dog scratch his ears or shake his head? Is there a discharge or foul odor coming from his ears? If so, he might have an ear infection. Call us today and we'll take a look! [#healthypets](#)



If a dog has had multiple ear infections, the ear anatomy can change and make it more likely for him to get infections in the future. [#healthypets](#)



Ear infections affect 14-20% of dogs. If your dog scratches his ears, shakes his head or has a foul ear odor, he may be one of them. [#healthypets](#)





BLOOD, SWEAT AND

# EARS



## BAYTRIL® OTIC

FEATURING ENROFLOXACIN  
★ WITH SPECIAL GUEST ★  
SILVER SULFADIAZINE

VS

★ THE ★  
PSEUDOMONAS OTTIS OF  
CHARLIE  
"JAWS"  
MALONE

**BAYTRIL® OTIC**  
(ENROFLOXACIN/SILVER SULFADIAZINE)  
ANTIBACTERIAL-ANTIMYCOTIC EMULSION

# FIGHT NASTY

CAUTION: Federal (U.S.A.) law restricts this drug to use by or on the order of a licensed veterinarian. Federal law prohibits the extra label use of this drug in food-producing animals. CONTRAINDICATIONS: Baytril® Otic is contraindicated in dogs with suspected or known hypersensitivity to quinolones and/or sulfonamides.

©2016 Bayer, Shawnee Mission, Kansas 66201  
Bayer, the Bayer Cross and Baytril are registered trademarks of Bayer. B181696

**FIGHTNASTY.COM**



## Treat trouble

The specificity of therapeutic diets has some pet owners nervous about which treat is the right choice, and thoughtful pet retailers can get confused.

"Pet parents are expecting treats now to do more than treat," said one pet store employee who asked to be anonymous. "They want them to match the special diets their pet is on."

What treat would that be? Is this a topic where pet-supply stores and veterinarians could come together to help advise pet owners?



That means your veterinary clients spend a lot of time talking to pet store employees—most of those transactions come with a conversation in the aisle or at the cash register. And these pet store folks can strengthen or weaken your recommendations based on what they know, what they've heard from their sales reps, and what pet owners have reported back about their purchases. (See [dvm360.com/saywhat](http://dvm360.com/saywhat) for some astonishing examples.)

Second, these pet store people are actually a lot like you: doing their best in a competitive market to help pet owners enjoy happier, healthier lives with the animals they share their

search driving retail inventory decisions—but they hear every day about how their offerings work or don't work for pet owners they hope to make repeat customers. And they live and work in the same communities you do, serving a lot of the same individuals.

So have you talked to a pet retailer lately? What, if anything, could they learn from you—and vice versa?

### From a big box

Many pet store owners and employees would love more information from veterinarians about medicine and health, especially preventive care. A thoughtful employee from a big-box pet store (who asked to remain anonymous) recently said her lack of knowledge about what's the right choice for pets—and why—starts with nutrition.

"There is a need for a deeper dive into the nutrients of the foods, treats and supplements, and what the needs of the animals are in the various stages of life," this employee told *dvm360* in an email.

Pet store workers have heard second-hand—sometimes firsthand from veterinarians—that nutrition isn't a major focus in veterinary school. It feels like the world is confused about pet nutrition, and they're caught in the middle.

"Why are there large discrepancies on the 'vet-recommended' products?" asked this employee. "Some vets recommend Blue Buffalo, for instance, and some say absolutely not. I think that a lot of brands have differing formulas for various reasons. The brands should be better at communicating that to retailers and their customers."

It gets even tougher for a pet re-

tailer when pet parents come in with a veterinarian's recommendation for a particular therapeutic diet that's out of their price range. "They're looking to us to recommend or make them feel better about choosing the affordable alternative, even if there isn't one," said the employee.

Many pet store employees acknowledge that a veterinarian's recommendation for a product, service or treatment is often the best solution. But their customers aren't always willing to go to the veterinarian to ask their advice—or even at all. Then what?

"Customers come in looking for [pet store products] to help with the [signs] that are really only helped with [what] the veterinarian has prescribed," this employee told us. "It even happens for wound care products. A lady wanted to buy a splint since her dog was just run over by a car. Poor dog."

**A real retail takeaway:** Could you work with pet retailers to offer a referral discount or free new-client visit so those retailers could nudge their customers to visit a veterinarian?

### From a franchise

There are the giant big-box stores like PetSmart and Petco, and then there are the regional chains that crop up all over the country. Team members at a new franchise location in the Kansas City area agreed that nutrition can be tricky—there's often a disconnect between the veterinarian's recommendation and the pet owner's understanding of that recommendation.

"Some customers come in with a veterinarian's recommendation for less than 300 calories," says team lead Bailey Pruett. "Calorie count can be hard to find [on labels]. And many are 315 calories or higher."

Pruett says her employees will show customers to the diets that veterinarians recommend, and they also carry their own brands, some locally sourced and manufactured.

The pet store is often the first stop for behavior issues as well—customers look for suggestions for indestructible toys if their dog tears them up or a special leash if their dog pulls on walks. Sometimes a product can solve the problem, but often Pruett knows the customer needs to visit a veterinarian.

One woman, for example, came in complaining that her dog was chewing on its feet. Pruett recommended

## What the average pet owner spends ...

### At the veterinarian

- > \$474 surgical veterinarian visits
- > \$349 emergency veterinarian visits
- > \$257 routine veterinarian visits
- > \$204 sick veterinarian visits
- > \$132 other medications
- > \$102 heartworm medication
- > \$85 medicated flea- and tick-control products

**\$1,603 total**

### At the pet retailer

- > \$322 kennel
- > \$235 food
- > \$104 other expenses
- > \$86 carriers
- > \$84 groomer/grooming aids
- > \$72 food treats
- > \$71 other supplies
- > \$62 cages/crates
- > \$58 vitamins/supplements
- > \$47 toys
- > \$43 bed
- > \$35 harnesses/halters
- > \$27 books/videos
- > \$25 nonmedicated shampoos/conditioners
- > \$23 leashes
- > \$21 nonmedicated collars

**\$1,315 total**

Source: 2018 estimates from American Pet Products Association

*Many pet store employees acknowledge that a veterinarian's recommendation for a product, service or treatment is often the best solution.*

homes with. In some cases, these pet retailers have decades of experience helping customers manage basic nutrition, behavior and lifestyle issues for their pets. Sure, it's anecdotal—not a lot of double-blinded, peer-reviewed re-



that the pet might have allergies and need to see the doctor. The customer, however, wasn't interested—she just wanted an over-the-counter bitter spray or a bitter-flavored bandage to deter the behavior.

"I say, 'Maybe you should see a vet,'" Pruett says. "Depends on the person whether they do."

*There's often a disconnect between the veterinarian's recommendation and the pet owner's understanding of that recommendation.*

**A real retail takeaway:** Could it be worth your time to share jargon-free information with pet store owners or employees the same way you educate your clients? Sales reps do lunch-and-learns with pet stores just like they do with you. Could you host a lunch-and-learn for a local pet store?

**From a family-owned fixture**

The landscape is littered with big-box stores and retail chains, but the folks closest to the heart and entrepreneurial spirit of the veterinary practice owner are the independent pet store owners. We found a family-owned local fixture (since 1976) a few miles from big-box and franchised chains.

Greg Smith and sister Andi Smith are the second generation to run a suburban-Kansas City pet store with an "indoor zoo"—yes, you can check out puppies, birds, fish, reptiles, small mammals, arachnids and insects for sale alongside capuchin monkey Frankie (not for sale). Many of the owners and employees have 20 or more years' experience in the business.

"With four of us, we've got more than 150 years of pet store experience right here," says Greg. Each team member has a special interest in one of the species sold, and they offer client handouts from a pet store group for their website and their in-store education.

And they don't think about veterinarians much, says Andi.

"[Customers] don't say, 'Well, my vet told me ...'" she says, even though there's a veterinary clinic a few doors down and another treats sick store animals. But when the issue touches on anything medical, "Food is the biggest issue I've ever heard," she says.



That food aisle is hers, lined up in order of her preference and perceived customer satisfaction. A fisherman shows up on the bag of her favorite brand at the head of the aisle, and temporary diets she recommends for finicky puppies and working dogs (not fancy, but nutritious) are at the end.

Lining other aisles are topical products for itchy skin and ears, nearly invincible toys and an array of leashes. Sensitive to the dangers of retractable leashes, Greg tries to talk customers out of them, and he's sometimes successful. This may be the only behavior education his customers will get, as some of them visit the veterinarian seldom or not at all.

**A real retail takeaway:** Do you know what local pet stores sell to your clients and why? Would a walk through a few stores help you get a





They already have a lot to remember.  
Give them **one less thing to forget.**



**No matter how busy life gets, at least you'll know your patients are protected from fleas & ticks with BRAVECTO®**

Prescription-only BRAVECTO provides **up to 12 weeks\*** of extended protection against fleas & ticks with just one dose. Good for **patients**, good for **compliance**, good for your **practice**.

**Ask your Merck Animal Health Rep about BRAVECTO or Visit [Bravetovets.com](http://Bravetovets.com)**

\*BRAVECTO kills fleas and prevents flea infestations for 12 weeks. **BRAVECTO Chew** kills ticks (black-legged tick, American dog tick, and brown dog tick) for 12 weeks and also kills lone star ticks for 8 weeks.

#### **Important Safety Information**

**BRAVECTO Chews for Dogs:** The most common adverse reactions recorded in clinical trials were vomiting, decreased appetite, diarrhea, lethargy, polydipsia, and flatulence. Bravecto has not been shown to be effective for 12-weeks' duration in puppies less than 6 months of age. Bravecto is not effective against lone star ticks beyond 8 weeks after dosing. **Please see Prescribing Information on page.22**

**BRAVECTO®**  
(FLURALANER)

*Also available as a topical application.*





Flavored chews for dogs.

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

**Description:**  
Each chew is formulated to provide a minimum dose of 11.4 mg/lb (25 mg/kg) body weight.

The chemical name of fluralaner is (±)-4-[5-(3,5-dichlorophenyl)-5-(trifluoromethyl)-4,5-dihydroisoxazol-3-yl]-2-methyl-N-[2-oxo-2-(2,2,2-trifluoroethylamino) ethyl]benzamide.

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

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

**Dosage and Administration:**  
Bravecto should be administered orally as a single dose every 12 weeks according to the **Dosage Schedule** below to provide a minimum dose of 11.4 mg/lb (25 mg/kg) body weight.

Bravecto may be administered every 8 weeks in case of potential exposure to *Amblyomma americanum* ticks (see **Effectiveness**).

Bravecto should be administered with food.

**Dosage Schedule**

Body Weight Ranges (lb)	Fluralaner Content (mg)	Chews Administered
4.4 – 9.9	112.5	One
>9.9 – 22.0	250	One
>22.0 – 44.0	500	One
>44.0 – 88.0	1000	One
>88.0 – 123.0*	1400	One

\*Dogs over 123.0 lb should be administered the appropriate combination of chews  
Treatment with Bravecto may begin at any time of the year and can continue year round without interruption.

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

**Warnings:**  
Not for human use. Keep this and all drugs out of the reach of children. Keep the product in the original packaging until use, in order to prevent children from getting direct access to the product.

Do not eat, drink or smoke while handling the product. Wash hands thoroughly with soap and water immediately after use of the product.

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

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

**Percentage of Dogs with Adverse Reactions in the Field Study**

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

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

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

**Clinical Pharmacology:**  
Peak fluralaner concentrations are achieved between 2 hours and 3 days following oral administration, and the elimination half-life ranges between 9.3 to 16.2 days. Quantifiable drug concentrations can be measured (lower than necessary for effectiveness) through 112 days. Due to reduced drug bioavailability in the fasted state, fluralaner should be administered with food.

**Mode of Action:**  
Fluralaner is for systemic use and belongs to the class of isoxazoline-substituted benzamide derivatives. Fluralaner is an inhibitor of the arthropod nervous system. The mode of action of fluralaner is the antagonism of the ligand-gated chloride channels (gamma-aminobutyric acid (GABA)-receptor and glutamate-receptor).

**Effectiveness:**  
Bravecto began to kill fleas within two hours after administration in a well-controlled laboratory study. In a European laboratory study, Bravecto killed fleas and *Ixodes ricinus* ticks and reduced the numbers of live fleas and *Ixodes ricinus* ticks on dogs by >98% within 12 hours for 12 weeks. In a well-controlled laboratory study, Bravecto demonstrated 100% effectiveness against adult fleas 48 hours post-infestation for 12 weeks. In well-controlled laboratory studies, Bravecto demonstrated ≥93% effectiveness against *Dermacentor variabilis*, *Ixodes scapularis* and *Rhipicephalus sanguineus* ticks 48 hours post-infestation for 12 weeks. Bravecto demonstrated ≥90% effectiveness against *Amblyomma americanum* 72 hours post-infestation for 8 weeks, but failed to demonstrate ≥90% effectiveness beyond 8 weeks.

In a well-controlled U.S. field study, a single dose of Bravecto reduced fleas by ≥99.7% for 12 weeks. Dogs with signs of flea allergy dermatitis showed improvement in erythema, alopecia, papules, scales, crusts, and excoriation as a direct result of eliminating flea infestations.

**Palatability:** In a well-controlled U.S. field study, which included 559 doses administered to 224 dogs, 80.7% of dogs voluntarily consumed Bravecto within 5 minutes, an additional 12.5% voluntarily consumed Bravecto within 5 minutes when offered with food, and 6.8% refused the dose or required forced administration.

**Animal Safety:**  
*Margin of Safety Study:* In a margin of safety study, Bravecto was administered orally to 8- to 9-week-old puppies at 1, 3, and 5X the maximum label dose of 56 mg/kg at three, 8-week intervals. The dogs in the control group (0X) were untreated.

There were no clinically-relevant, treatment-related effects on physical examinations, body weights, food consumption, clinical pathology (hematology, clinical chemistries, coagulation tests, and urinalysis), gross pathology, histopathology, or organ weights. Diarrhea, mucoid and bloody feces were the most common observations in this study, occurring at a similar incidence in the treated and control groups. Five of the twelve treated dogs that experienced one or more of these signs did so within 6 hours of the first dosing. One dog in the 3X treatment group was observed to be dull, inappetent, with evidence of bloody diarrhea, vomiting, and weight loss beginning five days after the first treatment. One dog in the 1X treatment group vomited food 4 hours following the first treatment.

*Reproductive Safety Study:* Bravecto was administered orally to intact, reproductively-sound male and female Beagles at a dose of up to 168 mg/kg (equivalent to 3X the maximum label dose) on three to four occasions at 8-week intervals. The dogs in the control group (0X) were untreated.

There were no clinically-relevant, treatment-related effects on the body weights, food consumption, reproductive performance, semen analysis, litter data, gross necropsy (adult dogs) or histopathology findings (adult dogs and puppies). One adult treated dog suffered a seizure during the course of the study (46 days after the second treatment). Abnormal salivation was observed on 17 occasions: in six treated dogs (11 occasions) after dosing and four control dogs (6 occasions).

The following abnormalities were noted in 7 pups from 2 of the 10 dams in only the treated group during gross necropsy examination: limb deformity (4 pups), enlarged heart (2 pups), enlarged spleen (3 pups), and cleft palate (2 pups). During veterinary examination at Week 7, two pups from the control group had inguinal testicles, and two and four pups from the treated group had inguinal and cryptorchid testicles, respectively. No undescended testicles were observed at the time of necropsy (days 50 to 71).

*In a well-controlled field study* Bravecto was used concurrently with other medications, such as vaccines, anthelmintics, antibiotics, and steroids. No adverse reactions were observed from the concurrent use of Bravecto with other medications.

**Storage Information:**  
Do not store above 86°F (30°C).

**How Supplied:**  
Bravecto is available in five strengths (112.5, 250, 500, 1000, and 1400 mg fluralaner per chew). Each chew is packaged individually into aluminum foil blister packs sealed with a peelable paper backed foil lid stock. Product may be packaged in 1, 2, or 4 chews per package.

NADA 141-426, Approved by FDA

Distributed by:  
Intervet Inc (d/b/a Merck Animal Health)  
Madison, NJ 07940

Made in Austria

Copyright © 2014 Intervet Inc, a subsidiary of Merck & Company Inc.  
All rights reserved

154545 R1





*The landscape is littered with big-box stores and retail chains, but the folks closest to the heart and entrepreneurial spirit of the veterinary practice owner are the independent pet store owners.*

fresh perspective on the world pet owners frequent outside your walls?

### Get real—are you ready to help?

The years of knowledge are a draw for this family-owned business: Its employees have been thinking about pets, selling pet products, working with satisfied repeat customers and adjusting for dissatisfied customers for decades. Pet owners trust them on nonurgent medical issues. And they're a cheap

font of wisdom: "I don't charge an office visit," jokes Andi.

Veterinarians are not a cheap font of wisdom—nor should they be. Doctors of veterinary medicine and credentialed veterinary technicians are medical professionals who went to school for these jobs. But what you don't know about pet retail could hurt

you and your clients. And what clients don't know could hurt their pets.

Is it finally time to talk to the other people in a pet's world—the boarding facilities, the groomers, the pet store owners, the dog trainers? You can't control what people say or believe, what they sell or don't sell in their own businesses. But you can be a force for

change in your local community by working with others who also have pets' best interests in mind.

Pets need every friend they can get, and the better-educated those friends are, the better the decisions are concerning their care.

Who's the best-educated? You are. Now get out there and educate.



## FIND WHAT YOU LOVE. LOVE WHAT YOU DO.

With more than 700 community-based animal hospitals across the U.S.—each as unique as you are—VCA has the right fit to meet your personal and professional needs.

When you make VCA your new home, you'll have access to the resources and opportunities that can only come from America's leader in veterinary care.

- Tap into the expertise of 4,500+ doctors, including more than 600 Specialists.
- Expand your medical horizons through our post-graduate Internship Program and Sponsored Residencies.
- Keep your edge—and learn some new skills—through our award-winning WOOF University™, and free full-day CE events with Specialists.
- Help make the next important medical discovery by participating in our Clinical Studies program.
- Enjoy unparalleled opportunities for transfers and career growth.
- Give back through strong Shelter partnerships and VCA Charities.

To start your journey with VCA, e-mail us at [recruiting@vca.com](mailto:recruiting@vca.com).

Or visit us at [VCAJobs.com](https://www.vcajobs.com)



AT VCA ANIMAL HOSPITALS, WE CARE.





# Selling retail for the greater good

Beyond the bottom line benefits, respondents to dvm360's Retail Revolution survey say selling retail items at their hospitals allows them to recommend products they feel good about.

79% of respondents sell retail items in their veterinary hospital

Which of these items are sold in your practice?



80% of respondents recommend particular pet stores, groomers, boarders or trainers to clients

Respondents reported having a business relationship with local

- 35% Groomers
- 34% Trainers
- 28% Boarding facilities
- 15% Pet food or supply stores

How does your hospital benefit from this relationship?



77% of respondents said:

"Selling retail items benefits my hospital by letting me offer clients products I feel good about."



What other ways does selling retail items benefit your veterinary hospital?







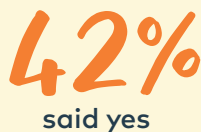
How often do you recommend a retail product to veterinary clients during visits?



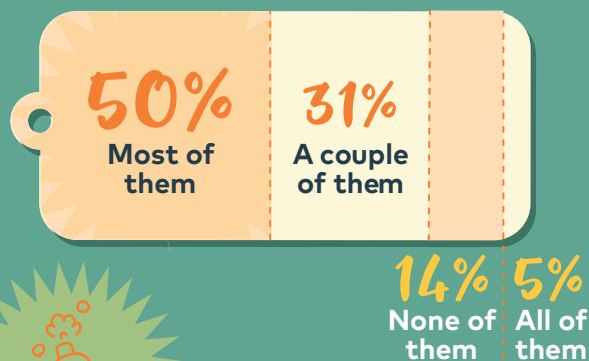
Who is responsible for selecting retail items in your hospital?



Do you think your practice is doing a good job with retail?



How many of the retail products that you recommend do you carry in the practice?



See more coverage in our sister publications

**Vetted**  
Because practice ain't perfect.

As your veterinary clients stroll down the pet store aisle, what are they encountering as they consider what to put in the cart? Retailers are in it for the good of pets, just like you, but occasionally what they recommend is ... well ... interesting at best. In *Vetted*, you'll see some cringe-worthy examples and also get some advice on how to help your clients think critically about what they hear outside of the veterinary clinic. We've also got some tips on how you can bring retail into your own practice and make it work.

