Can’t find the cat?
Must be time for her monthly treatment.

Reduce her anxiety with protection that lasts twice as long.

Longer-lasting, broad-spectrum parasite protection can mean less stress on felines and better compliance.¹⁻³ Recommend BRAVECTO® PLUS (fluralaner and moxidectin topical solution) for Cats with 2x the duration of REVOLUTION® PLUS (selamectin and sarolaner topical solution) for Cats.


IMPORTANT SAFETY INFORMATION: The most commonly reported adverse reactions include vomiting, hair loss, itching, diarrhea, lethargy, dry skin, elevated ALT, and hypersalivation. BRAVECTO PLUS has not been shown to be effective for 2 months duration in kittens less than 6 months of age. For topical use only. Avoid oral ingestion. The safety of BRAVECTO PLUS has not been established in breeding, pregnant and lactating cats. Fluralaner is a member of the isoxazoline class. This class has been associated with neurologic adverse reactions including tremors, ataxia, and seizures. Neurologic adverse reactions have been reported in cats receiving isoxazoline class drugs, even in cats without a history of neurologic disorders. Use with caution in cats with a history of neurologic disorders. Use with caution in cats that are heartworm positive. The effectiveness of BRAVECTO PLUS to prevent heartworm disease after bathing or water immersion has not been evaluated.

For information, visit BravoVets.com/Plus.
(fluralaner and moxidectin topical solution) for Cats

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

**Description:**
Each tube is formulated to provide a minimum dose of 18.2 mg/fl (40 mg/kg) fluralaner and 0.9 mg/fl (2 mg/kg) moxidectin. Each milliliter contains 280 mg of fluralaner and 14 mg of moxidectin.

The chemical name of fluralaner is 1'-[4-[[6,7-Dihydro-1-[[7-[[1,2,3-benzotriazol-1-[5H]]-5-[[2H]]pyrilum-4-[5H]]-2H-pyran-4-yl][methoxy]methyl]oxime]-3-[5,6,7,8-tetrahydrobenzo[f][1,4]benzodioxacyclooctadecin-13,2'-[2H]-[4H]pyrano[4'-3'Jdione]-4'-[(E)-(O-methyloxime)]. Inactive ingredients: dimethylsiloxane, glycol, diisooctyl sebacate, and butylhydroxyanisole.

**Indications:**
Bravecto Plus is indicated for the prevention of heartworm disease caused by *Dirofilaria immitis* and for the treatment of infections with intestinal roundworms (*Toxocara cati*; 4th stage larvae, immature adults and adults) and hookworms (*Ancylostoma tubaeforme*; 4th stage larvae, immature adults and adults) and heartworm (*Dirofilaria immitis*). The chemical name of moxidectin is (S)-4,5,11-dimethoxy-7,8-diazaspiro[5.5]dodecane-7,11-dione. The chemical name of moxidectin is (S)-4,5,11-dimethoxy-7,8-diazaspiro[5.5]dodecane-7,11-dione.

**Animal Safety**

**Precautions:**
- **Vaccines, Anthelmintics, Antibiotics and Steroids:** No adverse reactions were observed from the concurrent use of Bravecto Plus with other medications.
- **Anticoagulants:** When replacing a monthly heartworm preventative product, the first dose of Bravecto Plus should be given within one month of the last dose of the former medication.

**Dosage and Administration:**
Bravecto Plus should be administered topically as a single dose every 2 months according to the Dosage Schedule below to provide a minimum dose of 18.2 mg/fl (40 mg/kg) fluralaner and 0.9 mg/fl (2 mg/kg) moxidectin.

For prevention of heartworm disease, Bravecto Plus should be administered at least 2 months prior to the anticipated start of the treatment period. Bravecto Plus may be administered year-round without interruption at a minimum of 2 months intervals beginning at the cat’s first seasonal exposure to mosquitos and continuing until the cat’s last seasonal exposure to mosquitos. If a dose is missed and a 2-month interval between doses is exceeded, administer Bravecto Plus immediately and resume the dosing every 2 months. When replacing a monthly heartworm preventative product, the first dose of Bravecto Plus should be given within one month of the last dose of the former medication.

**Dosing Schedule:**

<table>
<thead>
<tr>
<th>Body Weight Ranges (lb)</th>
<th>Fluralaner content (mg/tube)</th>
<th>Moxidectin content (mg/tube)</th>
<th>Tubes Administered</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.6 – 6.2</td>
<td>112.5</td>
<td>5.6</td>
<td>One</td>
</tr>
<tr>
<td>&gt;6.2 – 13.8</td>
<td>250</td>
<td>12.5</td>
<td>One</td>
</tr>
<tr>
<td>&gt;13.8 – 27.5*</td>
<td>500</td>
<td>25</td>
<td>One</td>
</tr>
</tbody>
</table>

* Cats over 27.5 lb should be administered the appropriate combination of tubes.

A veterinarian or veterinary technician should demonstrate or instruct the pet owner regarding the appropriate technique for applying Bravecto Plus topically to cats prior to its use.

**Step 1:**
Immediately before use, open the pouch and remove the tube. Put on gloves. Hold the tube at the crimped end with the cap on an upright position (tip up). The cap should be returned clockwise or counter-clockwise one full turn. The cap is designed to stay on the tube for dosing and should not be removed. The tube is open and ready for application when a breaking of the seal is felt.

**Step 2:**
The cat should be standing or sitting with its back horizontal during application. Part the fur at the administration site. Place the tube tip vertically against the skin at the base of the skull of the cat. The objective is to put the entire solution on the skin and avoid dripping off the cat. If a second spot is needed to avoid run off, then apply the second spot slightly behind the first spot.

**Step 3:**
Squeeze the tube and gently apply the entire contents of Bravecto Plus directly to the skin at the base of the skull of the cat. The objective is to put the entire solution on the skin and avoid dripping off the cat. If a second spot is needed to avoid run off, then apply the second spot slightly behind the first spot.

Greasy, oily, or wet appearance may occur at the application site in some cats. There are no known contraindications for the use of the product.

**Warnings:**
Human Warnings:
- Do not handle empty pouches.
- Do not handle empty pouches.
- Do not handle empty pouches.

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

**Adverse Reactions:**
In a well-controlled U.S. field study, which included a total of 176 treated cats (135 with Bravecto Plus and 41 with a monthly topical active control), there were no serious adverse reactions.

<table>
<thead>
<tr>
<th>Adverse Reaction</th>
<th>Bravecto Plus Group: Percent of Cats with the AR During the 120-Day Study (n=135 cats)</th>
<th>Active Control Group: Percent of Cats with the AR During the 120-Day Study (n=41 cats)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vomiting</td>
<td>5.9%</td>
<td>12.2%</td>
</tr>
<tr>
<td>Alopecia (not at application site)</td>
<td>5.2%</td>
<td>2.4%</td>
</tr>
<tr>
<td>Pruritus</td>
<td>4.4%</td>
<td>12.2%</td>
</tr>
<tr>
<td>Application site pruritus</td>
<td>4.4%</td>
<td>4.9%</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>3.7%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Lethargy</td>
<td>3.7%</td>
<td>9.8%</td>
</tr>
<tr>
<td>Dry Skin</td>
<td>3.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Elevated alanineaminotransferase (ALT)</td>
<td>3.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Hyperalgesia</td>
<td>1.5%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Application site alopecia</td>
<td>0.7%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

*ALT was greater than twice the upper reference range of 100 IU/L. These cats also had mild elevations of aspartate aminotransferase (AST) [less than twice the upper reference range of 100 IU/L]. No clinical signs associated with liver disease were noted in these cats.

In well-controlled laboratory effectiveness studies, the following adverse reactions were seen after application of Bravecto Plus: pruritus, tachypnea, mydriasis, pruritus, scabbing, and bloody stool.

Foreign Market Experience: The following adverse events were reported voluntarily during post-approval use of the product in cats in foreign markets:
- Polyuria, polydipsia, swelling of the skin and lip, periorbital swelling, borborygmi, vomiting, retching, dysphagia, aggression, agitation, pyrexia, mydriasis, hyperalgesia, hyperactivity, alopecia, and excessive grooming.
- These adverse events were reported for 96 hours after administration. No clinical signs associated with liver disease were noted in these cats.

To report suspected adverse events, for technical assistance or to obtain a copy of the Safety Data Sheet (SDS), contact Merck Animal Health at 1-800-224-5318. Additional information can be found at www.bravecto.com. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or online at http://www.fda.gov/reportanimaldrugs.

**Clinical Pharmacology:**
Fluralaner is for systemic use and belongs to the class of isoxazoline-substituted benzamide derivatives. Fluralaner is an inhibitor of the voltage-gated sodium channel. The mode of action of fluralaner is the antagonism of the ligand-gated chloride channels (gamma-aminobutyric acid (GABA)A receptor and glutamate receptor).

Moxidectin is for systemic use and is a semisynthetic derivative of nemadectin, belonging to the milbemycin group of macrocyclic lactones. It binds to the gamma-aminobutyric acid (GABA)A and glutamate-gated chloride channels of the nerves and muscles of the parasite resulting in hyperpolarization, paralysis, and death.

**Effectiveness:**
In two well-controlled laboratory studies, Bravecto Plus was 100% effective against induced heartworm infections when administered 2 months prior to infection. Bravecto Plus was not effective when administered more than 2 months prior to infection.

In well-controlled laboratory studies, Bravecto Plus was effective against naturally induced adult and experimentally induced 4th stage larvae and immature adult *Toxocara cati* and *Ancylostoma tubaeforme* infections in cats.