**firstline**  
The best read veterinary team journal. Bam.

While you're telling your veterinary clients one thing, boarders, groomers and pet store employees seem to be singing (and selling) a completely different tune. How can you bridge the gap when it comes to retail in your veterinary practice? And how can you make sure your clients see you as the best source for product recommendations? In *Firstline*, we'll look at how your team members can revitalize your hospital's retail and become a product champion for your veterinary team, clients and, most importantly, your patients.



Find even more online at [dvm360.com/retailrevolution](http://dvm360.com/retailrevolution), including a closer look at behavior training available in retail outlets, what retailers are missing when it comes to exotic pet health, tips from two veterinary architecture experts on designing your retail space, retail guru Dr. Marty Becker on best practices for in-hospital product sales, and much more.

✓ The most researched and trusted hemp CBD product in veterinary medicine.

**ElleVet**  
SCIENCES

Hemp CBD Products for Pets

ElleVet™ is the only hemp CBD product tested by Cornell Vet School and recommended by vets.



SPRING SPECIAL  
on your 1st order  
**BUY 5,  
GET ONE  
FREE!**

This offer expires on 5.31.2019

For details, email: [info@ellevetsciences.com](mailto:info@ellevetsciences.com)  [ellevetsciences.com](http://ellevetsciences.com)

**Get in touch**

Contact us on  
Twitter:  
@dvm360,  
on Facebook:  
facebook.com/  
dvm360, via  
email: dvmnews  
@ubm.com  
or online at  
dvm360.com.



# Veterinarians need better boundaries

Asking the world to be nice to us isn't going to solve our profession's problems with burnout, mental health and suicide. It's time to manage our own boundaries in practice. *By Brian Andrew Maran, DVM, MS, DACVIM (Cardiology)*

**D**uring residency, I got a call from an emergency clinic that a patient was being transferred to the university because the client was being fired from the ER after complaining about price and throwing a clipboard at a receptionist's head. I walked into the room after the call from the ER, and the client started telling me how bad they were.

I stopped him: "Well, I got a call from the clinic, and I understand you threw an object at the receptionist's head."

"Yeah, a clipboard," he told me with a straight face. "The b\*\*\*\* had it coming!"

Ever had something like this happen at your clinic? Something dangerous? Someone lashing out? I'm positive you have. People sure can be mean.

As an answer to all the talk of depression and suicide in our profession, I frequently hear, "Be nice to your vet and vet techs! They care deeply, work hard and are not in it for the money." I fully support and encourage that message, because we all should be kinder in our lives, to everyone! But let's be honest. Are people nice to the staff at the Department of Motor Vehicles? To TSA agents at the airport? To dentists? Overall, the answer is yes, as long as they get their way and what they want. But otherwise?

We veterinarians deal with a constant barrage of "I can't afford that" or "It's just a dog/cat" or "I can't make a decision" (when, medically speaking, we have moments to decide). And I can deal with that. I'm happy to help

and educate and work with them as long as they work with me and treat my team with respect. In fact, I love the challenge of it. We, as doctors and technicians, are trained to put emotions aside, to assess and to act. Clients are not, and we must remind ourselves of this during an "obvious" decision or "obvious" mistake. Our job is to educate and help.

On the other hand, we need to learn when clients are being unreasonable. When an upset pet owner's first reaction is, "You're just a greedy jerk," that's not a signal you've done something wrong. But some of us take it

*He tried to defend himself, but I stopped him: "This isn't a discussion. This is a decision for you to make right now."*

personally and feel guilty for charging for our services. Some of us respond to insults by discounting and apologizing for the cost, because we think that will calm the client down.

Here's my suggested response: "I understand you're frustrated, but you will not speak to myself or my team in this manner. We'd like to work with you and help your pet, but only if we can have appropriate conversa-

tions. You are also welcome to seek care elsewhere, if you'd prefer." The small discomfort I feel at saying this to clients has saved me countless more emotional blowups from them.

Now, remember that client who called my colleague a b\*\*\*\*? I said, "You have two options here. Behave perfectly or leave. If you have a problem or issue, you discuss it with me. If it gets physical, I will defend my staff and myself, and you will be arrested and charged with any assault charges I am legally allowed to file."

He tried to defend himself, but I stopped him: "This isn't a discussion. This is a decision for you to make right now." Believe it or not, he wound up a phenomenal client after all that.

Learn to set boundaries about how you're treated, how your staff is treated and what behaviors you allow in your office, on the phone and around the hospital. Correct obvious outbursts from clients early. Empower your team so they know the boundaries and have the authority to fire a client without fear of reprisal. (Don't tolerate clients who are rude to staff but sweet as candy to the doctor.)

And if you're hurting emotionally, remember: There is help for you, but you must seek out help. You may not feel it right now, but you are in charge here and you have control.

*Dr. Brian Maran is founder and owner of Olympic Veterinary Cardiology in Mill Creek, Washington.*



**Reader feedback**

One DVM says she's being investigated for "firing a client." Have you gotten in trouble for that? Leave your comments at [dvm360.com/boundaries](http://dvm360.com/boundaries).



EVERY DOG.  
EVERYWHERE.

Deserves bacon-flavored  
heartworm protection!

**NOTICE!**  
TO: TENANT  
(THAT'S YOU, TERRY)  
YOU ARE HEREBY NOTIFIED  
THAT UNTIL YOU GET US  
**BACON-FLAVORED**  
**HEARTWORM PROTECTION,**  
WE'RE LOCKING YOU OUT.  
ALSO, WE TOOK YOUR BED,  
SO YOU CAN HAVE OURS  
IN THE GARAGE.  
FROM:  
CHAMP AND CHANDLER  
(THAT'S US)

**2 tasty options**

With added  
flea prevention

Great protection,  
great value



# The dogs have spoken.

Heartworm infection is  
on the rise<sup>1</sup> and many dogs  
are going unprotected.

Give your clients the bacon-flavored parasite protection they need, with:  
**SENTINEL® SPECTRUM® Chews** (milbemycin oxime/lufenuron/praziquantel) **IVERHART MAX® Soft Chew** (ivermectin/pyrantel pamoate/praziquantel)

To order both tasty options for your clinic, contact your Virbac representative at 1-844-4-VIRBAC (1-844-484-7222).

**Important Safety Information for SENTINEL® SPECTRUM® Chews (milbemycin oxime/lufenuron/praziquantel):** Dogs should be tested for heartworm infection prior to use. Mild hypersensitivity reactions have been noted in some dogs carrying a high number of circulating microfilariae. Treatment with fewer than 6 monthly doses after the last exposure to mosquitoes may not provide complete heartworm prevention. For complete product information, refer to the product insert. To obtain a product insert, contact Veterinary Technical Product Support at 1-800-338-3659, or visit [us.virbac.com](https://us.virbac.com).

**Important Safety Information for IVERHART MAX® Soft Chew (ivermectin/pyrantel pamoate/praziquantel):** All dogs should be tested for existing heartworm infection before starting treatment with IVERHART MAX Soft Chew. Use with caution in sick, debilitated, or underweight dogs weighing less than 10 lb. Gastrointestinal and neurological signs, such as convulsions, have been reported following the use of ivermectin products. For complete product information, refer to the product insert. To obtain a product insert, contact Veterinary Technical Product Support at 1-800-338-3659, or visit [us.virbac.com](https://us.virbac.com). For complete product information, please see pages 28 and 29.

**Reference: 1.** AHS announces findings of new heartworm incidence survey. American Heartworm Society website. <https://heartwormsociety.org/newsroom/in-the-news/347-ahs-announces-findings-of-new-heartworm-incidence-survey>. Accessed January 17, 2019.

Shaping the future  
of animal health

**Virbac**





# Improve your financial outcomes by looking at human behavior

What do people's diet, exercise and overall health have to do with veterinarians' finances? Quite a lot, it turns out, according to today's behavioral economists.

*Editor's note: Lisa Greenhill, MPA, EdD, contributed to this column. She is senior director for institutional research and diversity at the Association of American Veterinary Medical Colleges.*

The veterinary profession has made great strides in recent years to improve the financial know-how of veterinarians and veterinary students. But as with diet and exercise, when it comes to making financial decisions, knowing the right thing to do doesn't always guarantee that veterinarians—or anyone else—will actually do it.

The AVMA and other leaders are now looking for ways to enhance financial literacy by nudging people in very practical ways to change their behavior with the help of behavioral economics, a blend of psychology and economics. For example, we know that people are more likely to make decisions that are easy rather than those that are difficult. So, if we look for ways to make it easier to make wise decisions, we might move more people toward good choices.



When it comes to making economic decisions, rather than simply telling veterinarians to stick to a budget, we can work to make budgeting easier and less cumbersome. For example, streamlined tools—such as the AVMA's personal financial planning tool at [avma.org/mybudget](http://avma.org/mybudget)—bring budgeting online and provide relevant line items specific to veterinarians, such as licensing fees and continuing education costs.

Similarly, research tells us that people need to be able to act on new learning quickly, while their knowledge is fresh and they feel empowered to make a change. That's why AVMA has started looking at ways to time financial



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

**Description:** SENTINEL® SPECTRUM® Chews are available in four strengths in color-coded packages for oral administration to dogs and puppies according to their weight. Each chewable flavored tablet is formulated to provide a minimum of 0.23 mg/pound (0.5mg/kg) of milbemycin oxime, 4.55 mg/pound (10mg/kg) of lufenuron, and 2.28 mg/pound (5mg/kg) of praziquantel.

Milbemycin oxime consists of the oxime derivatives of 5-didehydromilbemycins in the ratio of approximately 80% A4 (C32H45NO7, MW 555.71) and 20% A3 (C31H43NO7, MW 541.68). Milbemycin oxime is classified as a macrocyclic anthelmintic.

Lufenuron is a benzoylphenylurea derivative with the following chemical composition: N-[2,5-dichloro-4-(1,1,2,3,3,3-hexafluoropropoxy)-phenyl-aminocarbonyl]-2,6-difluorobenzamide (C17H8Cl2F8N2O3, MW 511.15). Benzoylphenylurea compounds, including lufenuron, are classified as insect development inhibitors (IDIs).

Praziquantel is an isoquinoline anthelmintic with the chemical name 2-(Cyclohexylcarbonyl)-1,2,3,6,7,7-11b-hexahydro-4H-pyrazino[2,1-a]isoquinolin-4-one.

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

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

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

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

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

**Heartworm Prevention:** SENTINEL SPECTRUM Chews should be administered at monthly intervals beginning within one month of the dog's first seasonal exposure to mosquitoes and continuing until at least 6 months after the dog's last seasonal exposure (see **EFFECTIVENESS**). SENTINEL SPECTRUM Chews may be administered year-round without interruption. When switching from another heartworm preventative product to SENTINEL SPECTRUM Chews, the first dose of SENTINEL SPECTRUM Chews should be given within a month of the last dose of the former product.

**Flea Treatment and Prevention:** Treatment with SENTINEL SPECTRUM Chews may begin at any time of the year, preferably starting one month before fleas become active and continuing monthly through the end of flea season. In areas where fleas are common year-round, monthly treatment with SENTINEL SPECTRUM Chews should continue the entire year without interruption.

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

**Intestinal Nematode and Cestode Treatment and Control:** Dogs may be exposed to and can become infected with roundworms, whipworms, hookworms, and tapeworms throughout the year, regardless of season

or climate. Clients should be advised of appropriate measures to prevent reinfestation of their dog with intestinal parasites. Because the prepatent period for *E. multilocularis* may be as short as 26 days, dogs treated at the labeled monthly intervals may become reinfested and shed eggs between treatments.

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

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

**Precautions:** Treatment with fewer than 6 monthly doses after the last exposure to mosquitoes may not provide complete heartworm prevention (see **EFFECTIVENESS**).

Prior to administration of SENTINEL SPECTRUM Chews, dogs should be tested for existing heartworm infections. At the discretion of the veterinarian, infected dogs should be treated to remove adult heartworms. SENTINEL SPECTRUM Chews are not effective against adult *D. immitis*.

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

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

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

The safety of SENTINEL® SPECTRUM® Chews has not been evaluated in dogs used for breeding or in lactating females. Studies have been performed with milbemycin oxime and lufenuron alone (see **ANIMAL SAFETY**).

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

To report suspected adverse drug events, contact Virbac at 1-800-338-3659 or the FDA at 1-888-FDA-VETS.

For technical assistance, call Virbac at 1-800-338-3659.

**Information for Owner or Person Treating Animal:** *Echinococcus multilocularis* and *Echinococcus granulosus* are tapeworms found in wild canids and domestic dogs. *E. multilocularis* and *E. granulosus* can infect humans and cause serious disease (alveolar hydatid disease and hydatid disease, respectively). Owners of dogs living in areas where *E. multilocularis* or *E. granulosus* are endemic should be instructed on how to minimize their risk of exposure to these parasites, as well as their dog's risk of exposure. Although SENTINEL SPECTRUM Chews were 100% effective in laboratory studies in dogs against *E. multilocularis* and *E. granulosus*, no studies have been conducted to show that the use of this product will decrease the incidence of alveolar hydatid disease or hydatid disease in humans. Because the prepatent period for *E. multilocularis* may be as short as 26 days, dogs treated at the labeled monthly intervals may become reinfested and shed eggs between treatments.

**Effectiveness**  
**Heartworm Prevention:** In a well-controlled laboratory study, SENTINEL SPECTRUM Chews (milbemycin oxime, lufenuron, praziquantel) were 100% effective against induced heartworm infections when administered once monthly for 6 consecutive months. In well-controlled laboratory studies, neither one dose nor two consecutive doses of SENTINEL SPECTRUM Chews provided 100% effectiveness against induced heartworm infections.

**Intestinal Nematodes and Cestodes Treatment and Control:** Elimination of the adult stage of hookworm (*Ancylostoma caninum*), roundworm (*Toxocara canis*, *Toxascaris leonina*), whipworm (*Trichuris vulpis*) and tapeworm (*Dipylidium caninum*, *Echinococcus multilocularis*, *Echinococcus granulosus*, *Taenia pisiformis*) infections in dogs was demonstrated in well-controlled laboratory studies.

**Flea Prevention and Control:** In well-controlled studies, SENTINEL SPECTRUM Chews were effective in preventing flea eggs from hatching, thus providing control of the development of flea populations (*Ctenocephalides felis*).

**Palatability:** In a field study of 117 dogs offered SENTINEL SPECTRUM Chews, 113 dogs (96.6%) accepted the product when offered from the hand as if a treat. 2 dogs (1.7%) accepted it from the bowl with food, 1 dog (0.9%) accepted it when it was placed in the dog's mouth, and 1 dog (0.9%) refused it.

**Animal Safety:** In a margin of safety study, 40 ten-week-old puppies (10 per group) were administered either a sham dose (OX) or doses of 1, 3, or 5X the maximum exposure dose of SENTINEL SPECTRUM Chews once every two weeks for a total of seven treatments. Transient ataxia, lethargy, tremors, and salivation were seen in the 3X and 5X groups following each of the seven doses. Lethargy and ataxia were occasionally reported in sham-dosed (OX) and 1X dogs. Tremors were observed twice post-treatment in the 1X treatment group. Vomiting was seen in all treatment groups but at a higher incidence in the 3X and 5X groups. At the 5X dose, shallow breathing was noted in two dogs and one dog was unable to stand following two different doses. All clinical signs resolved within 24 hours.

In a second margin of safety study, 64 six-week-old puppies (16 per group) were dosed with either a sham (OX) or 1, 3, or 5X the maximum exposure dose of SENTINEL SPECTRUM Chews on days 1, 15, 29, and 43. A dose dependent increase in ataxia, decreased activity, tremors, and salivation was seen within 24 hours of treatment. Splayed hind limbs

were observed once in one dog in the 5X treatment group. Vomiting was observed in the 5X treatment group.

For SENTINEL SPECTRUM Chews, the maximum exposure based on product dosing is 2.5 mg/kg for milbemycin oxime, 50.7 mg/kg for lufenuron and 25.1 mg/kg for praziquantel, which is higher than the minimum effective dose used in the safety studies for milbemycin oxime and lufenuron (see below).

**Milbemycin Oxime:** Two studies were conducted in heartworm-infected dogs treated with milbemycin oxime. Mild, transient hypersensitivity reactions were observed in dogs with high microfilariae counts (see **PRECAUTIONS**).

Safety studies in pregnant dogs demonstrated that doses of 0.6X the maximum exposure dose of SENTINEL SPECTRUM Chews, (1.5 mg/kg of milbemycin oxime), administered daily from mating through weaning, resulted in measurable concentrations of milbemycin oxime in milk. Puppies nursing these females demonstrated milbemycin oxime-related effects (depression, decreased activity, diarrhea, dehydration, nasal discharge). A subsequent study, which evaluated the daily administration of 0.6X the maximum exposure dose of SENTINEL SPECTRUM Chews, from mating until one week before weaning, demonstrated no effects on the pregnant females or their litters. A study, in which pregnant females were dosed once, at 0.6X maximum exposure dose of SENTINEL SPECTRUM Chews before, on the day of, or shortly after whelping, resulted in no effects on the puppies.

Some nursing puppies, at 2, 4, and 6 weeks of age, administered oral doses of 9.6 mg/kg milbemycin oxime (3.8X the maximum exposure dose of SENTINEL SPECTRUM Chews) exhibited tremors, vocalization, and ataxia. These effects were all transient and puppies returned to normal within 24 to 48 hours. No effects were observed in puppies administered 0.5 mg/kg milbemycin oxime (minimum label dose).

A rising-dose safety study conducted in rough-coated Collies resulted in ataxia, pyrexia, and periodic recumbency in one of fourteen dogs administered milbemycin oxime at 12.5 mg/kg (5X the maximum exposure dose of SENTINEL SPECTRUM Chews). Prior to receiving the 12.5 mg/kg dose on day 56 of the study, all animals had undergone a dosing regimen consisting of 2.5 mg/kg milbemycin oxime on day 0, followed by 5.0 mg/kg on day 14, and 10.0 mg/kg on day 32. No adverse reactions were observed in any of the Collies treated with doses less than 12.5 mg/kg.

**Lufenuron:** In a ten-month study, doses of lufenuron up to 2X the maximum exposure dose of SENTINEL SPECTRUM Chews (10 mg/kg) caused no overt toxicity. A single dose of 200 mg/kg had no marked effect on adult dogs, but caused decreased activity and reduced appetite in eight-week-old puppies. Lufenuron tablets were evaluated with concurrent administration of flea adulticides containing carbaryl, permethrin, chlorpyrifos, and cythothione. No toxicity resulted from these combinations. Lufenuron tablets did not cause cholinesterase inhibition nor did they enhance cholinesterase inhibition caused by exposure to organophosphates.

Two laboratory and two well-controlled field studies were conducted to evaluate reproductive safety of lufenuron tablets in breeding dogs. In one of the laboratory studies, in which lufenuron was administered to Beagle dogs as three divided doses, equivalent to 17.8X the maximum exposure dose of SENTINEL SPECTRUM Chews (10 mg/kg), the ratio of gravid females to females mated was 8/8 or 100% in the control group and 6/9 or 67% in the lufenuron-treated group. The mean number of pups per litter was two animals higher in the lufenuron versus control groups and mean birth weights of pups from treated females in this study was lower than control groups. These pups grew at a similar rate to the control pups. The incidence of nasal discharge, pulmonary congestion, diarrhea/dehydration, and sluggishness was higher in the lufenuron-treated pup group than in the control pup group. The incidence of these signs was transient and decreasing by the end of lactation.

Results from three additional reproductive safety studies, one laboratory and two field studies, evaluating eleven breeds of dogs, did not demonstrate any adverse findings for the reproductive parameters measured, including fertility, pup birth weights, and pup clinical signs, after administration of lufenuron up to 1X the maximum exposure dose of SENTINEL SPECTRUM Chews. The average milk: blood concentration ratio was approximately 60 (i.e. 60X higher drug concentrations in the milk compared to drug levels in the blood of treated females). Nursing puppies averaged 8-9 times higher blood concentrations of lufenuron compared to their dams.

**Storage Information:** Store in a dry place at controlled room temperature, between 59° and 77°F (15-25°C).

**How Supplied:** SENTINEL SPECTRUM Chews are available in four strengths, formulated according to the weight of the dog. Each strength is available in color-coded packages of six or twelve chewable tablets each.

Manufactured by: Virbac AH, Inc.  
P.O. Box 162059  
Fort Worth, TX 76161  
NADA 141-333, Approved by FDA.

© 2018 Virbac Corporation. All Rights Reserved.  
SENTINEL and SPECTRUM are registered trademarks of Virbac Corporation.

2/18  
302219 - 03



education to correspond with when veterinary students can put their new knowledge to immediate use.

This approach already is being adopted in some veterinary colleges. The University of Wisconsin-Madison, for example, provides specific financial literacy information that coincides with students’ decision period to request

student loans. And Colorado State University offers a “decision-sensitive” financial education curriculum with access to a certified financial planner.

Future curricula could incorporate more short-term, goal-oriented objectives—such as teaching students who are preparing for internships about how to live on an intern’s salary—or include

financial training on available resources that makes sure students are confident they know how to use them.

Behavior in practice

Behavioral economics can also be brought to veterinary practices to help clients make better decisions for their pets. We know from the latest AVMA

pet demographics survey that nearly 30% of pets do not see a veterinarian at least once a year. We also know that missed appointments and noncompliance with recommended treatment plans are not only detrimental to the pet’s health but also costly to owners.

One way to help clients improve compliance is to forward-book. Whether the next exam needed is a two-week recheck or a wellness checkup a year from now, we can make it easier for the client to do the right thing by prebooking the pet’s next exam. Partners for Healthy Pets has a free toolkit your clinic can use to implement forward booking in your practice.

Another example is bundling preventive care into wellness plans that clients can pay for monthly. A payment plan can make it easier for clients to budget, and knowing they’re already paying for exams can make them more diligent about scheduling. We remove the decision about whether to make an appointment when we offer an alternative that builds appointment-making behavior into their pet-care routine.

We’re augmenting—not replacing—financial literacy

Using strategies that consider our clients’ emotions and behavior doesn’t mean we shouldn’t continue educating them about pet health. Similarly, the profession’s increased emphasis on behavioral economics in no way diminishes the importance of financial literacy. By factoring in the emotional aspects of our relationship with money, we can better help veterinary students and practitioners apply their knowledge of economics to make practical decisions that position them for success.

The AVMA and our partners in the Veterinary Debt Initiative are incorporating behavioral research into our strategies to address the debt issue. As we work to solve ongoing financial challenges in the veterinary profession, we must focus limited resources on interventions that will be effective. Enhancing financial literacy education will help us better direct time, energy and dollars to achieve successful outcomes.



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

IVERHART MAX®

Soft Chew (ivermectin/pyrantel pamoate/praziquantel)

For oral use in dogs only.

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

**Description:** IVERHART MAX® Soft Chew is a combination of three anthelmintics (ivermectin/pyrantel pamoate/praziquantel). The soft chews are available in four sizes in color-coded packages for oral administration to dogs according to their weight (**see Dosage and Administration**).

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

**Dosage and Administration:** IVERHART MAX Soft Chew should be administered orally at monthly intervals and the recommended minimum dose level of 6 mcg of ivermectin per kilogram (2.72 mcg/lb), 5 mg of pyrantel (as pamoate salt) per kg (2.27 mg/lb), and 5 mg of praziquantel per kg (2.27 mg/lb) of body weight, as follows:

Dog Weight Pounds	Soft Chew per Month	Soft Chew Size	Ivermectin Content	Pyrantel Pamoate Content	Praziquantel Content
6.0 to 12	1	Toy	34 mcg	28.5 mg	28.5 mg
12.1 to 25	1	Small	68 mcg	57 mg	57 mg
25.1 to 50	1	Medium	136 mcg	114 mg	114 mg
50.1 to 100	1	Large	272 mcg	228 mg	228 mg

IVERHART MAX Soft Chew is recommended for dogs 8 weeks of age or older. For dogs over 100 lbs, use the appropriate combination of these soft chews.

Remove only one dose at a time from the packaging. Return the remaining soft chew(s) to their box to protect from light. The soft chew can be offered to the dog by hand or added, intact, to a small amount of dog food. Care should be taken to ensure that the dog consumes the complete dose. The treated dog should be observed for a few minutes after administration to confirm that none of the dose has been lost or rejected. If it is suspected that any of the dose has been lost, redosing is recommended.

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

When replacing another heartworm preventative product in a heartworm disease prevention program, the first dose of IVERHART MAX Soft Chew must be given within a month (30 days) of the last dose of the former medication. A heartworm test should be performed prior to switching heartworm preventative products.

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

**Warnings:**  
**For use in dogs only. Keep this and all drugs out of reach of children and pets. In safety studies with ivermectin/pyrantel pamoate/praziquantel tablets, testicular hypoplasia was observed in some dogs receiving 3 and 5 times the maximum recommended dose monthly for 6 months (see Animal Safety).**

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

**Precautions:** Use with caution in sick, debilitated, or underweight animals and dogs weighing less than 10 lbs (**see Animal Safety**). The safe use of this drug has not been evaluated in pregnant or lactating bitches.

All dogs should be tested for existing heartworm infection before starting treatment with IVERHART MAX Soft Chew, which is not effective against adult *Dirofilaria immitis*. Infected dogs should be treated to remove adult heartworms and microfilariae before initiating a heartworm prevention program.

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

**Adverse Reactions:** In a field study with IVERHART MAX Soft Chew, self-limiting adverse reactions, including vomiting, diarrhea, lethargy, difficulty swallowing, excessive salivation, increased water consumption, and coughing were reported. Self-limiting adverse reactions,

including lethargy, limpness, salivation, shaking, diarrhea, decreased appetite, licking lips, and belching were reported between 20 minutes and 72 hours following treatment in a field study with ivermectin/pyrantel pamoate/praziquantel tablets.

In field studies with ivermectin/pyrantel pamoate tablets, vomiting or diarrhea within 24 hours of dosing was rarely observed (1.1% of administered doses). The following adverse reactions have been reported in dogs following the use of ivermectin products: depression/lethargy, vomiting, anorexia, diarrhea, mydriasis, ataxia, staggering, convulsions, and hypersalivation.

To report suspected adverse events, for technical assistance, or to obtain a copy of the Safety Data Sheet (SDS), contact Virbac AH, Inc. at 1-800-338-3659 or us.virbac.com. For additional information about adverse drug experience reporting for animal drugs, contact the FDA at 1-888-FDA-VETS or online at <http://www.fda.gov/AnimalVeterinary/SafetyHealth>.

**Effectiveness:** Prevention of the tissue larval stage of heartworm (*Dirofilaria immitis*) and the elimination of the adult stage of hookworm (*Ancylostoma caninum*, *Uncinaria stenocephala*, *Ancylostoma braziliense*), roundworm (*Toxocara canis*, *Toxascaris leonina*), and tapeworm (*Dipylidium caninum*, *Taenia pisiformis*) infections in dogs was demonstrated in well-controlled laboratory studies.

**Palatability:** In a field study of 132 dogs, IVERHART MAX Soft Chew was offered once monthly for 3 months. The dogs voluntarily consumed 86.3% of the doses from the owner’s hand or from a bowl within 5 minutes, 13.0% accepted the dose when it was offered in food or administered by placing onto the back of the dog’s tongue (pilling), and 0.7% of the doses were unable to be administered.

**Animal Safety:** Studies with ivermectin indicate that certain dogs of the Collie breed are more sensitive to the effects of ivermectin administered at elevated dose levels (more than 16 times the target dose level of 6 mcg/kg) than dogs of other breeds. At elevated doses, sensitive dogs showed more adverse reactions, which included mydriasis, depression, ataxia, tremors, drooling, paresis, recumbency, excitability, stupor, coma, and death. No signs of toxicity were seen at 10 times the recommended dose (27.2 mcg/lb) in sensitive Collies. Data from these studies support the safety of ivermectin products in dogs, including Collies, when used at the label recommended dose.

Because ivermectin and praziquantel are approximately 30% more bioavailable in the IVERHART MAX Soft Chew than in the ivermectin/pyrantel pamoate/praziquantel tablets used in the following target animal safety studies, the margin of safety is narrower than reported in these studies. The potential for adverse reactions may be greater in individual dogs administered IVERHART MAX Soft Chew than ivermectin/pyrantel pamoate/praziquantel tablets.

In a target animal safety study using ivermectin/pyrantel pamoate/praziquantel tablets, doses were administered to 8-week-old Beagle puppies at one, three, and five times the maximum recommended dose of 12.5 mcg/kg ivermectin, 10.47 mg/kg pyrantel, and 10.47 mg/kg praziquantel. The dogs were treated every 30 days for 6 months. Vomiting within 6 hours of dosing and soft or watery feces within 24 hours of dosing were observed. Other observations during the study were: ano-genital swelling, lethargy, head movements, shallow, audible or difficult breathing, and salivation. One dog in the 5X group had tremors and decreased activity. All of these signs were transient. No treatment was required. Histopathology showed testicular hypoplasia in the 3X and 5X groups (**see Warnings**).

In a laboratory safety study using ivermectin/pyrantel pamoate/praziquantel tablets, 12-week-old Beagle puppies receiving 3 and 5 times the recommended dose once weekly for 13 weeks demonstrated a dose-related decrease in testicular maturation compared to controls. In this study, all treated puppies had significantly higher cholesterol levels compared to untreated controls.

In a reproductive safety study, adult males were treated at 37.5 mcg/kg ivermectin, 31.4 mg/kg pyrantel, and 31.4 mg/kg praziquantel every 14 days during two full spermatogenic cycles (112 days). The quality of semen and reproductive health were not affected by treatment. Treatment-related vomiting and soft feces were reported during this study.

In a study of the effectiveness of ivermectin/pyrantel pamoate/praziquantel tablets for the treatment of *Toxocara canis*, one 8.1 lb, 72-day-old puppy died 6 days after administration of the label dose. This puppy and many other puppies in the study had high worm burdens and were reported to have diarrhea, sometimes bloody, frequently before and after treatment. Dehydration and signs of anemia (pale mucous membranes) were the only abnormal gross necropsy finding observed. No definitive cause was determined. In a 90-day field study using ivermectin/pyrantel pamoate/praziquantel tablets, the most serious adverse reactions (lethargy, limpness, and salivation) were seen in dogs weighing less than 10 lbs (**see Precautions**).

**Storage Information:** Store at 20°C to 25°C (68°F to 77°F), excursions permitted between 15°C and 30°C (59°F to 86°F).

**How Supplied:** IVERHART MAX Soft Chew is available in four dosage strengths (**see Dosage and Administration**) for dogs of different weights. Each strength comes in a package of 6 soft chews.

NADA 141-441, Approved by FDA.

Manufactured by:

Virbac AH, Inc.  
Fort Worth, TX 76137 USA  
Phone: 1-800-338-3659

© 2017 Virbac Corporation.  
IVERHART MAX is a registered trademark of Virbac Corporation.  
302143-03



9/17



# 'Teamwork makes the dream work': How to deal with staff nightmares

One surgeon yells. The other plays music. Team members dislike both. Here's advice to clear the air and create compromises.

**H**ealth Way Veterinary Clinic has five veterinarians, 13 technicians and all the challenges that come with being a successful suburban practice. As in many midsize veterinary practices, staff issues are the most taxing aspect of practice management.

Of the five staff veterinarians, two perform most of the surgical procedures. They aren't board surgeons but have a strong interest in and preference for surgery. Since these two vets spend so much time in the surgery suite, they try to make their surroundings as comfortable as possible—after

all, a happy surgeon is an efficient surgeon. Five trained technicians are assigned specifically to assist in surgery. As opposed to other clinic functions, the surgical team spends long hours in close proximity literally working hand in glove. No problem!

Except that one of the surgeons is extremely intense while performing clinical procedures.

Every minor misstep is met with harsh criticism toward the team member. In addition, when this surgeon encounters frustrating surgical issues, cursing and expletives ricochet around the room. Some team mem-

---

*Team members say that vulgarity and inappropriate music don't contribute to a positive work environment.*

---

bers view this behavior as part of the surgeon's "process." After all, the cursing and venting ultimately assist him in achieving the quality results that he demands. However, other members of the team see his behavior as rude and childish, even bordering on creating a hostile work environment.

Clinic management has dealt with this issue by rearranging the surgeon's staff support. Team members who don't mind aggressive methods are assigned to his surgeries, while others are placed with surgeon No. 2.

The other surgeon takes on the operating room with a different approach. Rather than the jarring sound of expletives, she prefers music in the surgery suite. This preference is also frowned upon by team members who don't want music while working. Surgeon No. 2 accommodates them by wearing earbuds so as not to offend anyone. This solves one problem but creates another, as it's difficult for





staff to get her attention when patient parameters suddenly change.

Both of these situations are brought up in a team meeting. The surgical technicians point out that surgical procedures are more of a team effort



then any of the other clinical disciplines in the hospital. They also note that in order for the team to succeed, they must cooperate. Team members state that vulgarity and inappropriate music don't contribute to a positive work environment.

The two surgeons respond by stating that they never intended to make any team members uncomfortable. None of their actions are meant to be personal affronts to their coworkers. They claim that these "outlets" contributed to their surgical success.

*Professional behavior doesn't condone one coworker's desire for self-comfort at the expense of others.*

The meeting clears the air and a compromise is reached. The vulgar surgeon will try to rein in his outbursts while continuing to work with a hand-picked team that doesn't find his verbiage distracting. The music-loving surgeon maintains her need for music while doing surgery, but agrees to get approval of her music selections with the team that was assisting her.

As with all compromises, not everyone is totally happy. One thing everyone agree on, however, is that the patients are lucky to sleep through the procedures.

#### Dr. Rosenberg's response

Whenever the question of team demeanor arises, I always have the same recommendation: When in doubt, put on your professional hat. We spend

many hours every week in the workplace. Mistakes are made and lapses in judgment occur. Professional demeanor doesn't condone vulgar language and emotional expletives in a clinic. Professional behavior doesn't condone one coworker's desire for self-comfort at the expense of others.

In a nutshell, these surgery vets are

being indulged because they bring a unique skill to the hospital. Instead of a compromise that allows them to maintain their unprofessional behavior, management should provide assistance to help them correct their shortcomings. Both of them should put on their professional hats. This will ultimately make them better

surgeons, better team members and better people.

*Dr. Marc Rosenberg is director of the Voorhees Veterinary Center in Voorhees, N.J. Although many of his scenarios in "The Dilemma" are based on real-life events, the practices, doctors and employees described are fictional.*

## Vmed Wireless Monitors with Remote Connect

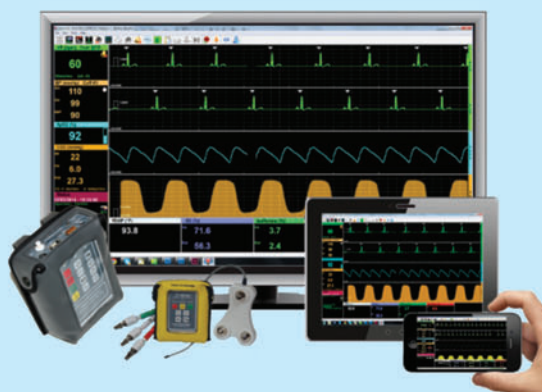


**Now** Monitor your patients remotely on any WiFi enabled device

- Monitor on your mobile device and clinic computer at the same time
- Record and store vital signs automatically
- Store files on your computer or server
- Attach patient files to your practice management program

\* Requires Windows software installation

### VetGard+™ and VetChek™ wireless monitors



Monitor surgeries on your computer and mobile device with the **VetGard+** multiparameter monitor.

Use the **VetChek** for routine ECGs, resurgical screens or postsurgical monitoring on your computer and mobile device.

Both products include free ECG electronic interpretation software.

### Vmed blood pressure solutions

The **BP-AccuGard** automatic BP monitor with SunTech animal validated software minimizes motion artifact. Optional wireless link to your computer for display and automatic file storage.

For those really difficult patients the **VetDop2** with low noise and high sensitivity is the Doppler of choice for veterinarians.



**vmedtechnology**

www.vmedtechnology.com, johnb@vmedtech.com  
800 926-9622



## Icare® TonoVet Plus

*The new generation of tonometer for quick and easy veterinary IOP measuring.*



### Why the TONOVET Plus?

- It is easy to use and fully automated
- Faster results
- More comfortable for the patient, no topical anesthetic
- Positioning Indicator Lights
- Clear User Interface
- Automatic Measuring Option
- Higher accuracy at higher and lower IOP
- Two year warranty!
- Held upright in a natural, ergonomic position like an ophthalmoscope for optimal readings.
- FDA approved for human medical use (iCare model)



**Jorgensen Laboratories, Inc.**  
 Loveland, CO 80538  
 (800) 525-5614  
[www.JorVet.com](http://www.JorVet.com) [Info@JorVet.com](mailto:Info@JorVet.com)

# Could veterinary malpractice change forever?

If current New York legislation goes through, malpractice insurance for anyone caring for animals could skyrocket. Here are some reasons why as well as my own compromise that might hold off the drastic change.

In the vast majority of jurisdictions across America, damages for negligence lawsuits resulting in animal injury or death are limited to the economic value of the animal. And the “economic value” of the typical companion animal is fairly low. It’s not that we don’t love them; it’s just that the law has traditionally established the recoverable value of a pet or other animal as what that animal is worth as property.

But New York State Assembly Bill A1113 (as well as a companion version being marked up in the Senate) adds a new class of recoverable damages for situations where negligence results in injury or death of a companion animal. Here is the heart of the language:

*“A person who ... recklessly or negligently, by act or omission causes physical injury ... to a companion animal shall be liable in damages for expenses of veterinary and other special medical care required; [and] the loss of reasonably expected society, companionship, comfort, protection and services of the injured companion animal to his or her owner.” [Emphasis mine]*

Essentially, this bill proposes that in the event that

a companion animal is injured through negligence of a person, that person may be sued not only for the marketplace value of that animal, but also noneconomic suffering and loss of the animal’s owner.

Proponents and detractors of the new proposed legislation agree on one fundamental point: The landscape of law in New York or any other jurisdiction that adopts such a law will instantaneously be changed forever. The reason is twofold.

### 1. Higher damages = higher courts

Many courts of general jurisdiction (where folks ordinarily sue one another) have a minimum dollar amount below which the parties are forced to take their dispute to a small claims venue. This helps avoid an overcrowded trial docket for judges. In most places, courts are already overflowing with high-dollar civil litigation (and criminal cases that constitutionally must receive “speedy disposition”).

However, while the dollar value of a pet isn’t easy to estimate, the emotional loss to a pet owner is even harder to objectively calculate. And if a pet owner sincerely believes that the loss of that pet has caused a bout of depression, prolonged sadness—perhaps







visits to obtain therapy—then a claim might easily reach some multiple of \$100,000—which would place the case squarely in the jurisdiction of a higher, busier court. And that leads us to the next reason ...

## 2. Higher damages attract plaintiffs' lawyers

Attorneys often look for injury cases that involve damages sufficiently high that their contingency fee of one-quarter or one-third of the verdict (or settlement) will justify the time involved in preparing the case. When the maximum award for an animal is based on economic damages, taking on such a case isn't that lucrative. But if noneconomic damages can be awarded (remember, that's "reasonably expected society, companionship, comfort, protection and services" in the New York law), injured pets may become a new profit center for the billboard and late-night TV infomercial law firms.

### Higher premiums?

Noneconomic damages are paid by someone. Most of the time, it won't be the boarding facility, the groomer, the trainer or the veterinarian who actually shells out the funds for any successful tort claim. That's why we all have (at least should have) insurance against our own potential negligence.

But remember that today's low premiums are calculated based on the "pets as property" laws in place for decades. In a new world where the number of tort claims for animal injuries skyrockets and the awards in those cases are much greater, the insurance industry will charge more in premiums.

### A possible compromise

There's no question that reasonable minds may differ on the need or appropriateness of a legislative proposal such as A1113. Many would say that the legal definition of animals as property (particularly companion animals) is realistic and practical. Others might opine that viewing companion animals as mere property is anachronistic and out of touch—that today's pets are viewed by society as far more than objects and that their value to people cannot realistically be measured by what they might bring in cash at a sale.