In a well-controlled laboratory study, Bravecto Plus killed 100% of fleas within 12 hours after treatment and reduced the number in cats in 100% of cats in 12 hours within 12 hours after treatment for 2 months. In well-controlled laboratory studies, Bravecto Plus demonstrated >80% effectiveness against Demodex variabilis 48 hours after treatment. In well-controlled laboratory studies, Bravecto Plus demonstrated >98.1% effectiveness against *Nodes scapularis* 48 hours after treatment or infestation for 2 months.

**Animal Safety:**
**Margin of Safety Study:** In a safety margin study, Bravecto Plus was administered topically to 9- to 13-week-old (mean age 12 weeks) kittens at 1X, 2X, and 5X the maximum labeled dose of 3.03 mg fluralaner/kg and 4.7 mg moxidectin/kg at three, 8-week intervals (10 kittens per group). The kittens in the control group (0X) were treated with mineral oil. There were no clinically-relevant, treatment-related effects on physical examination, body weights, food consumption, clinical pathophysiology (hematology, clinical chemistry, coagulation tests, serum amyloid A), or urinalysis.

In a well-controlled laboratory study, Bravecto Plus killed 100% of fleas within 12 hours after treatment and reduced the number of parasites in the skin and blood within 12 hours after treatment for 2 months. In well-controlled laboratory studies, Bravecto Plus demonstrated >80% effectiveness against *Demodex variabilis* 48 hours after treatment. In well-controlled laboratory studies, Bravecto Plus demonstrated >98.1% effectiveness against *Nodes scapularis* 48 hours after treatment or infestation for 2 months.

**Storage Conditions:**
Do not store above 77°F (25°C). Store in the original package in order to protect from moisture. The pouch should be opened immediately prior to use.

**How Supplied:**
Bravecto Plus is available in three tube sizes to treat cats ranging in weight from 2.6 lb – 37.5 lb (1.2 kg to 16.5 kg). Each tube is packaged individually in a pouch. Product may be supplied in 1 or 2 tubes per carton.

Approved by FDA under NADA # 141-518

Rev: 08/2019
Wellbeing study finds improved awareness

Results from the new Merck wellbeing study reveal that attitudes toward mental health have improved, but the number of veterinarians seeking treatment has not.

By Amanda Carrozza

Two years ago, Merck Animal Health published an eye-opening study that shined a light on the large proportion of veterinarians experiencing emotional distress as a direct result of their occupation, bringing the terms “burnout” and “work-life balance” to the forefront of the industry’s vernacular. Since then, learning to spot signs of distress and manage the emotional demands of the job have become important topics addressed within veterinary practices, at conferences and in the media. So, how do veterinarians rate their mental health today?

See page 32

Hospital Design Competition: Results are in

Less than 8,000-square-feet Hospital of the Year

By Sarah A. Moser

Twenty-two practices entered this year’s dvm360 Hospital Design Competition and in this month’s issue, you will find our featured winner in the “less than 8,000 square feet hospital of the year” category. The Hospital Design Competition judges praised the hospital for its nicely detailed interior, great finishes, and a solid, efficient plan. In coming months, we will also feature the second winner and several Merit Award winners.

Read on for tips, tricks and ideas from the first winner that you can borrow to implement in your future projects.

See page 28
Powerful protection can also be gentle:

✓ Safe for puppies as young as 8 weeks of age weighing 4 lbs or more
✓ Over 223 million doses of afoxolaner have been prescribed
✓ And it’s the only flea and tick control product indicated for the prevention of *Borrelia burgdorferi* infections as a direct result of killing *Ixodes scapularis* vector ticks

IMPORTANT SAFETY INFORMATION: NexGard is for use in dogs only. The most frequently reported adverse reactions include vomiting, pruritus, lethargy, diarrhea and lack of appetite. The safe use of NexGard in pregnant, breeding, or lactating dogs has not been evaluated. Use with caution in dogs with a history of seizures or neurologic disorders. For more information, see the full prescribing information or visit www.NexGardClinic.com.
Western Veterinary Conference announces new name

During its 92nd conference last month in Las Vegas, WVC announced that the name of the organization that hosts this annual event will now be known as Viticus Group.

The rebrand spotlights the organization’s vision and celebrates its wider focus that encompasses human and veterinary health care education. Viticus Group believes that “fostering the next generation of medical professionals and experts is critical to the profession and essential to improving patient outcomes around the world,” according to a press release. [It] defines our commitment to a new vision that builds upon our continuing world-class medical education and the WVC events and opportunities you’ve come to trust.

The new name comes from the Latin “medicus” (doctor) and “vita” (life). According to the release, “combining those words to create Viticus represents our dedication to health care professionals, both veterinary and human, and our mission to improve quality of life of humans and animals everywhere through the medical education we offer.”

In addition to the annual veterinary conference, which will still be known as WVC, Viticus Group offers year-round continuing medical education and training for both human health professionals and veterinarians in the newly named Oquendo Campus as well as its new Eastern Campus, a 71,000-square-foot Nevada facility that will open in June.