Both views have some merit, and champions of neither position will be

reticent in sharing their thoughts on the subject. Nonetheless, there might be a few areas of compromise that could be introduced into legislation to make it more palatable and easier to pass. Here are a few considerations:

- > In cases with nonfatal injury to a pet, a requirement that the case be sent to arbitration, not court

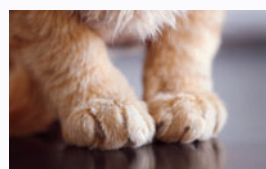
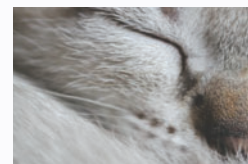
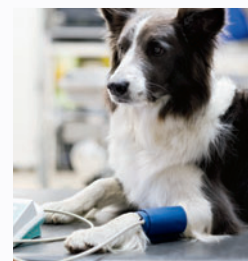
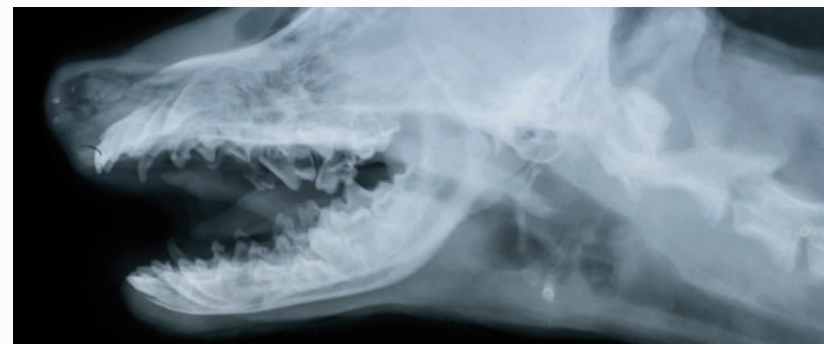
- > A damage ceiling to prevent outlandish jury awards like those in human medical malpractice cases
  - > Reduced permitted attorney contingency fees to 15 or 20 percent
  - > Required professional psychiatric testimony in cases to support a claim of emotional injury.
- I encourage you to be part of the

dialogue and contact your own state legislators to get more information on comparable legislation in your state.

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

When treating  
four-legged patients,  
make each  
moment  
matter.

—  
PNC can help.



### We're making business banking easier.

At PNC, our team of dedicated Healthcare Business Bankers understands your business challenges and the important role that cash flow plays in your success. That's why we offer a range of solutions to help optimize management of your practice's revenue cycle and payables, so your business can run with less complexity and payments can be received promptly.

[Learn more at \[pnc.com/hcprofessionals\]\(https://pnc.com/hcprofessionals\) or by calling 877-566-1355](https://pnc.com/hcprofessionals)

# Image Quiz: Name the tick-borne disease

Test your knowledge of common vector-borne conditions by reading through the clinical signs and making a diagnosis.

Ticks are creepy little bloodsucking vectors of pathogens. When patients come in with clinical signs of these diseases, are you on your diagnosis A game? Test your knowledge by reading through the clinical signs listed below and choosing the disease you think is the culprit. Then flip the page upside-down to see if you're correct.



- 1** The deer or black-legged tick (*Ixodes scapularis*) is a common carrier of the pathogen that can cause these clinical signs: polyarthrits, anorexia, lymphadenopathy and glomerulonephritis. What's the tick-borne disease?
- A.** Babesiosis
  - B.** Ehrlichiosis/anaplasmosis
  - C.** Lyme disease
  - D.** Rocky Mountain spotted fever



- 2** The American dog tick (*Dermacentor variabilis*) is the most common carrier of the disease that can cause these clinical signs: thrombocytopenia, leukocytosis, fever, lethargy, anorexia, pain, petechia, jaundice and neurologic signs. What's the tick-borne disease?
- A.** Babesiosis
  - B.** Ehrlichiosis/anaplasmosis
  - C.** Lyme disease
  - D.** Rocky Mountain spotted fever



- 3** The brown dog tick (*Rhipicephalus sanguineus*) often carries the pathogen that can cause these signs: thrombocytopenia and anemia, fever, lymphadenopathy, splenomegaly, pigmenturia and jaundice. What's the tick-borne disease?
- A.** Babesiosis
  - B.** Ehrlichiosis/anaplasmosis
  - C.** Lyme disease
  - D.** Rocky Mountain spotted fever



- 4** The brown dog tick (*R. sanguineus*) also transmits the pathogen that can cause these clinical signs: thrombocytopenia, pancytopenia, fever, lethargy, anorexia, weight loss and vomiting, epistaxis (petechia or ecchymosis also may be present), hyperglobulinemia, hypoalbuminemia, lymphadenopathy, proteinuria, polyarthrits and uveitis. What's the tick-borne disease?
- A.** Babesiosis
  - B.** Ehrlichiosis/anaplasmosis
  - C.** Lyme disease
  - D.** Rocky Mountain spotted fever

PHOTOS: GETTY IMAGES, SHUTTERSTOCK.COM





# Helping protect the bond between clients and pets through **parasite control**

By Susan E. Little, DVM, PhD, DACVM (Parasitology)

## **Love the pets...**

Pets enrich our lives, making us happier, healthier and more engaged.<sup>1</sup> Studies documenting specific positive health outcomes associated with pets include fewer physician visits in older pet owners; decreased blood pressure, cholesterol and triglycerides; and reduced mortality following acute myocardial infarction.<sup>1-3</sup> While many studies focus on the exercise, social interaction and overall health benefits of living with dogs, the companionship provided by cats also has been shown to reduce anxiety, promote a sense of social connectedness and belonging and improve mental health and well-being.<sup>4,5</sup> The external focus of attention necessitated by living with cats can disrupt harmful patterns of rumination, one of the key behaviors thought to contribute to depression, particularly in women.<sup>6</sup> Pets accept us, unconditionally and usually with true, unwavering affection. Indeed, over 90% of pet owners consider their pet to be a valued family member.<sup>7</sup>

## **...not the parasites.**

Despite the many benefits pets confer, some disease risks exist and can be mitigated with regular veterinary care and careful attention to recommendations for preventing potential zoonotic

disease, including parasite control. Vaccination has all but eliminated feline and canine rabies in most of the developed world, but, as recent surveys in animal shelters or of free-ranging cat populations can readily attest, zoonotic parasites continue to abound.<sup>8,9</sup> Controlling parasites in cats serves a public health role by limiting environmental contamination with stages that can infect and cause disease in people and by removing arthropods that may feed on people, cause dermatitis and potentially transmit serious, at times fatal, infections. Parasites also create a formidable aesthetic barrier to a close cat-person relationship. A majority of cat owners co-sleep with their pet<sup>10</sup> but the intense disgust parasites evoke can fracture this warm relationship. Indeed, recent work suggests that the emotion of disgust evolved specifically to reduce risk of infection—a phenomenon fittingly referred to as “parasite avoidance theory”<sup>11</sup> and a feeling familiar to all of us who have witnessed a cat heavily infested with fleas, shedding tapeworm proglottids or vomiting nematodes.

## **Feline parasites are common...**

In the absence of veterinary intervention, parasites are common in cats. Indeed, infection with parasites is the natural state for most animals, and a great

## Tips to share with clients to promote year-round parasite control

- Year-round parasite control is a key part of responsible pet ownership but it doesn't have to be a struggle. There is an option that will work for every pet and every pet's temperament.
- Whenever possible, start cats on parasite control when young so they become accustomed to having transdermal products applied or wearing a collar.
- Topically applied, systemically absorbed transdermal products can make treating cats and dogs easier and less stressful for everyone. Let's fight the parasites, not the pet!
- Be sure that the cat is calm before beginning to administer the topical product. And combine the application with a treat, a feline pheromone or a fun catnip experience so that the cat receives positive reinforcement with the treatment.
- One treatment is not enough. Re-infection commonly occurs, and once shed, parasite stages may persist in the environment for years. Since you'll be re-treating each month try to make it fun for the cat and for you.
- Parasites often establish silent infections—we can't always detect them, even with the best diagnostic tools.
- Fleas and ticks love cats almost as much as we do! These external parasites seek hosts whenever the temperature warms up—even in winter months. And ticks aren't just a dog problem. Cats are at risk for both tick infestation and tick-borne diseases, including Lyme disease. Even indoor cats can get fleas and ticks—people bring them in on their clothing or untreated dogs bring them in on their fur. But we have great options to keep cats protected throughout the year.

majority of dogs and cats in animal shelters harbor parasitic infections. In recent surveys, 77.3% of dogs and 67.2% of cats at municipal shelters in the midwestern United States were infected with helminths.<sup>9,12</sup> Dog park surveys showed approximately 33% of owned dogs in the general population were shedding parasites in their feces.<sup>13</sup> Safe, effective parasite treatments are readily available for both dogs and cats, but diagnosis can be challenging.<sup>9,12</sup> This problem is further compounded by difficulties encountered when attempting to obtain an adequate fecal sample from feline patients without fracturing the veterinary-cat bond.

### ...but can be readily controlled.

The zoonotic risk associated with parasites of cats is well known and the basis for the CDC recommendation of regular veterinary-prescribed deworming of all pets to reduce environmental contamination with zoonotic hookworm eggs and larvae, roundworm eggs and tapeworm eggs. Zoonotic infection with *Toxocara cati* may lead to visceral or ocular larva migrans with serious adverse sequelae; toxocarasis is considered a top 5 neglected parasitic infection in public health.<sup>14</sup> In addition to deworming cats, avoiding areas that may be contaminated with ascarid eggs or hookworm larvae such as uncovered sandboxes is recommended. Zoonotic parasite risk is further mitigated by consistent, prompt removal and safe disposal of cat feces as well as attention to hygiene through hand-washing.<sup>1</sup>

### Tapeworms and heartworms are also a feline concern...

Veterinary treatment for cestodes is recommended by CDC to limit risk of human infection with zoonotic tapeworms.<sup>1</sup> Disease caused by zoonotic cestodes ranges from the

mildly annoying *Dipylidium caninum* to severe, life-threatening *Echinococcus* spp. Although impactions have been reported,<sup>15</sup> adult cestodes in the small intestine are not thought to cause significant pathology in most cats. Even without overt disease, the disgust elicited in owners upon seeing proglottids on pillows or upholstery recently occupied by a cat can be quite damaging to the human-animal bond. While not a zoonotic risk, feline heartworm can be devastating to both cat and owner, leading to respiratory disease and, in extreme cases, death. Careful attention to comprehensive, veterinary-led parasite control reduces the risk for zoonotic infections, protects feline health and shields the cat-human relationship from harm.

### ...as are ectoparasites...

Cats are also all-too-frequently infested with fleas, ticks and mites. Many owners have the misguided impression that indoor cats are not at risk for parasite infestations or that feline grooming removes all parasites. While cats may manage to dislodge some fleas and ticks, enough may persist to keep a population of fleas cycling or the ticks may be attached long enough to transmit severe, potentially fatal feline infections.<sup>16,17</sup> Ear mites are more difficult to remove, necessitating systemic treatment. Without flea and tick control, a cat can introduce these ectoparasites into the home to feed on human members of the family. Pet ownership has been identified as a risk factor for human tick exposure,<sup>18</sup> but the risk is readily mitigated. Because untreated cats create a zoonotic risk to people in the home, CDC recommends ectoparasite control for all pets.<sup>1</sup> Consistent control of feline ectoparasites keeps everyone in the family healthier and happier and facilitates an indoor cat remaining indoors (as well as in laps and on sofas and beds).



**Susan E. Little, DVM, PhD, DACVM (Parasitology)**  
Regents Professor and the Krull-Ewing Chair in Veterinary Parasitology, Center for Veterinary Health Sciences, Oklahoma State University

Dr. Little is recognized internationally as a leader in veterinary parasitology and vector-borne disease. She teaches veterinary parasitology and oversees a research program centered on tick-borne diseases and zoonotic parasites. She is a founder and co-director of the National Center for Veterinary Parasitology, a past-president of the American Association of Veterinary Parasitologists, and an Emeritus Member and past-president of the Companion Animal Parasite Council. View her TEDxOSU Talk "The Human-Animal Bond" on YouTube.

### ...but with consistent parasite control, we can help keep cats in the home and close to us.

Protecting cats from parasites achieves so much more than just protecting feline health. Cats and the people that love them treasure their time together relaxing on the couch, petting and being petted and even co-sleeping. The revulsion parasites elicit threatens this relationship, ultimately jeopardizing the safe, peaceful lifestyle indoor cats enjoy and deserve. Controlling parasites protects that bond, ensuring that fleas, ticks and internal parasites are not able to come between cats and their owners while also protecting feline and public health. Long-lasting flea and tick control and topical internal parasite control can make administering these products less stressful for cats, owners and veterinarians, removing one of the major barriers to treating cats—namely, cats. With consistent use of low-stress, feline-friendly treatments, we can keep our cats close while keeping their parasites at bay.

## References

- Centers for Disease Control and Prevention. Healthy Pets, Healthy People. Available at: <https://www.cdc.gov/healthypets/health-benefits/index.html>. Accessed January 15, 2019.
- Siegel JM. Stressful life events and use of physician services among the elderly: the moderating role of pet ownership. *J Pers Soc Psychol* 1990;58(6):1081-1086.
- Friedmann E, Thomas SA. Pet ownership, social support, and one-year survival after acute myocardial infarction in the Cardiac Arrhythmia Suppression Trial (CAST). *Am J Cardiol* 1995;76(17):1213-1217.
- Thorpe RJ, Simonsick EM, Brach JS, et al. Dog ownership, walking behavior, and maintained mobility in later life. *J Am Geriatr Soc* 2006;54(9):1419-1424.
- McConnell AR, Brown CM, Shoda TM, et al. Friends with benefits: on the positive consequences of pet ownership. *J Person Soc Psych* 2011;101(6):1239-1252.
- Shors TJ, Millon EM, Chang HY, et al. Do sex differences in rumination explain sex differences in depression? *J Neurosci Res* 2017;95(1-2):711-718.
- McNicholas J, Gilbey A, Rennie A, et al. Pet ownership and human health: a brief review of evidence and issues. *BMJ* 2005;331(7527):1252-1254.
- Thomas JE, Staubus L, Goolsby JL, Reichard MV. Ectoparasites of free-roaming domestic cats in the central United States. *Vet Parasitol* 2016;228:17-22.
- Little S, Adolph C, Downie K, et al. High prevalence of covert infection with gastrointestinal helminths in cats. *J Am Anim Hosp Assoc* 2015;51(6):359-364.
- Chomel BB, Sun B. Zoonoses in the bedroom. *Emerg Infect Dis* 2011;17(2):167-172.
- Curtis V, de Barra M. The structure and function of pathogen disgust. *Philos Trans R Soc Lond B Biol Sci* 2018;373(1751).
- Adolph C, Barnett S, Beall M, et al. Diagnostic strategies to reveal covert infections with intestinal helminths in dogs. *Vet Parasitol* 2017;247:108-112.
- Ferreira A, Alho AM, Otero D, et al. Urban dog parks as sources of canine parasites: contamination rates and pet owner behaviours in Lisbon, Portugal. *J Environ Public Health* 2017;2017:5984086.
- Chen J, Liu Q, Liu GH, et al. Toxocarasis: a silent threat with a progressive public health impact. *Infect Dis Poverty* 2018;7(1):59.
- Wilcox RS, Bowman DD, Barr SC, Euclid JM. Intestinal obstruction caused by *Taenia taeniaeformis* infection in a cat. *J Am Anim Hosp Assoc* 2009;45(2):93-96.
- Little SE, Barrett AV, Nagamori Y, et al. Ticks from cats in the United States: Patterns of infestation and infection with pathogens. *Vet Parasitol* 2018;257:15-20.
- Nagamori Y, Reichard MV. Feline tick borne diseases. *Today Vet Pract* 2015; May-Jun:69-74.
- Jones EH, Hinckley AF, Hook SA, et al. Pet ownership increases human risk of encountering ticks. *Zoonoses Public Health* 2018;65(1):74-79.



MEDICINE | Oncology

# TCC: When 'Gotta go, gotta go right now' is a malignant matter

Dr. Kim Johnson shares tips on diagnosing and treating canine transitional cell carcinoma. *By Hilal Dogan, BVSc, CCTP*

**T**ransitional cell carcinoma (TCC) of the urinary bladder, the most common malignancy of the urinary tract in dogs, is challenging both to diagnose and treat effectively. In a talk at a recent Fetch dvm360 conference, Kim Johnson, DVM, DACVIM, laid out some tips

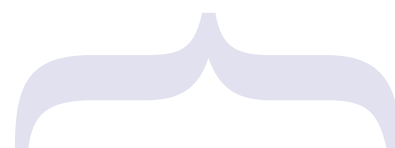
that may help you with this challenging form of cancer.

## What are the causes of transitional cell carcinoma?

Dr. Johnson says we don't really know. It's possible that environmental pollution, chemicals and obesity all have

a role to play. Dogs that are obese, female and above 9 years of age are most likely to get TCCs, although males can get them as well. Scottish terriers are 21 times more likely to get TCCs than any other breed.<sup>1-6</sup> Signs of the cancer include hematuria, polyuria, stranguria and tenesmus.

Scottish terriers are 21 times more likely to get TCCs than other breeds.



## DERMATOLOGY M3

5 vile derm conditions that get under my skin

## FELINE MEDICINE M6

Q&A: What's an alternative to Clavamox drops?

## dvm360.com/medicine

Find interactive cases, expert answers to your critical questions, journal summaries and more.

Diagnostic tip

To increase your sample size for cytology, traumatic/diagnostic catheterization can be performed where the catheter is inserted and then pushed around onto the bladder walls to try and get cells to dislodge into the urine. Dr. Johnson says this is OK to do and not to worry about spreading the cancer, especially when it comes to cystocentesis or fine-needle aspirates (FNA) of the bladder. She says, "It's OK! Do the FNA! Back in the good ol' days, we did cystocenteses and other diagnostics without the benefit of ultrasound. I'm confident several of those bladders had TCC and we didn't know it."

A quick note about cats

They can get TCCs too, but it's rare. In cats it seems to be more common in males instead of females, and it's not as frequent in the trigone of the bladder like we see in dogs. Typical survival time is five to eight months due to progressive disease. Remember, you can't use cisplatin in cats due to renal toxicity.



**Killing cancers**  
The latest, greatest clinical, business and team content on diagnosing, treating and talking to clients about cancer is at [dvm360.com/oncology](https://dvm360.com/oncology).

Presenting complaints are not just limited to the urinary tract! Lameness can also be a clinical sign, since the cancer can spread to bone. You may also see some improvement clinically after treating with antibiotics and anti-inflammatories, but signs will return once treatment is stopped, and meanwhile the tumor may be growing during this time.

How do you diagnose TCCs?

Always do a rectal exam! You may feel a mass or an enlarged prostate in males, and a cobblestone urethra may be palpated.

Diagnostics for the condition include baseline hematology (a complete blood count and a serum chemistry profile), urinalysis and culture, abdominal and chest radiographs, and abdominal ultrasound and advanced imaging when possible. These methods may help with early detection:

Veterinary bladder tumor antigen (VBTA)

This test detects tumor analytes in the urine. It has a high diagnostic sensitivity (about 90%), meaning TCC is unlikely in a dog with a negative result. However, Dr. Johnson doesn't currently recommend this test, because it's only moderately diagnostically sensitive (approx. 78-85%), meaning there may be false positives due to glucosuria, pyuria or hematuria. So Dr. Johnson says that with this test, you will still need further testing to confirm a diagnosis of TCC.

BRAF mutation assay

If you want to perform an early diagnostic test, Dr. Johnson recommends this one. You can use it to detect possible TCC up to four months prior to any clinical signs becoming evident. It can also be used for diagnosis and monitoring effectiveness of treatment.

What are the options for treatment?

Treatment options for TCCs include:

- > Surgery (including permanent cystotomy)
- > Radiation therapy
- > Metronomic chemotherapy
- > Medical management.

Although surgery is an option, the location that we most commonly find TCCs, the trigone, is a location where surgery is often not an option. In

Table 1: Chemotherapy protocols

Drugs	# of dogs	Mean survival time (days)
Cisplatin alone	18	130
Carboplatin alone	14	132
Piroxicam (NSAID) alone	34	181
Carboplatin and piroxicam	13	93
Mitoxantrone and piroxicam	49	350
Cisplatin and piroxicam (12 developed renal toxicity)	14	246
Cisplatin, then piroxicam	8	309

these cases, Dr. Johnson will often try a combination therapy of chemo and NSAIDs.<sup>7-16</sup> (See Table 1 for a look at the efficacy of various chemotherapy protocols). Dr. Johnson suggests these chemo protocols:

- > **Mitoxantrone:** 5 mg/m<sup>2</sup> IV once every three weeks for six treatments.
- > **Carboplatin:** 250 mg/m<sup>2</sup> IV once every three weeks for six treatments.
- > **Vinblastine:** 2 mg/ m<sup>2</sup> every two weeks for six to eight treatments. Dr. Johnson recommends starting with this if the patient already has kidney disease.
- > **Prioxicam (NSAID):** 0.3 mg/kg once a day for one month, then every other day for six months to help preserve kidneys. Monitor the blood urea nitrogen/creatinine ratio and urine specific gravity during treatment.

Metronomic chemotherapy is just low doses of chemotherapy, administered frequently and is less toxic. Dr. Johnson typically divides her regular doses by 15 and administers chemo at that dose every other day.

References

1. Mutsaers AJ, Widmer WR, Knapp DW: Canine transitional cell carcinoma, *J Vet Intern Med* 17:136-144, 2003.

2. Knapp DW, Glickman NW, DeNicola DB, et al: Naturally-occurring canine transitional cell carcinoma of the urinary bladder: a relevant model of human invasive bladder cancer, *Urol Oncol* 5:47-59, 2000.