Regarding the Viticus Group website (viticusgroup.org), the two facilities will host about 170 educational events this year for veterinary and human health care professionals.
Expanding our offerings at dvm360

In recent months, you may have noticed some changes to dvm360. These changes are a reflection of what you, our readers, have told us you want to see more of, as well as larger changes here at dvm360’s parent company, MJH Life Sciences. Last year, MJH Associates, a full-service multimedia healthcare communications company, acquired assets from UBM Life Sciences, including dvm360. That acquisition made MJH Associates, which has since been rebranded as MJH Life Sciences, the largest privately owned medical media company in the United States.

Welcome, Dr. Christman

Over the past 20 years, MJH has developed successful platforms in digital, education and live events, covering all areas of both human and, more recently, animal healthcare. Our commitment to expanding into the animal healthcare arena has included some recent personnel changes, including the appointment of Adam Christman, DVM, MBA, as chief veterinary officer of this publication, as well as its sister publications Vetted and Firstline. In this role, Dr. Christman will contribute regularly to dvm360, via this column, as well as help assess and maintain the quality not only of our publications but also of our popular live continuing education programs Fetch and the Atlantic Coast Veterinary Conference.

A self-described “Jersey Shore guy,” and proud pet dad to four dachshunds, Dr. Christman was born and raised in Brick, New Jersey, where he worked during high school as a veterinary assistant at a local animal hospital. In 2000, he earned a Bachelor of Science degree in Animal Science and a minor in Spanish from Rutgers University, followed by his Doctorate in Veterinary Medicine from Iowa State University in 2004 and his Master’s in Business Administration in 2012 from Aspen University in Colorado.

As a veterinarian working in New Jersey, Dr. Christman began volunteering some of his work to a local Jersey shore–based animal shelter. He also became a board member and serves as treasurer for the New Jersey Veterinary Medical Association, raising awareness about policies affecting the state’s veterinarians. His special interests include nutrition, oncology and small animal internal medicine.

Dr. Christman has lectured throughout the country for Zoetis on canine dermatology and practice management. He is coauthor of Honey, Have You Squeezed the Dachshund? and will be lending his extensive video talents—developed as host of “The Dr. Christman Show” on his YouTube Channel—to dvm360.com.

Online changes

Speaking of our online platform, you probably have noticed some changes on dvm360.com, too. Our website has undergone a major facelift, offering visitors a more refined experience with easy-to-use navigation and search functions, improved access to content and a more personalized experience.

One important feature is an A-to-Z clinical content list that offers information on a range of the topics that matter most to your veterinary practice—from anesthesia to endocrinology to parasitology to urology. We’ve also added a very popular resource that focuses on one of today’s hottest topics: the use of cannabinoid products in pets. This resource offers a useful state-by-state breakdown of the human and veterinary legalities surrounding these products.

The newly redesigned website includes links to each issue of dvm360, Vetted and Firstline under the “Publications” tab. We’ve also maintained popular favorites like our business and conference links—don’t forget to follow these for our upcoming meetings in Baltimore (April 2-5), Kansas City (August 28-31), Atlantic City (October 26-29), Indianapolis (November 9-10) and San Diego (December 11-14)—while also incorporating more video components. Just last month, we launched a video companion to our popular in print column, The Dilemma. In the first segment, which was filmed in our studio, columnist Marc Rosenberg, VMD, and guest Bash Halow, LVT, CVPM, discuss an interesting dilemma involving the look of a veterinary technician’s scrubs. Check it out under the “Videos,” tab at dvm360.com.

All of these changes echo suggestions that you, our readers, have requested in recent months and years, in your feedback from live events as well as when we’ve met with you face to face. We hope you enjoy them, and please feel free to drop us a line letting us know your thoughts at challenge@mjhlifesciences.com.

Thanks for reading!

—Mike Hennessy Sr.
Chairman and CEO
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 [https://dal.bi-connect.com/sites/bi_connect_dal/files/Tresaderm.PDF](https://dal.bi-connect.com/sites/bi_connect_dal/files/Tresaderm.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](http://www.fda.gov/AnimalVeterinary).

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**TRUST TRIPLE ACTION TRESADERM**

- **Anti-fungal**
- **Anti-inflammatory**
- **Anti-bacterial**

**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.

Approved for use on dogs and cats.

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Jumping in, learning curve: First time’s the charm
Two young doctors dove right into practice ownership and building a facility all at once and got the practice of their dreams.

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Backed by 16 research studies and years of testing, Malaseb® has a track record you can trust. Give your stamp of approval to a line proven to kill common skin pathogens* in less than one minute in vitro.1

*Staphylococcus pseudintermedius, Malassezia pachydermatis and Pseudomonas aeruginosa
1Reference on file. Bayer.

WARNING: Keep out of reach of children. CAUTION: Federal law restricts Malaseb® to use by or on the order of a licensed veterinarian. For topical use on dogs, cats and horses. Avoid contact with eyes and mucous membranes.
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Ask your Hill’s rep about digestive nutrition that’s A STEP AHEAD FOR THEIR BEST LIFE
Why veterinarians should say no to declawing—and what to say instead

Pet expert Steve Dale and pain management guru Dr. Robin Downing outline why they oppose feline onychectomy and offer insight on some alternatives that you can share with your clients.  

By Erica Tricarico, Senior Editor

While more veterinarians are speaking out about the potentially harmful long-term effects of feline declawing (onychectomy), the profession remains divided about this controversial topic. Last year, Gov. Andrew Cuomo made New York the first state to ban feline declawing, calling it a "cruel and painful procedure that can create physical and behavioral problems for helpless animals."

While many veterinarians support the ban, others say the practice is necessary for immunocompromised clients and that if they don’t provide declaw services, more cats will be relinquished to shelters and euthanized.

When cats are declawed, "we are creating pain, we are altering biomechanics, we are altering their activities of daily living … and we are interrupting natural behavior, because we know that scratching is a natural behavior," said Robin Downing, DVM, MS, DAAPM, DACVSMR, CVPP, CCRP, owner of the Downing Center for Animal Pain Management in Windsor, Colorado, at the Fetch dvm360 conference in San Diego. Dr. Downing was joined in her lecture by certified animal behavior consultant and pet journalist Steve Dale.

Both Dale and Dr. Downing openly oppose feline onychectomy. Dale’s message to veterinarians at the conference was that there are effective solutions that can be presented to clients as alternatives to declawing. He offered several tips and tools to help stop inappropriate scratching behavior.

Tips for keeping scratching in check

Here are a few tips you can share with clients that can help them manage scratching behaviors:

• Cover couches and chairs with plastic to stop cats from scratching them.
• Make sure the scratching post is tall and sturdy. When it comes to scratching posts, height and sturdiness matter. A lot of scratching posts just aren’t tall enough, Dale said. “Of course, taller posts are more expensive, but the value goes beyond protecting the couch,” he said.
• Make it fun and get creative. A large cat scratching can serve as a feline playground and enrichment center as well as an outlet for scratching. Clients can add toys to make the experience more enjoyable, giving cats something to target with their natural predatory and play behaviors.

A pheromonal approach

Studies have shown that using a pheromone product (Feliscratch by Feliway—Ceva) may be associated with less unwanted scratching behavior, Dale said. The product contains an analog to the pheromone cats deposit from their paws when they scratch, as well as catnip to attract them to a scratching post or other appropriate scratching outlet. A blue dye provides a visual indicator that the post has been scratched.

‘Cat scratchers are really important’

Scratching is a normal behavior for cats, and declawing is not a necessary procedure, according to the AVMA. “Scratching is acceptable, I believe,” Dale said. “Cats just need the right tools to help them scratch in the right places.” That’s where cat scratchers come in. Dale offered the following tips to share with clients:

• **Location is important.** It’s good to keep a cat scratching post near the front door because when pet owners come home, a cat can get excited and start scratching, Dale explained. He also recommended putting scratchers near windows and back doors.

• **Educate cats on how to use the scratchers.** Many cats need help learning how to use a scratching post. You might need to “entice the kitten to climb up the post,” Dale said, noting that catnip can help with that in cats that are responders. “Sometimes people can gently put a cat’s claws on the scratching board, or … use toys to coax the cats,” he said. He warned that clients should ”never punish the cats for scratching. Cats aren’t so forgiving when their trust is broken from punishment.”

• **Make sure the scratcher is tall and sturdy.** When it comes to scratching posts, height and sturdiness matter. A lot of scratching posts just aren’t tall enough, Dale said. “Of course, taller posts are more expensive, but the value goes beyond protecting the couch,” he said.

In product studies, researchers found that Feliscratch attracted more than 80% of cats to use their scratching posts within the first week of use. Additionally, over 90% of cats never started destructive scratching when adopted into a new home using Feliscratch, according to a Ceva release.

The bottom line

Dr. Downing noted that since indoor cats live longer lives, “when we make a biomechanical alteration to them early in their life, … implications may not emerge to the naked eye until that cat is 10 or 12 or 18—but they will emerge.”

“Ninety percent of cats 10 years of age or older have radiographic evidence of osteoarthritis, and altered biomechanics can make that worse,” she concluded.

That’s why Dr. Downing and Dale have made it their mission to educate people about declawing and point them to more natural and pain-free alternatives. “Cats would prefer to keep their toes,” Dr. Downing said.
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comfort, convenience and consolidation... These three C’s have become change agents in the veterinary industry, spurring new trends like cannabis use in pets, telemedicine and “big boxing” of veterinary hospitals.