3. Glickman LT, Schofer FS, McKee LJ: Epidemiologic study of insecticide exposures, obesity, and risk of bladder cancer in household dogs, *J Toxicol Environ Health* 28:407-414, 1989.

4. Raghavan M, Knapp DW, Dawson MH, et al: Topical spot-on flea and tick products and the risk of transitional cell carcinoma of the urinary bladder in Scottish terrier dogs, *J Am Vet Med Assoc* 225:389-394, 2004.

5. Glickman LT, Raghavan M, Knapp DW, et al: Herbicide exposure and the risk of transitional cell carcinoma of the urinary bladder in Scottish terrier dogs, *J Am Vet Med Assoc* 224:1290-1297, 2004.

6. Raghavan M, Knapp DW, Bonney PL, et al: Evaluation of the effect of dietary vegetable consumption on reducing risk of transitional cell carcinoma of the urinary bladder in Scottish terriers, *J Am Vet Med Assoc* 227:94-100, 2005.

7. Mutsaers AJ, Widmer WR, Knapp DW: Canine transitional cell carcinoma, *J Vet Intern Med* 17:136-144, 2003.

8. Knapp DW: Animal models: naturally occurring canine urinary bladder cancer. In Lerner SP, Schoenberg MP, Sternberg CN, editors: *Textbook of bladder cancer*, Oxon, United Kingdom, 2006, Taylor and Francis.

9. Knapp DW, Richardson RC, Chan TCK, et al: Piroxicam therapy in 34 dogs with transitional cell carcinoma of the urinary bladder, *J Vet Intern Med* 8:273-278, 1994.

10. Henry CJ, McCaw DL, Turnquist SE, et al: Clinical evaluation of mitoxantrone and piroxicam in a canine model of human invasive urinary bladder carcinoma, *Clin Cancer Res* 9:906-911, 2003.

11. Arnold EJ, Childress MO, Fourez LM, et al: Clinical trial of vinblastine in dogs with transitional cell carcinoma of the urinary bladder, *J Vet Intern Med* 25(6):1385-1390, 2011.

12. Chun R, Knapp DW, Widmer WR, et al: Cisplatin treatment of transitional cell carcinoma of the urinary bladder in dogs: 18 cases (1983-1993), *J Am Vet Med Assoc* 209:1588-1591, 1996.

13. Moore AS, Cardona A, Shapiro W, et al: Cisplatin (cisdiamminedichloroplatinum) for treatment of transitional cell carcinoma of the urinary bladder or urethra: a retrospective study of 15 dogs, *J Vet Intern Med* 4:148-152, 1990.

14. Greene SN, Lucroy MD, Greenberg CB, et al: Evaluation of cisplatin administered with piroxicam in dogs with transitional cell carcinoma of the urinary bladder, *J Am Vet Med Assoc* 231:1056-1060, 2007.

15. Boria PA, Glickman NW, Schmidt BR, et al: Carboplatin and piroxicam in 31 dogs with transitional cell carcinoma of the urinary bladder, *Vet Comp Oncol* 3:73-78, 2005.

16. Knapp DW, Glickman NW, Widmer WR, et al: Cisplatin versus cisplatin combined with piroxicam in a canine model of human invasive urinary bladder cancer, *Cancer Chemother Pharmacol* 46:221-226, 2000.

Frequent Fetch dvm360 speaker Dr. Hilal Dogan practices medicine in Denver, Colorado. She started the Veterinary Confessionals Project as a senior veterinary student at Massey University in New Zealand.





# 5 vile derm conditions that get under my skin

When the going gets gross, get going on finding solutions that preserve both the health of the pet and the human-animal bond. *By Melissa Hall, DVM, DACVD*

**T**hough working in veterinary dermatology is a daily assault on the senses, I find the grossest of diseases to be the most rewarding to treat, as they greatly improve the quality of life for the patient and the client while restoring and strengthening the human-animal bond (since most of us like to be near our pets without gagging).

Here are five of the most cringe-worthy dermatologic conditions I've encountered in practice:

## Perianal fistula

**Alias:** Anal furunculosis

**Description:** Perianal fistula is a chronic, progressive inflammatory disease that's most often diagnosed in middle-aged German shepherds. The etiopathogenesis is only partially understood, but genetic and anatomic factors as well as a dysregulated immune response are known disease contributors.

**Signs:** Dogs often present with perianal licking, tenesmus, painful

defecation, weight loss and lethargy.

The perianal lesions are not associated with the anal sacs and can range from pinpoint-sized draining tracts to large, cavitating, ulcerated sinuses. Upon palpitation, the anus and rectum may be thickened and fibrous, and a malodorous mucopurulent discharge is often present. Because about half of affected individuals have concurrent colitis, it can be assumed that the scope of the disease extends beyond external lesions.



## Skin in the game?

For dermatology content that's not just skin-deep, head to [dvm360.com/dermatology](https://dvm360.com/dermatology) for regularly updated clinical and client education material.



**Diagnostics:** Diagnosis is based on the particular patient's history and on clinical findings.

**Treatment:** Treatment involves systemic cyclosporine (5 to 10 mg/kg/day) and topical 0.1% tacrolimus ointment. Systemic antibiotics are initially needed to treat the secondary bacterial infection, and concurrent prednisone can be used to reduce inflammation at presentation. If the pet doesn't demonstrate a complete response to initial therapy, a diet trial may be needed to rule out concurrent cutaneous adverse food reactions.

## Mycobacterial panniculitis

**Alias:** Atypical mycobacterial granulomas

**Description:** Mycobacteria are ubiquitous, saprophytic organisms that can cause problems when the skin's barrier is compromised and when they are given access to the fatty subcutis. Obese outdoor cats may be more predisposed to developing the disease.

**Signs:** Opportunistic mycobacteriosis often presents as chronic, nonhealing wounds. The lesions may initially resemble catfight abscesses and are most commonly seen along the caudal abdominal or inguinal regions or the lumbar region (though they can be present anywhere).

The areas develop circumscribed plaques or nodules and progress to underlying thickening of the subcutis and the development of punctuate fistulae that discharge watery, bloody exudate.

**Diagnostics:** The disease can be difficult to diagnose. Acid-fast stains are necessary to detect the elusive organisms obtained via fine-needle aspiration of closed lesions. Dermatohistopathology demonstrates nodular to diffuse pyogranulomatous dermatitis and panniculitis, but additional stains are recommended to identify organisms. Mycobacterial tissue culture can take longer than typical bacterial cultures.

**Treatment:** Treatment is often frustrating for both the client and the veterinarian. Systemic antimicrobial therapy is often needed for a long period of time (three to 12 months) and is then extended one to two months past clinical resolution. Antimicrobial selection should be made based on the mycobacterial culture's suscepti-

bility tests. Combination therapy is often needed, and some cases require surgical excision to debride the affected tissues.

## Pemphigus foliaceus

**Description:** Pemphigus foliaceus is the most common cutaneous autoimmune disease in dogs and cats. Any age, sex or breed can be affected, but Akitas and chow chows may be predisposed. The disease is characterized by the production of antibodies that attack the adhesion molecules of keratinocytes.

**Signs:** The primary lesions of this disease are large, superficial pustules that span multiple follicular units. These pustules rupture easily, so patients often present with crusted erosions and alopecia.

Nasal planum, ear pinnae and periocular tissues are often affected, but generalized disease may also occur. In cats, claw folds are frequently affected, and thick caseous exudate can be detected when the claws are extracted. Pets can also be systemically ill and present with depression, anorexia and fever.

**Diagnostics:** Acantholytic cells (the large, round keratinocytes) can be detected with cutaneous cytology and dermatohistopathology. When obtaining a tissue biopsy, it is vital to include any crusts, if present.

**Treatment:** Immunosuppression is the cornerstone of therapy. Corticosteroids, prednisone or prednisolone should be initiated. Some cases may require additional therapy using other immunosuppressive medications to achieve adequate control.

## Pseudomonas otitis externa

**Description:** *Pseudomonas aeruginosa* is a common finding in treatment-resistant canine ear infections. *Pseudomonas* is considered opportunistic bacteria that overgrows in a diseased ear canal, often when normal flora has been inhibited by antimicrobial therapy.

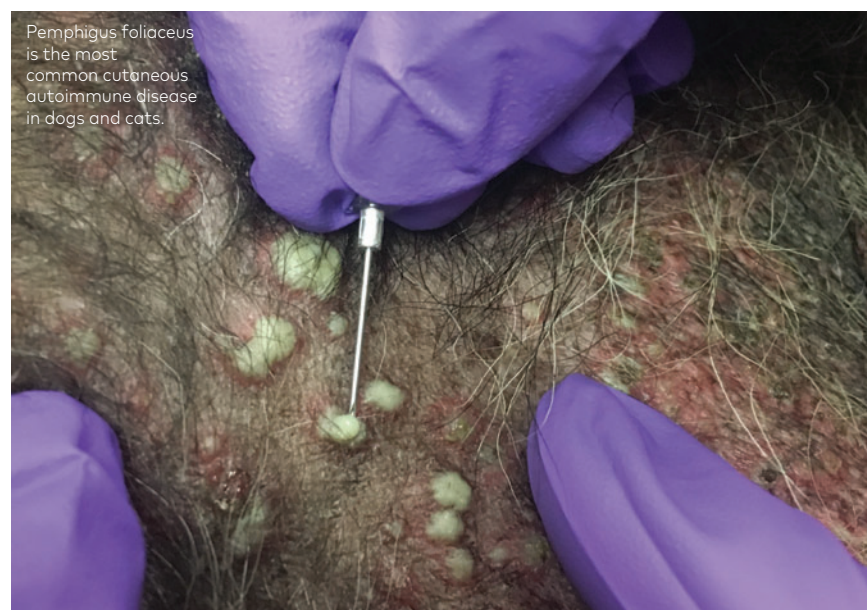
**Signs:** These patients often have significant erosion and ulceration along the ear canal walls that can be very painful. This process is often accompanied by a noticeable odor.

**Diagnostics:** *Pseudomonas* ear infections tend to produce copious amounts of purulent exudate, which demonstrate large bacilli and numerous leukocytes on cytology.

**Treatment:** Treatment can be frustrating for veterinary clients and clinicians alike, as *P. aeruginosa* has demonstrated the ability to produce biofilms, which correlate with reduced topical antimicrobial efficacy. Irrigation and cleaning of the canals are imperative in these cases. Patients also benefit from topical and systemic glucocorticoids. Bacterial ear infections are considered a secondary cause of otitis externa. Allergies, foreign bodies and parasites are all potential primary triggers for ear disease. The ear infections will continue to return if the primary abnormality is not addressed.

## Necrolytic migratory erythema

**Aliases:** Metabolic epidermal necrosis, hepatocutaneous syndrome, superficial necrolytic dermatitis



### Clients scratching heads over derm issues?

Hit 'em with the handout "Answers to your 7 top dermatology questions" at [dvm360.com/7dermquestions](http://dvm360.com/7dermquestions).





Patients with pseudomonas otitis externa tend to produce a lot of purulent exudate.

**Description:** This disease process has several names, which has been described in people, dogs and cats as being associated with liver disease or a glucagon-secreting pancreatitis tumor. The exact pathogenesis is unknown, but it has been proposed that degeneration of keratinocytes is triggered by cellular starvation or other nutrition imbalance. Patients often present with hypoaminoacidemia resulting from hyperglucagonemia, liver dysfunction or malabsorption. It is often seen in older animals, and the cutaneous signs may present prior to systemic illness.

**Signs:** Skin lesions often present in areas of trauma, especially the muzzle, mucocutaneous junctions, distal limbs and paw pads. Scaling, crusting, ero-

sions and ulcers characterize these areas. The paw pads may demonstrate hyperkeratosis with fissuring and ulceration. Secondary bacterial infections are often present.

**Diagnostics:** Diagnosis is often achieved with dermatohistopathology. Abdominal ultrasound may reveal a honeycomb pattern (hyperechoic, reticular pattern surrounding hypoechoic areas).

**Treatment:** Prognosis for these cases is poor, but treatment with parenteral amino acids may improve the skin lesions and prolong survival time.

*Melissa Hall, DVM, DACVD, is a veterinary dermatologist at Animal Dermatology Clinic in Tustin, California.*



Patients with necrolytic migratory erythema often present with skin lesions in areas of trauma, such as the paw pads.

## Not the worst you've seen, but, 'What's the deal with my dog's dandruff?'

Dandruff isn't the worst sign you've ever seen, but veterinary clients should know it could be a more serious condition.

*By Laura Wilson, DVM, DACVD*

Pet owners ask why they see dandruff in their dog's fur, often while brushing their pet. It's a simple question, but there are a handful of things to check before brushing off this frequent owner query.

Is what they're seeing "just" scale, or does this debris represent crust? Dandruff-like scale can be seen in more benign situations, such as on a pet that's overdue for grooming or one that could benefit from fatty acid supplementation. Some dogs also tend to show more regular scaling debris in a seasonal fashion, possibly related to changing weather conditions. Bathing with an oatmeal-based shampoo in lukewarm water may help gently remove this dandruff while not overly drying the skin or coat.

A quick check of the underlying skin can help determine if the dandruff is scale or crust. By slowly running your hand over the trunk of a dog, moving from the rump toward the neck, you can better see if there are any underlying macules,

papules, pustules, healing collarette lesions or comedones that would warrant further investigation.

If the skin is pale pink or grey-black, depending on the patient's color, and there are no primary or secondary skin lesions, this dandruff is more likely a benign cosmetic change. Fatty acid supplementation in the form of a liquid pump over the food, gel capsules, flavored chews or diets enriched with omega-3/omega-6 fatty acids can help improve skin and coat quality. Fatty acid supplementation administered parenterally is more effective (and less messy!) than products applied topically.

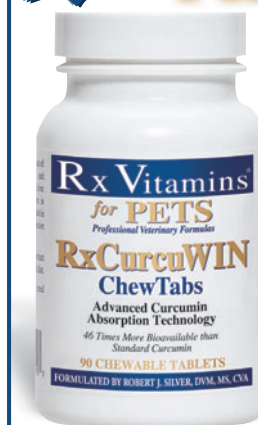
If you note changes to the skin, impression smears and in-house cytology, skin scrape, dermatophyte or skin cultures—or even biopsy—may be warranted to determine the cause of more pathologic scale and not simple dandruff.

*Dr. Laura Wilson practices at Pet Emergency and Specialty Center of Marin in San Rafael, California.*

**RxVitamins for PETS®**  
Professional Veterinary Formulas

Recommended by Veterinarians in over 20 countries worldwide!

**NEW RxCurcuWIN ChewTabs**



**Advanced Curcumin Absorption Technology**

**46 Times More Bioavailable than Standard Curcumin**

**RxCurcuWIN ChewTabs** provide 40 mg of the powerful curcuminoid complex in each 250 mg hard-chew tablet. This convenient dosage format is small and easy to administer. Curcuminoids have been found, through extensive research, to provide health benefits to the immune system through both up-stream and down-stream cell signaling molecules. The patented, hydro-soluble matrix of Curcuwin™ is why its curcuminoid complex provides vastly improved absorption over every other form of curcumin available today.



Sold **EXCLUSIVELY** to veterinary professionals throughout the world since 1999. Accept no substitute or replica.

For more information about our complete product line, or to place an order please call:  
**800-792-2222 or 914-592-2323 RxVitamins.com**

Formulated by **ROBERT J. SILVER DVM, MS, CVA**







"I hope whatever they're talking about, it's ME."

**Advantage Multi® for Dogs and for Cats (imidacloprid + moxidectin)**  
**BRIEF SUMMARY:** Before using Advantage Multi® for Dogs (imidacloprid+moxidectin) or Advantage Multi® for Cats (imidacloprid +moxidectin), please consult the product insert, a summary of which follows:  
**CAUTION:** Federal (U.S.A.) Law restricts this drug to use by or on the order of a licensed veterinarian.  
**Advantage Multi for Dogs:**

WARNING
<ul style="list-style-type: none"><li>• <b>DO NOT ADMINISTER THIS PRODUCT ORALLY.</b></li><li>• For the first 30 minutes after application ensure that dogs cannot lick the product from application sites on themselves or other treated animals.</li><li>• Children should not come in contact with the application sites for two (2) hours after application.</li></ul> (See: Contraindications, Warnings, Human Warnings, and Adverse Reactions for more information.)

**INDICATIONS:**  
**Advantage Multi for Dogs** is indicated for the prevention of heartworm disease caused by *Dirofilaria immitis* and the treatment of *Dirofilaria immitis* circulating microfilariae in heartworm-positive dogs. **Advantage Multi for Dogs** kills adult fleas and is indicated for the treatment of flea infestations (*Ctenocephalides felis*). **Advantage Multi for Dogs** is indicated for the treatment and control of sarcoptic mange caused by *Sarcoptes scabiei var. canis*. **Advantage Multi for Dogs** is also indicated for the treatment and control of the following intestinal parasites species: Hookworms (*Ancylostoma caninum*) (*Uncinaria stenocephala*), Roundworms (*Toxocara canis*) (*Toxascaris leonina*) and Whipworms (*Trichuris vulpis*).  
**Advantage Multi for Cats** is indicated for the prevention of heartworm disease caused by *Dirofilaria immitis*. **Advantage Multi for Cats** kills adult fleas (*Ctenocephalides felis*) and is indicated for the treatment of flea infestations. **Advantage Multi for Cats** is also indicated for the treatment and control of ear mite (*Otodectes cynotis*) infestations and the intestinal parasites species Hookworm (*Ancylostoma tubaeforme*) and Roundworm (*Toxocara cati*). **Ferrets:** **Advantage Multi for Cats** is indicated for the prevention of heartworm disease in ferrets caused by *Dirofilaria immitis*. **Advantage Multi for Cats** kills adult fleas (*Ctenocephalides felis*) and is indicated for the treatment of flea infestations in ferrets.  
**CONTRAINDICATIONS:** Do not administer this product orally. (See WARNINGS). Do not use the Dog product (containing 2.5% moxidectin) on Cats.  
**WARNINGS:**  
**Advantage Multi for Dogs:** For the first 30 minutes after application: Ensure that dogs cannot lick the product from application sites on themselves or other treated dogs, and separate treated dogs from one another and from other pets to reduce the risk of accidental ingestion. Ingestion of this product by dogs may cause serious adverse reactions including depression, salivation, dilated pupils, incoordination, panting, and generalized muscle tremors. In avermectin sensitive dogs\*, the signs may be more severe and may include coma and death.\*  
\*Some dogs are more sensitive to avermectins due to a mutation in the MDR1 gene. Dogs with this mutation may develop signs of severe avermectin toxicity if they ingest this product. The most common breeds associated with this mutation include Collies and Collie crosses.  
\*Although there is no specific antidote for avermectin toxicity, even severely affected dogs have completely recovered from avermectin toxicity with intensive veterinary supportive care.  
**Advantage Multi for Cats:** Do not use on sick, debilitated, or underweight cats. Do not use on cats less than 9 weeks of age or less than 2 lbs. body weight. Do not use on sick or debilitated ferrets.  
**HUMAN WARNINGS:** Not for human use. Keep out of the reach of children. Dogs: Children should not come in contact with the application sites for two (2) hours after application. Cats: Children should not come in contact with the application site for 30 minutes after application.  
Causes eye irritation. Harmful if swallowed. Do not get in eyes or on clothing. Avoid contact with skin. Wash hands thoroughly with soap and warm water after handling. If contact with eyes occurs, hold eyelids open and flush with copious amounts of water for 15 minutes. If eye irritation develops or persists, contact a physician. If swallowed, call poison control center or physician immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or physician. People with known hypersensitivity to benzyl alcohol, imidacloprid, or moxidectin should administer the product with caution. In case of allergic reaction, contact a physician. If contact with skin or clothing occurs, take off contaminated clothing. Wash skin immediately with plenty of soap and water. Call a poison control center or physician for treatment advice. The Safety Data Sheet (SDS) provides additional occupational safety information. For a copy of the Safety Data Sheet (SDS) or to report adverse reactions call Bayer Veterinary Services at 1-800-422-8674. For consumer questions call 1-800-255-0926.  
**PRECAUTIONS:** Do not dispense dose applicator tubes without complete safety and administration information. Use with caution in sick, debilitated or underweight animals. The safety of Advantage Multi for Dogs has not been established in breeding, pregnant, or lactating dogs. The safe use of Advantage Multi for Dogs has not been established in puppies and dogs less than 7 weeks of age or less than 3 lbs. body weight. Advantage Multi for Dogs has not been evaluated in heartworm-positive dogs with Class 4 heartworm disease.  
Cats may experience hypersalivation, tremors, vomiting and decreased appetite if Advantage Multi for Cats is inadvertently administered orally or through grooming/licking of the application site. The safety of Advantage Multi for Cats has not been established in breeding, pregnant, or lactating cats. The effectiveness of Advantage Multi for Cats against heartworm infections (*D. immitis*) after bathing has not been evaluated in cats. Use of this product in geriatric cats with subclinical conditions has not been adequately studied. Ferrets: The safety of Advantage Multi for Cats has not been established in breeding, pregnant, and lactating ferrets. Treatment of ferrets weighing less than 2.0 lbs. (0.9kg) should be based on a risk-benefit assessment. The effectiveness of Advantage Multi for Cats in ferrets weighing over 4.4 lbs. (2.0 kg) has not been established.