“Veterinarians are very adaptable,” says Charlotte Lacroix, DVM, JD, who heads Veterinary Business Advisors, a New Jersey–based firm that consults on veterinary business and legal issues. At the 2020 Veterinary Meeting & Expo (VMX) in Orlando, Fla., Dr. Lacroix cut through the regulations and red tape involved in these metamorphoses.

Cannabis and companion animals
Marijuana and hemp are both derived from the Cannabis sativa plant. Marijuana has a higher concentration of the psychoactive cannabinoid THC (delta-9-tetrahydrocannabinol) and a lower concentration of the nonpsychoactive cannabinoid CBD (cannabidiol); hemp possesses the reverse ratios.

Marijuana is illegal under federal law, but 33 states have legalized it for medicinal use and 11 states for recreational use... in people only.

In June 2018, the FDA approved CBD-based Epidiolex for seizure control, and two synthetic THC-based medications—Marinol (dronabinol) and Cesamet (nabilone)—are approved to stimulate appetite and treat nausea, respectively, in people undergoing chemotherapy. However, veterinarians can take advantage of the Animal Medicinal Drug Use Clarification Act (AMDUCA), which permits them to prescribe (limited) extralabel use of FDA-approved human drugs in their animal patients.

Many companies try to circumvent this oversight by dumping CBD into supplements for people, which do not undergo an FDA approval process. They can do this legally, Dr. Lacroix said, but they cannot make therapeutic claims.

This same rule does not apply for animals, however. While “supplements” are a recognized legal category for people, according to the FDA, anything that goes into an animal is either a “food” or a “drug” and thereby FDA regulated. While change is afoot, Dr. Lacroix stressed that when it comes to cannabinoid products (supplements/foods), “You can’t carry it. You can’t dispense it. You can’t administer it.”

She also reminded the audience that because CBD/THC is not regulated, its safety in animals has not been established; furthermore, ample data demonstrate its toxicity in animals. In most states, with the recent exceptions of California, Connecticut, Missouri and Tennessee, veterinarians are not allowed to even discuss these products with clients.

Phoning it in: telemedicine for pets
As the industry demands more convenience and immediacy, telemedicine has been making inroads. An extension of the exam room, telemedicine is the conveying of medical information electronically rather than in the physical presence of the client and patient. Telemedicine can be performed in three ways:
• Doctor-to-doctor: via specialist and diagnostic companies
• Doctor-to-pet owner: via phone or online; under the AVMA’s Model Veterinary Practice Act, this can only be done within an existing veterinarian-client-patient relationship (VCPR), which can only be established through an initial physical exam. Most veterinary state boards have adopted the AVMA’s ruling on this, Dr. Lacroix said.
• Triage style: The veterinarian recommends next-step advice for the pet owner during an acute situation; the recommendation could be, “Go to an ER” or “Administer hydrogen peroxide now and then follow up with your regular veterinarian.”
Telemedicine is particularly suited to handling chronic cases, like caring for the arthritic dog, monitoring wound healing, providing hospice care, and managing the resistant cat.

Telemedicine also has the potential to elevate the roles of veterinary technicians, as they are being tasked more frequently to conduct physical exams and diagnostics, which they then videoconference to a veterinarian working remotely.

The challenges of telemedicine include licensing issues, data protection and increased liability. “The standard of care changes a little bit at a time every single day,” said Dr. Lacroix, “and the more technology you bring in, yes, it will increase our liability.”

But despite the risk, she added, new technologies and new practice modes can improve care.

Succession planning and corporate consolidation

For veterinarians who are considering selling their practice, Dr. Lacroix advised that they ask themselves these questions:

- When?
- Why?
- What does retirement look like?
- To whom do you want to sell?
- How will the sale be structured?

The buyer might be an individual, a group of individuals, or a big company. In some states, like Pennsylvania and California, a practice owner can sell to a nonveterinarian. But more and more, practices are being sold to large consolidation firms.

There are some 70 veterinary corporate consolidators in the U.S., but only about 10 big players. The largest of these is Mars, Inc., for whom veterinary business income now exceeds that of its chocolate business. The others include National Veterinary Associates, Inc. (NVA), VetCor, PetVet Care Centers and Pathway Veterinary Alliance.

The animal health industry has drawn substantial corporate investment for a number of reasons: Americans spend over $70 billion a year on their pets, according to the American Pet Products Association (APPA); the industry has grown steadily over the past 40 years, at an average rate of 5.7%; payment for veterinary services and products occurs at time of service, rather than upon delayed insurance reimbursement; malpractice insurance is low; and veterinary medicine is subject to less regulation than in human medicine.

Dr. Lacroix said that corporate consolidation is beneficial to the veterinary industry because it funds costly platforms for improved medical care. However, not everyone trusts the corporate newcomers.

In fact, recent surveys show that corporate consolidation is one of the main concerns of veterinarians. Dr. Lacroix said the jury is out on how the industry will be transformed by the growing corporate structure, which is projected to account for 10% to 20% of the veterinary market.