Editor's note: After receiving this question, we reached out to Zoetis for more information. The company responded that Clavamox Drops are on back-order until the second quarter of 2019 but that Clavamox Chewable tablets are in full supply.

Clavamox Drops (Zoetis) is a frequently used antibiotic for cats but is unavailable for the near future. What can be used in its place? Generic amoxicillin-clavulanate for suspension? Alternatives like fluoroquinolone class antibiotics?

There are two possible options. But before we get to those, remember that amoxicillin, with or without clavulanic acid, shouldn't be used to treat gram-negative infections unless they're located

in the urinary tract. And as far as I'm concerned, because of its short one-hour half-life, it is a q8h drug (e.g. in the morning, after getting home from work and at bedtime).  
For option one, if *Staphylococcus* species aren't being treated, you may not need the clavulanate, and amoxicillin will work on its own.  
For option two, the answer is yes—one probably could use generic amoxicillin-clavulanate instead. I say probably because without bioavailability studies in dogs or cats, we can't know for sure that it's absorbed the same way Clavamox is. I wouldn't use the slow-release human Clavamox preparations, however, as they are more likely to be absorbed differently.  
I don't consider fluoroquinolone antibiotics to be an amoxicillin-clavulanate substitute for several reasons.

I think of the fluoroquinolones as a higher tier class of antimicrobials. If therapy fails, you leave behind a population of high-level multidrug-resistant microbes. Moreover, their gram-negative spectrum is much better than that of amoxicillin and can include *Pseudomonas* species (depending on the isolate). I thus like to protect them and recommend reserving their use based on culture and susceptibility results when possible.  
  
Dr. Dawn Boothe is a professor of physiology and pharmacology at Auburn University College of Veterinary Medicine. She also serves as the director of the Clinical Pharmacology Laboratory, which offers therapeutic drug monitoring services to veterinary practices throughout the country and across the globe.





# Experience the many layers of Advantage Multi<sup>®</sup> (imidacloprid+moxidectin)

Every dog and cat deserves comprehensive, broad-spectrum protection. That's why Advantage Multi<sup>®</sup> delivers layers of protection from heartworms, fleas and intestinal parasites.



Provide the multi-layered protection of Advantage Multi<sup>®</sup> to the pets in your care.

Visit [LayersofMulti.com](http://LayersofMulti.com) or contact your Bayer Sales Representative.

\*Treats and controls roundworms, hookworms and whipworms in dogs and roundworms and hookworms in cats.

CAUTION: Advantage Multi<sup>®</sup> is only available from a licensed veterinarian. Dogs: WARNING: **DO NOT ADMINISTER THIS PRODUCT ORALLY.** For the first 30 minutes after application, ensure that dogs cannot lick the product from application sites on themselves or other treated animals. Children should not come in contact with the application sites for two (2) hours after application. (See Contraindications, Warnings, Human Warnings and Adverse Reactions for more information.) Cats: Do not use on sick, debilitated, or underweight cats. Avoid oral ingestion.

© 2019 Bayer, Shawnee Mission, KS 66201. Bayer, the Bayer Cross and Advantage Multi are registered trademarks of Bayer. AM19567

Please see Brief Summary on page M6.





**We believe in  
evidence-based learning  
(and fun)**

At our conferences you'll find yoga and meditation and the opportunity to tackle your issues and focus on yourself. But you'll also find top-notch clinical CE that keeps you up to date on the most important issues delivered by thought leaders and innovators in the field.

**At Fetch dvm360 conference, you'll get:**

- ✓ Resources you need for every problem you face
- ✓ Inspiration to love your job again
- ✓ Connections with like-minded peers



**Take your CE to the next level.**

We have three dates and locations each year.

**Go to [fetchdvm360.com](https://fetchdvm360.com) to learn more.**

**Register today.**





ANDRIANO CZISTOCK/ADOBE.COM

# When it comes to **dental radiography**, do you know what's normal?

You need a solid understanding of the basics before you can leap to abnormal, says Barden Greenfield.

*By Hilal Dogan, BVSc, CCTP*

**Y**ou need to know what's normal in dental radiography before you look for the abnormal, said Barden Greenfield, DVM, DAVDC, at a recent Fetch dvm360 conference. If you have digital dental radiography you need to perform radiographs on every case, Dr. Greenfield stresses. Why? A recent UC Davis study found that three out of 10 dogs and four out of 10 cats had disease that can only be diagnosed with radiography. This study also found that of those patients with pathology, 50% had more than one problem.<sup>1,2</sup>

**VitusVet**

**Meet your new technology partner.**

By combining smart tech and smart vets, we're helping practices of all shapes and sizes run more efficiently — while improving pet health.

[vitusvet.com](http://vitusvet.com)



What Dr. Greenfield is saying is that if you've got it, use it.

## 10 tips on dental dilemmas

Here are what Dr. Greenfield calls the 10 keys to better understanding of normal dental radiographs:

### 1. Know your terms and anatomy

- > The periodontal ligament space is very important, says Dr. Greenfield. It widens with disease, so pay attention to this space when taking radiographs, and really get to know it. The periodontal ligament space is there for protection as a shock absorber—it responds to shock by signaling pain. It is attached to the tooth root cementum and to alveolar bone; without that space there will be ankylosis, and the patient won't feel anything.
- > The coronal aspect is another name for the tip of the tooth. With immature teeth, the apex is open until 10 to 12 months of age. Once the apex closes, no more eruption of a tooth can happen. More important, apical closure is important in the continued maturation of a tooth, which continues to grow internally throughout the life of the pet.
- > Tooth buds can be seen in radiographs at about 8 to 12 weeks of age. Dr. Greenfield says you can take images at 12 weeks of age to see if a full set of teeth will come in.

### 2. Know your breed differences

A few examples from Dr. Greenfield: Portuguese water dogs may have delayed tooth eruption, boxers have a high incidence of embedded maxillary and mandibular first premolars, and bulldogs and boxers have a wide mandibular symphysis. Variances should be appreciated. Historically, the smaller the breed, the higher the potential for more problems like tooth crowding, rotation and embedded teeth.

### 3. When looking at radiographs, place them the way the mouth is oriented

If you have all of your radiographs assembled in a way that mimics the natural way the teeth fall in the mouth, it helps with localizing any problems.

### 4. Symphyseal widening or separation may not mean symphyseal fracture

If you notice a nontraumatic symphy-

seal separation or laxity, don't wire it. This laxity can be a result of periodontal disease, so treat the affected teeth and forego any wiring techniques, says Dr. Greenfield. That method of fixation should only be used when traumatic separation occurs. Extract the infected teeth and let the area heal if the cause is periodontal disease.

### 5. Know your radiograph artifacts, but don't throw the baby out with the bath water

Dr. Greenfield says foreshortening and elongation are two common errors that can give you difficulty in adequately interpreting images. This is especially true with addressing endodontic disease, as foreshortened images make visualization of the apices more difficult. So change your angle if this occurs.

Overexposing and underexposing images are also quite common problems for the novice dental radiographer. Dr. Greenfield warns that many times, increased contrast can be more appealing to the eyes, but at a cost. Marginal bone (the bone level just below the gum line) may not be visualized with high contrast, so lower contrast, which may be a bit less clear, is preferred in many instances.

### 6. Look at the whole picture, not just the radiographs

Is the tooth discolored? Is it broken? A discolored tooth is a dead tooth 93% of the time, says Dr. Greenfield. However, you may not see evidence of endodontic disease in a discolored tooth. Only 43% of discolored teeth show radiographic signs of disease (wide pulp cavity, apical lucency).

### 7. If it looks abnormal, always shoot the other side

For example, the mandibular first molar may have a wide periodontal ligament space compared to other teeth, so compare this space with the contralateral first molar to determine if one space is wider than the other (see more on the Chevron effect below).

### 8. Recognize anomalies

Anomalies are still within the realm of normal, so if they're not causing spatial problems then they can be left alone. Dr. Greenfield's list of common ones:

- > Chevron effect—normal radiographic artifacts that extend apically from the apex and can be quite

large. They're regular in shape, extending the contour of the alveolus in a gently pointed arc. Endodontic disease appears as an expanded circular space.<sup>3</sup>

- > Three-rooted maxillary premolars (second and third premolars) and second molars—normal maxillary second and third premolars have two roots. On rare occasions, they can have three roots, so they should be investigated radiographically.
- > Gemination tooth—incompletely separate crowns but a single root, commonly seen in incisors and first premolars (which are normally single-rooted).
- > Tooth fusion—a developmental anomaly that occurs because of a union of one or more adjacent teeth.
- > Curved root tips—roots are usually straight. Knowing your anatomy will save your bacon when extracting these teeth.
- > Microdontia—smaller-than-normal teeth
- > Supernumerary teeth—extra teeth
- > Twinning—two of the same tooth
- > Missing teeth.

### 9. Know the three-rooted teeth

Dr. Greenfield's clarion call: Charge more for your three-rooted teeth extractions because they are more work! Also, make sure you section these teeth prior to extraction, giving yourself three one-rooted extractions.

### 10. Stop calling a "dental"

That's an adjective, not a noun. Dr. Greenfield calls his procedure a "complete periodontal exam and therapy." It's also known as Oral ATP (assessment, treatment, prevention) or COHAT (comprehensive oral health assessment and treatment).

#### References

1. Verstraete FJ, Kass PH, Terpak CH. Diagnostic value of full-mouth radiography in dogs. *Am J Vet Res* 1998;59:686-691.
2. Verstraete FJ, Kass PH, Terpak CH. Diagnostic value of full-mouth radiography in cats. *Am J Vet Res* 1998;59:692-695.
3. DuPont GA, Dubose LJ. *Atlas of dental radiography in dogs and cats*. St. Louis: Saunders, 2009;24.

*Frequent Fetch dvm360 speaker Hilal Dogan, BVSc, CCTP, practices medicine in Denver, Colorado. She started the Veterinary Confessionals Project (check it out at [dvm360.com/vetconfessionals](http://dvm360.com/vetconfessionals)) as a senior veterinary student at Massey University in New Zealand.*



**Get down with your dentistry skills**  
Salivating for more dentistry content? Visit [dvm360.com/dentistry](http://dvm360.com/dentistry). Want to learn with the dentists? Register for [fetchdvm360.com](http://fetchdvm360.com).





For Anxiety | For Insomnia | For Depression

Alpha-Stim®

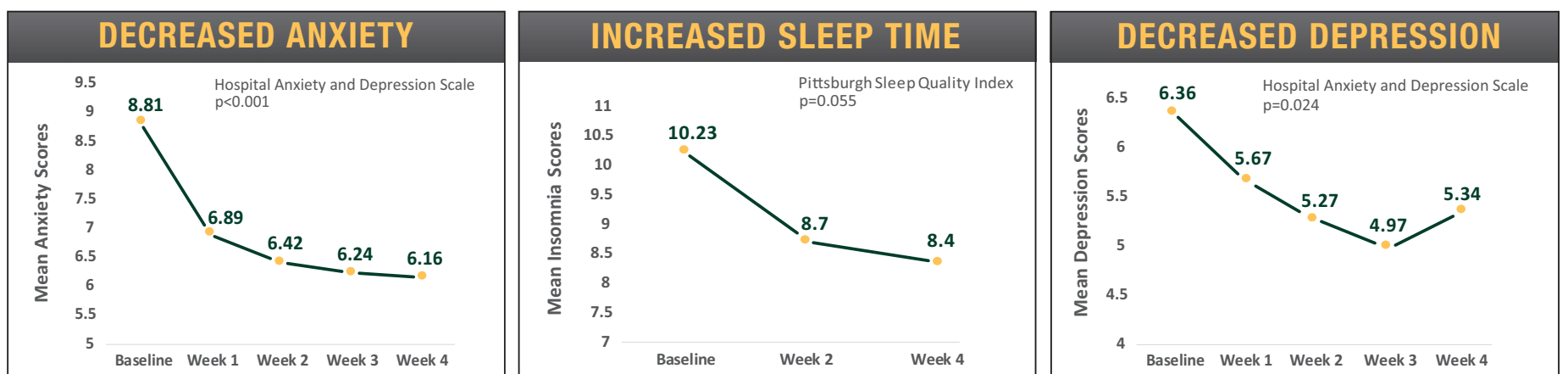
Alpha-Stim is the drug-free, clinically proven treatment to relieve anxiety, stress, and fear.

Don't let fearful or aggressive behavior from stressed pets or horses get in the way of a successful visit to your hospital. Alpha-Stim is an FDA cleared, easy to use, handheld prescription medical device that improves mood conditions, often in less than 20 minutes, without side effects or use of medication.



Proven by more than 100 studies over the past 38 years, Alpha-Stim is a fast, safe and effective treatment to help you, your staff, and your patients have the best in-clinic experience possible!

**LATEST RESEARCH:** The University of Texas MD Anderson Cancer Center, “Cranial Electrotherapy Stimulation for the Management of Depression, Anxiety, Sleep Disturbance, and Pain in Patients with Advanced Cancer”



#### REFERENCE

Yennurajalingam S, Kang D-H, Hwu W-J, Padhye NS, Masino C, Dibaj SS, Liu DD, Williams JL, Lu Z, Bruera E. Cranial electrotherapy stimulation for the management of depression, anxiety, sleep disturbance, and pain in patients with advanced cancer: a preliminary study. *Journal of Pain and Symptom Management*. 2018 Feb; 55(2): 198-204.

HELP FOR YOUR PATIENTS IS HERE.

To get started and to see more clinical data, visit [www.alphastimforanimals.com](http://www.alphastimforanimals.com) or call 855-900-3585.



One of these things is just like the others

# Cloning: Your new reproductive tool?

Duplicating high-performance, defect-free animals this way is the industry's newest path to mold equine genetics. *By Ed Kane, PhD*

In March of 2018, *60 Minutes* reporter Leslie Stahl broadcast a story about Argentina's Adolfo Cambiaso, the top-rated polo player in the world, and his use of cloning to "duplicate" elite polo ponies. The first horse ever cloned was in 2003 through the use of technology similar to that used on Dolly the sheep, the first mammal to be cloned from adult and not embryonic cells.

In 2006, Cambiaso's horse, Aiken Cura, fractured his leg and had to be euthanized. "Before doing so," Stahl said in the segment, "Cambiaso asked his veterinarian to save some of the horse's skin cells, thinking technology would evolve and he could bring Aiken Cura back to life through cloning."

Cambiaso partnered with wealthy polo enthusiast Alan Meeker of Texas, who according to Stahl had long dreamed of building a fleet of champion horses. In 2009, Meeker founded a horse-cloning business based in Argen-

tina, and a year later they sublicensed technology from ViaGen, the exclusive global licensee of the cloning technology that was used to create Dolly.

Their initial efforts resulted in the birth of a foal clone to Cambiaso's beloved Aiken Cura. "The foal grew into this magnificent healthy horse, almost exactly like his genetic duplicate, having his strength, athleticism, agility and temperament," Cambiaso told Stahl.

Cambiaso also decided to clone his biggest polo star, a mare called Cuartetera. He eventually created more than a dozen clones of Cuartetera. "From those little points [skin cells from a spot on her neck], we made all those horses," Cambiaso said proudly.

The clones are not exactly identical to the original; for example, the white markings on the bodies of the Cuartetera clones are different in shape and location on the body. But all her clones seem to have inherited Cuartetera's

calm, self-contained temperament.

The clones don't seem to have any special health issues. "We talked to scientists at the NIH," Stahl reported. "We were told that there's no evidence that cloned animals suffer disproportionate health problems, though they have a slightly higher infant mortality rate."

According to the *60 Minutes* piece, Cambiaso's team now creates 100 clones per year, and they use them in their breeding business. They mate the clones with championship horses and sell the foals for up to \$250,000. But they do not sell the clones themselves, a business strategy that lets them keep the original DNA to themselves.

Though cloning is allowed within most horse breed registries, it's banned for racing thoroughbreds and quarter horses. Even so, thoroughbreds and quarter horses are regularly cloned and participate in disciplines such as dressage, polo and rodeo.



**More neighs,  
fewer nays**

Get the latest medicine  
and tips for communicating  
with today's horse owner at  
[dvm360.com/equine](http://dvm360.com/equine).



## The cloning procedure

ViaGen Equine in Cedar Park, Texas, bills itself as the global leader “in bringing horse cloning technology to the world’s innovative horse owners.” ViaGen has cloned hundreds of elite horses, including ViaGen president Blake Russell’s stallion Pure Tailor Fit.

ViaGen produces cloned foals for clients around the world, shipping horses annually to Europe and other regions. The company markets its genetic preservation and cloning services as a tool in the equine practitioner’s toolbox of reproductive capabilities.

The process begins with a biopsy of the horse. After receiving the ViaGen kit, a veterinary practitioner takes multiple, small (4- to 6-mm) biopsy punches, predominantly skin with a small amount of tissue below the skin. The area is then sutured with one or two stitches. “The procedure is so mild, quite often horses are biopsied and compete on the same day,” states Russell. The biopsy is then placed in the ViaGen kit and shipped to the company’s cell culture lab in Cedar Park.

“In a period of about two to three weeks we’re able to take the set of biopsy punches and convert them into a cell line of literally millions of cells that each have the DNA necessary to produce an ‘identical twin’ of that donor

animal,” Russell explains. As a precaution, ViaGen preserves the cell line in multiple vials in multiple locations.

The cells have a life well into the future. “I don’t think there’s data to show that it’s guaranteed forever,” Russell says, “but still, we’ve cloned from cell lines that have been stored for more than 20 years.”

Once a client decides to move forward with cloning, ViaGen thaws the cell line and places the DNA into an enucleated oocyte. The oocytes can be obtained commercially from unknown mares or can be collected in vivo. Once the oocyte has received its new genetic material, ViaGen conducts its proprietary process to activate fusion and begin embryo development.

In horses, ViaGen is able to culture the embryo in an incubator for six days, which allows them to assess its development. The embryo is then graded based on phenotype and transferred to surrogate mares according to routine embryo transfer protocols. From that point forward, the process is essentially the same as a conventional equine embryo transfer at the seven-day stage. The mare gestates for 330-plus days.

After foaling, the mare and foal remain at Timber Creek Veterinary Clinic, a ViaGen-affiliated veterinary hospital, for observation and care until the client is able to inspect the foal. Normally these foals remain at Timber Creek for 30 to 60 days. This also allows for DNA from the foal to be sent to a third party for verification that it’s a match to the donor animal. Finally, the foal is transported to its owner, either with the surrogate mare or after weaning.

## Genetic impact

Sixteen years ago, when ViaGen started cloning horses, the technology was relatively new. The company’s interest was to clone proven breeding animals to help horse owners magnify the value of their horses’ genetics—especially the

females. The thought was that outstanding mares have a limited ability to contribute to the population, since they can have a foal only once a year or so.

“We give these mares an opportunity to provide a larger genetic dose to the breeding population. Cloning expands an elite mare’s impact,” Russell states.

ViaGen also realized that cloning enabled them to work with geldings. Cloning allows these horses to be “stallions” again, able to pass on their genetics to future generations of horses.

Still, there are no guarantees of a champion career. “Cloning is receiving very positive feedback,” Russell says. “But most horse breeders understand that genetics are just one part of that equation. We can reproduce the genetic potential, but a performance champion needs both genetics and environment.”

Some people, of course, just want to duplicate a horse they had a special relationship with. Though that’s a relatively small portion of the cloning market, it’s growing in popularity, ViaGen says.

## What clients want

“I think it’s really important that people realize that cloning is just another advanced breeding technology,” says Gregg Veneklasen, DVM, of Timber Creek Veterinary Hospital, a ViaGen-affiliated veterinarian and expert on cloning and embryo transfer. “Though the technology is 20 years old, today there are hundreds of clones.

“The procedure is not any different than being able to do embryo transfer. The clones are made from vitrified cells and thawed, and the embryos are put in the surrogate mare’s uterus, which is my portion of the procedure.”