“The question is not, ‘How many practices are they going to consolidate?’ but rather, ‘How much revenue are they going to hold onto?’”

Dr. Joan Capuzzi is a small animal veterinarian and journalist based in the Philadelphia area.

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Clinical trial for **acute canine pancreatitis treatment** now enrolling

If successful, this study could lead to the first treatment that addresses the root cause of acute pancreatitis in dogs.

Last month, global chemical and pharmaceutical manufacturer Ishihara Sangyo Kaisha and its U.S. subsidiary ISK Animal Health (collectively, ISK) announced the launch of a pivotal clinical trial to evaluate a new treatment for acute canine pancreatitis (ACP) that "addresses the unique cascade of inflammatory response in ACP," according to a company release.

ACP is common and potentially deadly, and can affect dogs of any breed. As there is no FDA-approved treatment, the current standard of care is limited to treating clinical signs (dehydration, vomiting, painful abdomen, inflammatory leukogram) rather than the primary disease. Recurrent or severe cases can lead to diabetes and other complications, including organ damage.

In 2018, ISK announced the approval in Japan of BRENDA (fuzapladib sodium hydrate) for the "reduction of clinical signs associated with acute pancreatitis in dogs." The investigational drug in the current study is similar to BRENDA and targets the leukocyte function–associated antigen 1 (LFA-1) pathway to aid in reducing inflammation within the pancreas and help to prevent systemic complications and multiorgan failure associated with ACP.

New Jersey–based AlcheraBio, a contract research organization and animal health consultancy, is actively recruiting veterinary practices to participate in the trial. Ideal practice sites will meet the following criteria:

- Experience in diagnosing and treating ACP (currently diagnosing at least six to eight cases per year)
- Ability to provide 24-hour care for hospitalized study patients
- Experience as a clinical investigator site, or a commitment to training to become one

Benefits for participating practices include the following:

- Covered testing and treatment for enrolled study dogs
- Compensation for each evaluable case, plus a training honorarium and clinic incentives

If you are interested in enrolling your practice in this trial, visit alcherabio.com/pancreatitis-study.

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**Breeder arrested for allegedly performing surgeries on bulldogs**

California police found a makeshift surgery room in the man’s kitchen, dogs in overstuffed kennels and the remains of deceased dogs at nearby locations.

A California bulldog breeder was arrested in late January for allegedly performing surgeries on dogs in his home, according an announcement on the San Joaquin County Sheriff’s Office Facebook page.

According to the announcement, a passerby called police after seeing unattended bulldog puppies on a street in Lathrop followed by two men leaving a home wearing bloody rubber gloves. Inside the home, authorities found multiple narcotics, at least a dozen dogs, and a makeshift surgery table in the kitchen, where homeowner Pedro Maldonado Victorio allegedly performed C-sections without having the legal authority to do so.

When authorities learned that Victorio was already under investigation by Manteca Animal Services for performing surgery on animals without a veterinary license, they issued warrants for nearby properties and found additional evidence of surgeries, $13,000 in cash and the remains of deceased dogs. About 30 dogs in all—many of which needed extensive veterinary care—were rescued from the “overcrowded kennels” on these properties.

Some rescued female dogs suffered from nerve damage, as well as displaced kidneys and stomachs, causing severe intestinal issues.

“The veterinarians that we have spoken to say these operations were done so poorly that the incision for the C-sections ... were never truly healed,” Lathrop Police Chief Ryan Biedermann said in a press conference announcing the arrest.

“It was like an assembly line operation; these dogs would give birth; C-sections would be completed ... and they were then artificially put in heat through the medication that we found, then inseminated again,” Biedermann said. “They were basically circumventing the normal biological process of these dogs to probably maximize the money they [were] making.”

Victorio pleaded not guilty to “two felony counts of transporting prescription drugs used for aesthetics and pain, one felony count of animal cruelty and one misdemeanor count of practicing veterinary medicine without a license,” according to public records.
IMPORTANT SAFETY INFORMATION: METACAM (meloxicam oral suspension) and PREVICOX (firocoxib) are for use in dogs only. METACAM (meloxicam) Solution for Injection is approved for use in dogs or cats. Repeated use of meloxicam in cats has been associated with acute renal failure and death. Do not administer additional injectable or oral meloxicam to cats. As a class, cyclooxygenase inhibitory NSAIDs like METACAM and PREVICOX may be associated with gastrointestinal, kidney, or liver side effects. Dogs should be evaluated for pre-existing conditions and currently prescribed medications prior to treatment with METACAM or PREVICOX, then monitored regularly while on therapy. Concurrent use with another NSAID, corticosteroid, or nephrotoxic medication should be avoided or monitored closely. For more information on products mentioned in this ad, please see full prescribing information.
Convicted murderer allegedly defrauded pet owners with lure of cancer cure

The former pharmaceutical executive pleaded guilty to selling dogs, cats, and horses ill or otherwise disabled and allegedly bilked pet owners of hundreds of thousands of dollars.