Cloning has been an extensive part of Dr. Veneklasen’s journey in his 36 years as a veterinarian. “I’ve seen horses, through single-trait selection, lose many important traits associated with reproduction and soundness,” he says. “Cloning is a way to utilize elite horses from our past that demonstrate desirable traits for today and can reintroduce traits of interest such as long-term soundness, reproductive fitness, etc.”

The bottom line, Dr. Veneklasen says, is that cloning is a tool equine practitioners can use that works.

*Ed Kane, PhD, is a researcher and consultant in animal nutrition based in Seattle. He covers nutrition, physiology and veterinary medicine for dvm360.*

## Cloning in cattle

Genomics is rocking food production—and so is cloning, says ViaGen President Blake Russell.

Through genomics—the analysis of an animal’s DNA—producers identify elite animals without observing them for their entire productive life. This genetic technology is now being used extensively for both beef and dairy cattle. And it fits perfectly with reproductive technologies such as cloning, Russell says.

“A few days after a calf is born, they can approximate its value based on its genomics,” he continues. “A dairy producer might wait years for a high-end, high-genomic heifer. Now that producer can replicate a high-genomic calf via cloning and have multiples.”

In beef cattle, geneticists have been able to identify genetic defects that affect productivity. “ViaGen is often called on to provide cloning services for breeding animals who are free from the known genetic defects to clean up a population,” Russell says.

This is similar to what’s happening in horses. “We continue to identify some of these genetic defects across the horse population,” Russell says. “With the ability to bring ‘clean’ geldings or ‘clean’ mares back into the breeding pool, we can have clean genetics without sacrificing performance.”



A clone of Tailor Fit, ViaGen President Blake Russell’s quarter horse stallion. Tailor Fit was a two-time AQHA World Champion racehorse. Photo courtesy of Blake Russell.



## Meet Nubia

In 2016, we wrote about ViaGen’s cloning of a Jack Russell terrier. Read all about the first American-born cloned puppy at [dvm360.com/Nubia](http://dvm360.com/Nubia).



## What your clients need to know

Use these preventive tips from the CDC to help educate clients:

- Don't kiss or snuggle your hedgehog: doing so makes germs easily accessible to the mouth.
- Wash your hands: Do this every time you come in contact with a hedgehog, not just when picking up its feces.
- Keep your hedgehog out of the kitchen—or anywhere food is prepared and consumed. While the virus presents itself in the animal's droppings, it easily and often spreads onto their bodies.
- Clean poop doesn't mean *Salmonella*-free. Even if your hedgehog's droppings look normal, that doesn't mean it doesn't contain bacteria. Play it safe by always washing your hands or wearing gloves.



**Birds and reptiles and small mammals ...**

**If exotic medicine is your bag, check out the medicine and news content we've got at [dvm360.com/exotics](http://dvm360.com/exotics).**

# What's with the recent hedgehog *Salmonella* outbreak?

Hedgehogs—so cute they can make you sick, literally. Here's what the CDC wants you (and your veterinary clients) to know.

By Anissa Fritz

**E**leven cases of *Salmonella typhimurium* have been confirmed in eight different states in the last three months, and the CDC suspects hedgehogs to be the cause.

Ten out of the 11 diagnosed individuals had contact with a hedgehog, according to the CDC. No link has been found between the infected hedgehogs and a specific retailer.

But human infection caused by pets isn't new news. In fact, the CDC reports an outbreak (usually due to a species of *Salmonella*) caused by human-to-animal interaction almost every year. Lorelei D'Avolio, LVT, VTS (Exotics), CVPM, believes that people continue to contract diseases from exotic pets due to lack of education on zoonotic risks.

---

*The CDC reports an outbreak (usually due to a species of *Salmonella*) caused by human-to-animal interaction almost every year.*

---

"Everyone knows not to change your cat's litter box if you're pregnant or that dogs can have mange or ringworm. But people don't really think

about things that exotic pets might carry like *Salmonella*," D'Avolio says.

Don J. Harris, DVM, says outbreaks such as this are a question of mechanics, not prevalence. To illustrate, Dr. Harris refers to the "four-inch law"—an FDA regulation that prohibits pet stores from selling turtles under four inches in diameter to help prevent children from contracting *Salmonella* orally. Children under the age of 5 and adults over 65 are most prone to animal-caused infections, according to the CDC.

"The threat of *Salmonella* is inversely proportional to the size of the animal," Dr. Harris says. "The smaller the animal, the less likely they are to carry *Salmonella*. But the easier it is to be transmitted if they have it."



# QUALITY IS NOW AT YOUR FINGERTIPS

Building on the tradition of the over 100 year B. Braun legacy, PRN Pharmacal is able to provide cost savings over other manufacturers without compromising quality or clinical performance. This extensive experience in sutures allows PRN Pharmacal to offer a comprehensive product line with over 100 different absorbable and non-absorbable sutures to meet the needs of different specialties and surgeries.

- Provides up to 43% less cross-section surface for reduced tissue trauma and less bleeding
- Short cutting point improves penetration with less force
- High knot-pull tensile strength with excellent handling features
- Available in oval-shaped racetrack packaging that ensures less memory



**Buy five (5) units of VPL Sutures and receive one (1) unit FREE (mix & match).**

*Offer valid May 1, 2019 - June 30, 2019*

*Ask your sales representative for more details.*

All qualifying orders must be on a single invoice. Free goods will be fulfilled by distribution. Free goods may not be returned for credit. Purchases must be invoiced between May 1, 2019 and June 30, 2019. PRN Pharmacal reserves the right to modify or withdraw this promotion at any time.

**Bonus: When you purchase five units of sutures, you will also receive one FREE tube of Collasate Silver 7gm tube.**





# Do you need a CT scanner?

A veterinary imaging specialist answers money, time and space questions you have for general practice. *By Ketaki Karnik, DVM, MS, DACVR*

**G**eneral practitioners have a very challenging specialty of their own in that they deal with all aspects of veterinary medicine and are often the front line of care for patients. So ... do general practitioners need to offer in-house CT scans?

## What's it worth to you?

A CT scanner can be a big investment in money, training, maintenance and space. For fixed CT scanners, the room—including the glass—must be shielded, which adds to cost. Will the hospital be doing enough CT scans that it will be profitable?

## What do you know about it?

Another consideration is the veterinarian's knowledge of CT: proper protocol and positioning, along with the correct indications for and limitations of the technology. The clinician should also be able to identify artifacts and troubleshoot the CT during the scan if needed.

No matter who's interpreting, the quality of the study will greatly influence

its diagnostic value. Unlike in human medicine, most veterinary patients are anesthetized for their CT scan, so you need to try to get it right the first time. For example, most thorax scans should be done with a breath hold to decrease atelectasis. If there is pleural effusion, the pet may need a thoracocentesis before the scan if it's safe to perform one.

## How big is a CT scanner?

In general, a fixed multislice CT scanner needs to be housed in a room that's at least 14 by 20 feet, according to my source at Sound. However, this can vary depending on the size of the machine. A control area outside of the room that's shielded with lead is also needed for the technician to be able to run the scan.

There are also smaller portable CT systems that require less space, and some of these require no shielding at all. Some of these CTs, however, have a smaller gantry size that limits the size of the patient that can be imaged. Ask your vendor for details.

## Would you rather refer?

There are benefits to having CT done in a facility with an on-site radiologist and other specialists. A radiologist can evaluate the images during the scan while the patient is still under anesthesia, and aspirates or biopsies of abnormal lymph nodes or other tissue can be obtained under the same anesthetic event. Patients often have procedures immediately after the scan. A veterinarian could see a reduction in the number of anesthetic events as well as the time it takes to reach a diagnosis if a patient is referred for CT scan.

Reach out to a veterinary radiologist or spend some time at an imaging facility with a radiologist to become familiar with the protocol, positioning and indications for CT. This will help you make the best decision for your practice—and provide the best diagnostic scan for your patients.

*Dr. Ketaki Karnik is an associate at Southern California Veterinary Imaging in Culver City, California.*



## Cones vs. slices?

Check out the online version of this story for a dive into cone vs. slice computed tomography with Dr. Ketaki Karnik at [dvm360.com/CTscanner](http://dvm360.com/CTscanner).



# products



## Merck Animal Health Half-volume vaccines

Merck Animal Health has introduced Nobivac Edge, a line of low-volume vaccines with 50 percent less volume (0.5 ml) than standard (1 ml) vaccines. These vaccines offer the same efficacy as standard vaccines with administration options for veterinarians to meet pet owners' preferences and needs. Plus, reduction in vaccine volume results in faster administration and a more comfortable vaccination experience, according to company materials. Nobivac Edge DAPPv+L4 was found to be 99 percent reaction-free in a clinical impressions trial involving administration of 1,583 doses to dogs of all sizes.

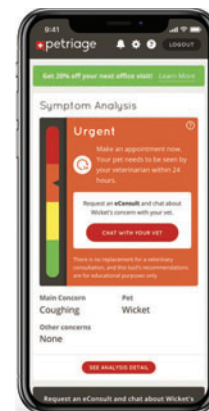
*For fastest response visit [nobivac.com](http://nobivac.com)*



## Nutramax Laboratories Feline immune support

Nutramax has launched Imuquin Cat, an immune health supplement for cats 6 weeks of age and older. Imuquin Cat contains NMX580, a combination of beta-glucan and omega-3 fatty acids, along with a blend of vitamins and minerals to support immune health. Beta-glucan is a naturally occurring polysaccharide that helps support normal immune function, and omega-3 fatty acids help support a healthy immune system through their antioxidant potential and may support the nervous system and retinal development. Imuquin Cat is available in single-serving flavored powder packets that can be added directly to the cat's food.

*For fastest response visit [imuquin.com](http://imuquin.com)*



## Petriage Cloud-based telemedicine platform

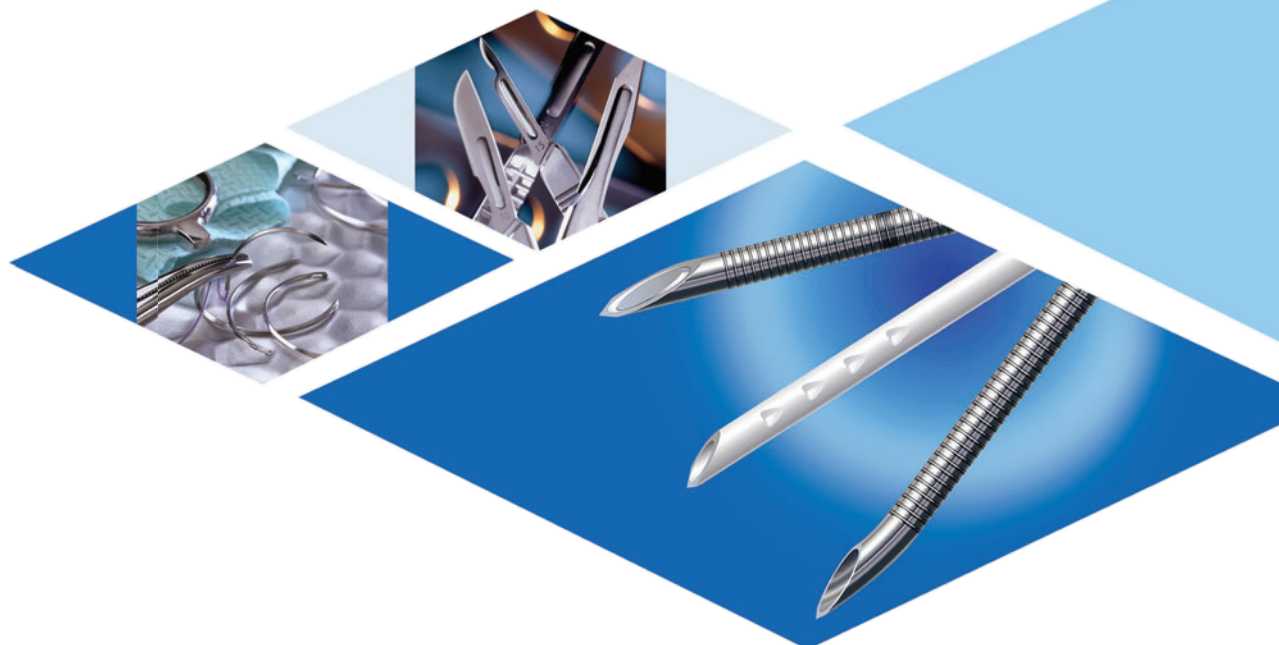
Petriage offers a cloud-based B2B telemedicine platform that allows veterinarians to service their clients and engage them in the remote care of their patients. The service features a proprietary symptom analysis tool, in which pet owners are provided a recommendation in real time regarding the need and urgency of seeking medical care for their pet from their veterinarian.

*For fastest response [petriage.com](http://petriage.com)*

## Over 35 years of quality and innovation, now available to your Veterinary Practice

Havel's Inc. has a variety of veterinary products for your practice. Our affordable echogenic needles, developed by Hakko Medical for use during Ultrasound Guided Procedures, use Corner Cube Reflectors (CCR) or Micro Laser Etching (MLE) to reflect sound waves back to the transducer to illuminate the needle and improve success rates. Havel's also has a large selection of quality surgical blades and sutures at competitive prices. Please call today for your free samples.

**Get a free sample today:**  
**John Barrett**  
**1-800-638-4770, ext. 13**  
**[jbarrett@havels.com](mailto:jbarrett@havels.com)**







CE IN A WHOLE  
NEW WAY!

## Coming to a city near you!

Fetch dvm360™ is a premier family of veterinary conferences all about taking care of the people who care for animals. With expert-driven continuing education opportunities, dozens of exhibitors, presentations, fun and games, there is something for everyone in your practice.

**Kansas City** August 23-26 • **San Diego** December 12-15

Register today! [www.fetchdvm360.com](http://www.fetchdvm360.com)







### UnderDog Pet Products Orthopedic pet bed

The UnderDog Orthopedic Pet Bed brings ROHO Dry Flotation Technology for therapeutic rest from the human health market to pets. The UnderDog bed reduces painful pressure points through even distribution of weight and improves the pet's circulation. This helps to ensure a comfortable rest, increased energy and faster recovery after training, injury or play. The bed—which has experienced quick acceptance from veterinarians for postsurgical patients, canine athletes and geriatric pets—is durable and easy to clean.

For fastest response visit [underdogpetproducts.com](http://underdogpetproducts.com)



### The Company of Animals Anti-pulling harness

The HALTI No-Pull Harness is designed to provide the best possible result for those whose dogs are prone to pulling on the leash. The unique design of the Harness includes a stop-pull lifting feature connected at the back and, in cases of stronger-pulling dogs, an optional front chest attachment that provides even more control and stability when used with a dual-clip leash. Plush underarm and chest panel padding help keep dogs comfortable while ensuring a positive training and walking experience for dogs and pet parents alike.

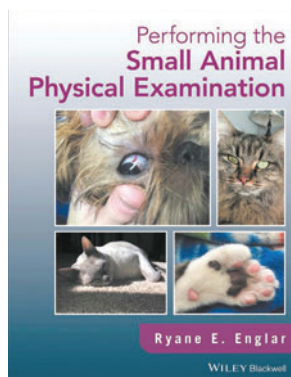
For fastest response visit [underdogpetproducts.com](http://underdogpetproducts.com)



### Companion Animal Health Therapeutic laser handpiece

A “smart” handpiece for the veterinary market, the Empower IQ comes standard on Companion's newest therapy laser, the CTX-IQ. This new product has been engineered to produce consistent clinical outcomes while supporting both new and experienced staff with real-time guidance with the optional Empower IQ Delivery System. The Empower IQ offers both haptic and visual feedback that alerts the user when treatment speed should be adjusted. This ensures that patients are receiving the most accurate therapeutic dose of energy.

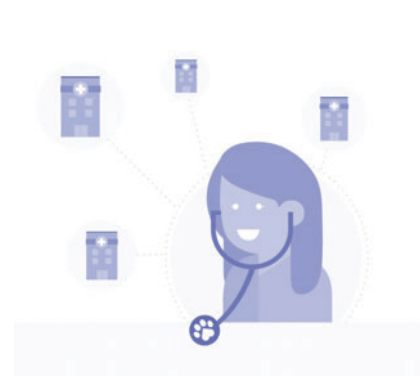
For fastest response visit [companionanimalhealth.com](http://companionanimalhealth.com)



### Wiley Physical exam textbook

Performing the Small Animal Physical Examination by Ryane E. Englar, DVM, DABVP (canine and feline) is an easy-to-follow guide to successfully executing a thorough physical exam in cats and dogs. Nearly 1,000 color photographs demonstrate the individual components of the physical exam and provide picture matching for identification and diagnosis of abnormal findings. Divided into separate sections for the cat and dog, the book tracks the logical progression of an exam beginning with initial observations about the patient and how the patient interacts with the environment. Subsequent chapters cover the in-depth examination of each body system.

For fastest response visit [wiley.com/go/vet](http://wiley.com/go/vet)



### Roo Online relief vet platform

Roo is an online platform connecting veterinary professionals to veterinary hospitals. The service lets hospitals fulfill short-term personnel needs while allowing high-quality professionals to easily secure freelance work. Using the Roo platform, veterinary hospitals can post shifts in real time, allowing doctors to plan vacations or even call in sick. Relief veterinarians can fill these shifts according to their own availability, skills and preferences. Roo also allows each user to create a detailed profile, giving them the opportunity to learn about one another prior to scheduling shifts. Roo's platform is currently serving Houston, Texas, with services eventually rolling out nationwide.

For fastest response visit [roo.vet](http://roo.vet)



### SwedenCare USA Plaque-reducing powder

ProDen PlaqueOff Powder is a dietary supplement, suitable for both cats and dogs, that can help reduce plaque and tartar. A natural product made from specially selected Norwegian seaweed, ProDen PlaqueOff Powder has been found to have specific beneficial effects for oral care, reducing bad breath by up to 63 percent after 12 weeks and reducing plaque by up to 35 percent after the first eight weeks. Independent study results were submitted for review to the Veterinary Oral Health Council (VOHC), resulting in PlaqueOff Powder being allowed to display the VOHC Accepted Seal, “Helps control plaque and tartar,” on its packaging.

For fastest response visit [swedencareusa.com](http://swedencareusa.com)



## MEDICAL EQUIPMENT

**Technidyne**  
Serving the Veterinary Industry Since 1982

(800) 654-8073  
[WWW.TECHNIVET.COM](http://WWW.TECHNIVET.COM)

Proudly made in the U.S.A.

**\$2,980**  
MOBILE WET DENTAL / TREATMENT LIFT TABLE

**\$2,505**  
MOBILE TREATMENT TABLE W/ SCALE

**\$1,655**  
PNEUMATIC LIFT GURNEY

BATTERY OPERATED ELECTRIC LIFT  
LIGHTWEIGHT  
TOMS RIVER, NJ 08755

## SURGICAL SUPPLIES

Put Your Cost Concerns at Ease with [eSutures.com](http://eSutures.com)

**eSutures.com** is a discount distributor of Ethicon and Covidien sutures and endomechanicals, as well as Synthes screws, implants and instruments.

**eSutures Can Offer Your Business:**

- ✓ Name Brands, In Stock
- ✓ All Items Available by the Box or Individual Packet
- ✓ Low Prices
- ✓ No Contracts or Minimum Orders
- ✓ Same Day Shipping

Find out more at: [eSutures.com](http://eSutures.com) or call 888-416-2409

Use promo code: **DVM2019** for 10% off your order of \$50 or more.\*

**eSutures.com**  
The Surgical Superstore

\*Promo code valid for (1) one use only. Offer expires 7/31/19.

## MOBILE VETERINARY

**FEEL THE FREEDOM... OF A MOBILE PRACTICE**

**La Boit**  
*Specialty Vehicles Inc.*

**TOBIAS**  
Mobile Veterinary Practice  
Moving the Vet to the Pet

Dr. Pat Gorman  
484-696-PETS (7387)

[www.laboit.com](http://www.laboit.com)  
800-776-9984

## SUPPLEMENTS

**Pala-Tech™ LABORATORIES**

**FELINE**  
**CANINE**  
**EQUINE**

**Enjoy These Benefits:**

- Improved dosing compliance and clinical outcomes. Happy pets and clients.
- Strengthen the human-animal bond.
- Committed to the veterinarian and your practice.

Visit our website to learn more about the benefits of our high quality, palatable products.

**palatech.com**  
**1-877-402-2357**

**100% PALATABILITY & ACCEPTANCE**



**MEDICAL EQUIPMENT**



# VETERINARY DENTAL, ANESTHESIA & OXYGEN EQUIPMENT

Download all  
product details,  
brochures and  
more from  
our support  
website at:

**engler411.com**

Wall Mount  
included  
Optional  
Stand  
Available



**Mini Scale-Aire High Speed Dental Air Unit**  
Easily connects to a regulated  
nitrogen tank or external compressor

All in one miniature air  
unit Introductory Price  
**\$2350**

Wall Mount included  
Optional Stand  
Available



Our Most Affordable High  
Speed at only  
**\$1295**

**Drill-Aire High Speed Dental Air Unit**  
For Clinics in need of highspeed capability.  
Includes a highspeed handpiece  
and Air-Water Syringe

Wall Mount included  
Optional Stand  
Available



Very affordable High  
Speed at only  
**\$1695**

**Drill-Aire Plus High Speed Dental Air Unit**  
Includes a highspeed handpiece, low speed  
Handpiece and Air-Water Syringe

## SCALE-AIRE HIGH SPEED

Ultrasonic scaler / Highspeed /  
Low speed / Air-Water syringe



Our Most Popular High  
Speed for only  
**\$4275**

Never pay for Oxygen again with one 5L Oxygen concentrator you can run 1 traditional anethesia machine. Visit [www.engler411.com](http://www.engler411.com) to view all our brochures.



**A.D.S. 2000**  
Electronic positive pressure  
Anesthesia Machine/Ventilator

Visit our support website for all our brochures,  
manuals and how to videos [www.engler411.com](http://www.engler411.com)



**Sentinel VRM**  
Veterinary Respiratory Monitor



**Electro-Son Electrosurge Unit**  
Mono & Bipolar LCD Touch Screen



**NEW \$855**  
5 LPM  
**EverFlo 5 LPM**  
Oxygen Concentrator

All Engler Dental Table top units comes with a **SIX YEAR WARRANTY & LIFE TIME LOANER SERVICE** - Visit our support website for brochures, Manuals, Videos Etc... for complete details



**Son-Mate II Ultrasonic Scaler/Polisher**

At the touch of the switch, alternate from scaling to  
polishing plus a variety of other operations. You can perform  
curettage, deep scaling of heavy calculus and stain removal.  
Optional drilling & cutting accessories available



**Sonus II Ultrasonic Dental Scaler**

The Sonus II ultrasonic scaler is a reliable, powerful and  
rugged unit that has a proven track record. As with all our table  
top dental units it is supplied with our super 6 year warranty,  
lifetime loaner service and proudly made in the USA.



**TriMate - Scaler, Polisher & Electrosurgery**

A three in one unit that offers a high quality, high  
powered, fully automated scaler, polisher and general  
purpose electrosurgery unit. (**An Engler Exclusive!!!**)



**Dynax**  
Stretcher & Gurney

The Dynax Gurney is a tubular frame  
construction with unique connectors  
creating a means of supporting the  
Dynax stretcher and the larger canine  
patient, up to 200 pounds.



**The "Original" Cat Grabber**

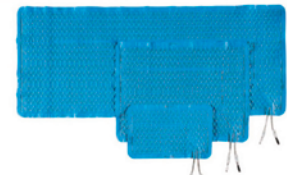
The CAT-GRABBER is the safest means of  
controlling the fractious cat, humanely.

## Digital Water Circulator Warming Pump

**NEW \$595**



The **Engler Circulator Pump** effectively  
warms the patient to assist in preventing  
Hypothermia during surgery, recovery and  
intensive care using heavy duty Maxitherm  
pads. (sold separately) MAXITHERM Pads  
are adaptable to the Gaymar T-Pump.



**MaxiTherm Circulator Pads**

Why pay more? Adapts to all circulator  
warmers. Our pads are less expensive, better  
quality and will last longer than any other  
circulator pad. We also offer our Fleece Bags  
to protect our pads from punctures and  
provides patient comfort. Engler's innovative  
products provide more for less \$\$\$ See  
[www.dynaxusa.com](http://www.dynaxusa.com) for more details.

## Engler Engineering Corp / Dynax

1099 East 47th Street • Hialeah, Florida 33013 USA  
Toll Free 800-445-8581 • Tel: 305-688-8581 / Fax: 305-685-7671  
Email: [info@englerusa.com](mailto:info@englerusa.com) • [dynax@englerusa.com](mailto:dynax@englerusa.com)  
Web: [www.englerusa.com](http://www.englerusa.com) • [www.dynaxusa.com](http://www.dynaxusa.com)  
Download Brochures, Manuals, Videos, How to Pages and much more at:  
Support website: [www.engler411.com](http://www.engler411.com)



Proudly made  
in the U.S.A.


Search for the company name you see in each of the ads in this section for **FREE INFORMATION!**






## Anesthesia Equipment


**BLUEPRINT FOR BREATHING**  
Anesthesia made simple... A.D.S. 2000

 Proudly made in the U.S.A.



**Revolutionary Veterinary Breakthrough**

- Anesthesia Machine (Positive Pressure)
- Electronically microprocessor controlled
- Delivery & Ventilation for small animal use
- Automatically sets breathing parameters
- Very affordable and easy to use
- Just connect to vaporizer & Oxygen



**engler** engineering corporation  
In Business Since 1964  
1099 East 47th Street - Hialeah, Florida 33013 USA  
800-445-8581 - FAX 305-685-7671  
[www.englerusa.com](http://www.englerusa.com)

## Continuing Education

**THE CAPSULE REPORT**  
Does it seem like your colleagues are always a step ahead of you? Maybe it's because they read The Capsule Report.  
See why at [www.CapsuleReport.com](http://www.CapsuleReport.com)

## Dental

**SON-MATE II DENTAL SCALER POLISHER COMBO**

THE ONLY UNIT YOU WILL NEED FOR ALL YOUR DENTAL NEEDS



**6 YEAR WARRANTY LIFETIME LOANER SERVICE**

 Proudly made in the U.S.A. In Business Since 1964

 **\$1825**

**engler** engineering corporation  
1099 East 47th Street - Hialeah, Florida 33013 USA  
800-445-8581 - FAX 305-685-7671  
[www.englerusa.com](http://www.englerusa.com)

**PLACE YOUR AD HERE**  
Get your message to veterinarians TODAY



## Employment

**Need Techs? Support Staff?**



**WhereTechs Connect.com**

Connecting vet techs with jobs since 2003

**Fast. Easy. Inexpensive.**  
**WhereTechsConnect.com is your answer!**

## Pet ID Products

**MICROCHIPS ONLY \$9.95 FREE LIFETIME REGISTRATION**



ISO Compliant 134.2 kHz freq. Readable by ANY Universal Scanner

[www.911PetChip.com](http://www.911PetChip.com)  
(818) 445-3022 / jon@911petchip.com

## Medical Services

**ULTRASONIC REPAIRS**

Send your Ultrasonic Scaler for tuning and repair to ENGLER ENGINEERING CORPORATION, the manufacturer of TIPS, STACKS and MARATHON 25K insert, SONUS V, ULTRASON 990, SON-MATE, POLI-X and ADS 1000, SONUS II, SON-MATE II and ADS 2000 (Anesthesia Delivery System/Ventilator). Sole manuf. of spare parts for the ENGLER line of scalers and all the former LITTON units the Sonus II, LT:200, Ultrason 880, Veterinarian II & others. Six month warranty on repairs. In business since 1964.

**NEW** Now Repairing: SHORELINE, Prosonic, OraSonic & AlphaSonic Piezo Electric Ultrasonic Dental Scaler Units  
Check out our NEW SUPPORT WEBSITE [www.engler411.com](http://www.engler411.com)

 1099 East 47th Street - Hialeah, Florida 33013 USA  
800-445-8581 - FAX 305-685-7671  
[www.englerusa.com](http://www.englerusa.com)

 Proudly made in the U.S.A. In Business Since 1964

## Mobile Veterinary

**Mobile Veterinary Clinics**

Lower stress on your patients by bringing all your services to your clients. With less overhead and more freedom!

*Your Mobile Workplace*



**MAGNUM MOBILE** Specialty Vehicles

602.478.4206  
MAGNUMMOBILESV.COM  
West Coast Manufacturer Phoenix, AZ

Compare our products before rolling forward and you'll find Magnum is By Far The Leader!



# Join the pack!

Get instant updates on critical developments in veterinary medicine, business and news by following dvm360.



[facebook.com/dvm360](https://facebook.com/dvm360)

[twitter.com/dvm360](https://twitter.com/dvm360)



For a full listing of events in 2019, visit **dvm360.com/calendar**



**August 21-23**  
HospitalDesign360 Conference  
(800) 255-6864, ext. 6  
**fetchdvm360.com/hd**



**August 23-26**  
Fetch dvm360  
in Kansas City  
(800) 255-6864, ext. 6  
**fetchdvm360.com/kc**



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



**Here are the CE opportunities coming in the next few months**

**May 16-19**  
90th Annual Florida  
VMA Conference  
Tampa, FL  
(800) 992-3862  
fvma.org

**May 29-30**  
Dairy Cattle  
Welfare Symposium  
Kissimmee, FL  
(614) 292-9145  
dcwcouncil.org

**June 3-8**  
Veterinary Leadership  
Experience  
Post Falls, ID  
veterinaryleader-  
shipinstitute.org

**June 6-8**  
2019 ACVIM Forum  
Phoenix, AZ  
(303) 231-9933  
acvim.org

**June 7-9**  
Colorado VMA CE West  
Denver, CO  
(303) 318-0447  
colovma.org/ce-west

**June 13-14**  
VMC's Financial  
Boot Camp  
Milwaukee, WI  
(303) 674-8169  
vmc-inc.com

**June 17-19**  
Updates in Neurology &  
Emergency Critical Care

Whitefish, MT  
(888) 488-3882  
vetvacationce.com

**June 28-29**  
2019 Access to  
Veterinary Care  
Symposium  
Knoxville, TN  
pphe.utk.edu

**July 10-12**  
Updates in  
Dermatology,  
Anesthesia and  
Emergency Critical Care  
Aspen, CO  
(888) 488-3882  
vetvacationce.com

**July 16-19**  
44th World Small  
Animal Veterinary  
Association Congress  
and 71st Canadian  
Veterinary Medicine  
Association Convention  
Toronto, ON  
canadianveterinar-  
ians.org

**July 19-21**  
PRIMA Move—Integra-  
tive Rehabilitation:  
Canine Cranial Cruciate  
Ligament Disease  
Fort Collins, CO  
(970) 818-0851  
curacore.org

**July 21-23**  
Great Lakes  
Veterinary Conference

Traverse City, MI  
michvma.org

**August 2**  
20th Annual  
Hambletonian  
CE Seminar  
East Rutherford, NJ  
(908) 581-7673  
firstchoicemarket-  
ing.us

**August 2-5**  
Southern Veterinary  
Conference  
Birmingham, AL  
(205) 655-2320  
thesvconline.com

**August 2-6**  
AVMA Convention  
Washington, DC  
avma.org/events  
**August 7-9**  
Updates in Dentistry  
and Emergency  
Critical Care  
Mont Tremblant, QC  
(888) 488-3882  
vetvacationce.com

**August 15-18**  
13th Keystone  
Veterinary  
Conference  
Hershey, PA  
(888) 550-7862  
pavma.org

**August 21-23**  
HospitalDesign360  
Conference

Kansas City, MO  
(800) 255-6864,  
ext. 6  
fetchdvm360.com/hd

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

**August 23-26**  
Fetch dvm360  
in Kansas City  
Kansas City, MO  
(800) 255-6864,  
ext. 6  
fetchdvm360.com

**September 8-10**  
Pet Loss & Grief  
Companioning  
Certification Course  
Boston, MA  
(317) 966-0096  
twoheartspetloss-  
center.com

**September 12-15**  
Colorado VMA  
Convention 2019  
Denver, CO  
(303) 318-0447  
colovma.org

**September 25-26**  
119th Penn Annual  
Conference  
Philadelphia, PA  
(215) 746-2421  
vet.upenn.edu/  
education

**September 26-29**  
Southwest Veterinary  
Symposium 2019  
San Antonio, TX  
(972) 664-9800  
swvs.org

**September 28-30**  
Pacific Northwest  
Veterinary  
Conference  
Tacoma, WA  
(800) 399-7862

**October 4-6**  
Alaska State VMA  
Annual Symposium  
Anchorage, AK  
akvma.org

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

**October 17-19**  
2019 ACVS  
Surgery Summit  
Las Vegas, NV  
(301) 916-0200  
acvssurgerysummit  
.org

**October 31-  
November 3**  
2019 AAFP 5th  
World Feline  
Veterinary Conference  
San Francisco, CA  
(908) 359-9351  
catvets.com/education

dvm360™ (Print ISSN: 2326-0688, Digital ISSN: 2326-070X) is published monthly by MultiMedia Healthcare LLC, 325 W 1st St STE 300 Duluth MN 55802. Subscription rates: \$40 for one year in the United States & Possessions, Canada and Mexico; all other countries \$87.50. Single copies (prepaid only): \$18 in the United States; \$20 in Canada and Mexico; \$24 all other countries. Back issues, if available: U.S. \$23; Canada/Mexico \$28; all other countries \$46. International pricing includes air-expedited service. Include \$6.50 per order plus \$2 per additional copy for U.S. postage and handling. Periodicals postage paid at Duluth MN 55806 and additional mailing offices. POSTMASTER: Please send address changes to dvm360, P.O. Box 6309, Duluth, MN 55806-6309. Canadian GST number: R-124213133RT001, Publications Mail Agreement Number 40612608. Return undeliverable Canadian addresses to: IMEX Global Solutions, P.O. Box 25542, London, ON N6C 6B2, Canada. Printed in the U.S.A.

© 2019 MultiMedia Healthcare LLC All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical including by photocopy, recording, or information storage and retrieval without permission in writing from the publisher. Authorization to photocopy items for internal/educational or personal use, or the internal/educational or personal use of specific clients is granted by MultiMedia Healthcare LLC for libraries and other users registered with the

Copyright Clearance Center, 222 Rosewood Dr. Danvers, MA 01923, 978-750-8400 fax 978-646-8700 or visit <http://www.copyright.com> online. For uses beyond those listed above, please direct your written request to Permission Dept. fax 732-647-1104 or email: [jfrommer@mmhgroup.com](mailto:jfrommer@mmhgroup.com)

MultiMedia Healthcare LLC provides certain customer contact data (such as customers' names, addresses, phone numbers, and e-mail addresses) to third parties who wish to promote relevant products, services, and other opportunities which may be of interest to you. If you do not want MultiMedia Healthcare LLC to make your contact information available to third parties for marketing purposes, simply call toll-free (866) 529-2922 between the hours of 7:30 a.m. and 5 p.m. CST and a customer service representative will assist you in removing your name from MultiMedia Healthcare LLC's lists. Outside the United States, please call (218) 740-6477. dvm360 does not verify any claims or other information appearing in any of the advertisements contained in the publication, and cannot take responsibility for any losses or other damages incurred by readers in reliance on such content. dvm cannot be held responsible for the safekeeping or return of unsolicited articles, manuscripts, photographs, illustrations, or other materials. Address correspondence to dvm360, 11140 Thompson Ave., Lenexa, KS 66219; (913) 871-3800. To subscribe, call 888-527-7008. Outside the U.S. call 218-740-6477.



# The great squirrel eviction

What do you get when you combine a senior citizen, a veterinarian, a mansion and a varmint? Chaos and conquest.

It was 5 p.m. and I was winding down my clinic day when the phone rang. My client Mrs. Blades addressed me with a tone that was somewhere between embarrassed and angry. She hated to call a veterinarian for such a trivial thing, she said, but she couldn't stand the thought of having to go to bed with a "furry monster" running all over the place. Seems a squirrel had somehow gotten in the house that morning, and Mrs. Blades had been trying all day to get it back in the yard. She figured I could tranquilize it with a dart gun and then let it wake up outside. She told me she would pay whatever I charge for a ranch call if I would come and help her on my way home.

All I could think was, *How the heck am I going to catch a squirrel?* I couldn't shoot it with a dart gun—that would blow a squirrel to pieces. I didn't really have a plan, but I told Mrs. Blades I would be there soon and we would get the critter back outside.

When I arrived at the ranch, I sized things up and told Mrs. Blades to open the front door and close the kitchen door. I stationed her in the hallway next to the stairs that led to the rest of the house, hoping she could head the critter off if it turned back. My plan was simple: I'd chase the animal until it discovered the door and decided going outside would be better than having a screaming man chase it around.

But when I was about six feet away, he took off like a shot up the bannister, so fast I could barely keep my eyes on him. When he got to the bottom, he simply made a 180-degree turn, like a swimmer starting the second lap, and headed back upstairs. I tried discouraging his choice of direction by heavy arm

waving and more hollering. My efforts didn't faze him.

It became terribly apparent that the squirrel liked the air-conditioned house with its lifetime supply of peanuts and had no immediate plans to go outside.

## Time for a new plan

I knew I needed a net, so I asked Mrs. Blades to get me a broom, a pillowcase,



a wire coat hanger, a role of duct tape and a pair of pliers. She returned in a few minutes with all the items requested and a smile on her face.

I fashioned the coat hanger into a circle, then taped the pillowcase to the circle to make an open-mouthed "net" of sorts. I then took the hook part of the newly formed net, taped it strongly to the handle of the broom and, *voilà*, a homemade squirrel net!

Mrs. Blades giggled as I told her I'd hide on the off side of the bannister at the bottom and she'd go up the stairs and make the critter make another lap.

When I took my position behind the china cabinet and waited, I found my-

self shaking with nervous anticipation as the sound of her going up the stairs echoed over my head.

I could hear the commotion start as she and the squirrel hit the top floor. She hollered down, "He's headed your way and I'm hot on his tail!"

I peeked around as they headed down. Mrs. Blades was moving fast, and I mean *fast*. She was keeping up with the squirrel, which meant he was staying on the off side of the bannister.

Like a ninja, I swung the net and captured that rascal on the first pass.

He jumped as he saw it coming, but my correction was enough to catch him in the homemade cloth closet. I then spun the thing a few turns leaving him no escape portal.

## Mission accomplished

Mrs. Blades and I high-fived and celebrated. We then took the pillowcase outside and unrolled it a few spins. Our elusive squirrel saw daylight and headed straight up the closest tree.

We laughed for a while as we rehashed our cleverness, and I complimented Mrs. Blades on her speed coming down those stairs. Of course, I didn't charge her for a ranch call. I didn't charge her a thing. But a week later, a 10-pound sack of gourmet peanuts, three roles of duct tape, a brand new broom, a set of three pillowcases, a set of wire coat hangers and a gift certificate to a local steakhouse were delivered to the clinic with a note that read: *Just in case you ever need to catch a squirrel again ... Thanks! Mrs. Blades.*

*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.*



# Worry Less About a Mess

## why mycequin™?

Mycequin™ is a targeted probiotic containing NMXAAD™, a proprietary blend of *Saccharomyces boulardii*, a type of yeast, and beta-glucan to support intestinal health.

- CONTAINS 10 BILLION CFUs\* OF SACCHAROMYCES BOULARDII
- UNLIKE BACTERIA-BASED PROBIOTICS, YEAST-BASED PROBIOTICS ARE NOT AFFECTED BY ANTIBIOTICS
- CONTAINS BETA-GLUCAN TO SUPPORT IMMUNE FUNCTION
- TASTY CHEWABLE TABLETS FOR DOGS
- VETERINARY EXCLUSIVE PACKAGING - NOT AVAILABLE ONLINE



NEW!

**nutramax**  
LABORATORIES  
VETERINARY SCIENCES, INC.

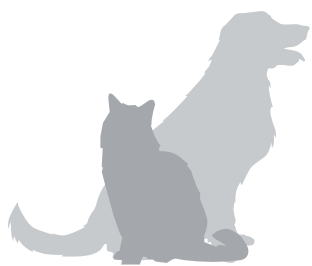


mycequin™  
TARGETED PROBIOTIC

\*Colony Forming Units

Available from all authorized veterinary product distributors.

010.1398.01



# What are their **kidneys** telling you?

Listen closer with **IDEXX SDMA<sup>®</sup>**

**Detects**  
diseases of the  
kidney sooner<sup>1-3</sup>



**Reflects**  
other disease  
processes  
affecting the  
kidneys<sup>6</sup>

Learn more at **[idexx.com/dvmsdma](https://idexx.com/dvmsdma)**

References available at [idexx.com/SDMA](https://idexx.com/SDMA).

© 2019 IDEXX Laboratories, Inc. All rights reserved. • 2162925-00  
All ®/TM marks are owned by IDEXX Laboratories, Inc. or its affiliates in the United States and/or other countries.  
The IDEXX Privacy Policy is available at [idexx.com](https://idexx.com).

**IDEXX**