By Maureen McKinney, Associate Editorial Director

A Pennsylvania man who served eight years in prison for the shooting death of his wife is now facing federal criminal charges following a multi-year scheme to defraud dog owners by telling them that the dogs he sold to them could cure canine cancer.

Jonathan Nyce, 70, from Collegeville, Penn., was indicted in U.S. District Court in Philadelphia for wire fraud and the interstate shipment of misbranded animal drugs, according to a Department of Justice press release.

The indictment, announced in early February by U.S. Attorney William M. McSwain, alleges that about eight years ago Nyce created several companies, most notably CanineCare, US, through which he purportedly developed and sold all natural-cancer curing medications for dogs. His research, he claimed, was "funded in part by the U.S. Federal Drug Administration (FDA)."

In 2014, Nyce received a warning letter from the FDA stating that the products he was selling were "unapproved new animal drugs and your marketing of them violates the [Federal Food, Drug, and Cosmetic] Act." Statements made about one line letter from the FDA stating that the claimed, was "funded in part by the U.S. Federal Drug Administration (FDA)."

Jonathan Nyce

"The former pharmaceutical company executive promised to restore the health of dog owners by telling them that the drugs he sold to them could cure canine cancer. Since Nyce had been established in dogs with these disorders. As a class, a "cytokine suppressor inhibitor" may be used in dogs with cancer.

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

Deaths: METACAM (meloxicam) 5 mg/mL Solution for Injection is indicated in dogs for the control of pain and inflammation associated with osteoarthritis in dogs. The safety of the use of METACAM Oral Suspension in dogs younger than 6 months of age, dogs used to treat osteoarthritis, or dogs affected with a bleeding disorder has not been established.

Dosage: The formulation is a yellowish viscous suspension with the odor of honey.

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Dr. McKenzie told dvm360 via email that he hopes this indirectness will "serve as a warning not only to purveyors of quack remedies but also to veterinarians and pet owners that we should shun products that exhibit the same warnings, exaggerated and implausible claims without supporting scientific evidence, reliance on testimonials and a foundation of 'insight' from lone geniuses who never seem to publish any real data.

Pet owners desperate to help their dogs beat their illness paid Nyce "hundreds or thousands of dollars" for these supposed cures, according to the rule. To unsuspecting owners desperate for their pets to get well, Tunexus offered the hope they sought. Many also paid Nyce to enroll their dogs in bogus clinical trials with the medications he prescribed.

"The defendant’s alleged conduct here is shameful," said U.S. Attorney McSwain. "Pets quickly become part of the family. And when they become sick, caring owners look for hope, often doing everything they can to keep their beloved pets alive and well. The defendant is charged with taking advantage of that nurturing instinct in the worst way possible by defrauding pet owners and giving them false hope that they might be able to save their pet’s life."

Nyce, a molecular biologist with a PhD from Temple University, founded the pharmaceutical company EpiGenis in 1995 but left in 2003 after a breakthrough asthma drug it was developing was shelved. He was convicted in 2005 for beating his wife of 15 years to death in a jealous rage and served eight years in prison for "passion provocation manslaughter.

If convicted, Nyce faces a maximum possible sentence of 32 years in prison and a fine of up to $2,150,000.

Coughing dog Yummy also survived a cancer diagnosis thanks to "remarkable vets" who cared for Yummy and the dedicated research behind the treatment.

"By joining forces," he concluded, "our hope is that more Scouts and Yummys get lucky, too."
Arkansas State may soon have its own veterinary school

The university is convening a task force that will spend the next six months exploring the possibility of adding a veterinary medical college to its Jonesboro campus.

In Arkansas, large animal veterinarians are in high demand but short supply, and some companion animal owners must travel long distances to find a veterinarian. With no veterinary school in the state, interested students must apply to out-of-state programs, but that could soon change.

In a press conference last month, Chancellor Kelly Dampmousse, PhD, announced an agreement to collaborate with Adtalem Global Education (ATGE), the parent company of AVMA-accredited Ross University School of Veterinary Medicine, to explore the feasibility of creating the first college of veterinary medicine in the state.

The agreement involves a 180-day exploration period that will include a series of discussions about how to bring this vision to life. “We plan to work closely with veterinarians throughout Arkansas as we move forward in the development of this new college,” Dr. Dampmousse said.

Donald Kennedy, PhD, MEd, BS, interim dean and professor of animal science at A-State who will be chairing the potential veterinary school, said the college would be “a dream come true” for many pre-vet students. “I’ve seen a great A-State student who had a dream of being a vet unable to get a slot in a vet college,” he said. “Now we have the chance to open up more slots.”

The proposed veterinary medicine program would enroll classes of about 120 students per year. Accreditation would be sought by A-State, and graduates would have A-State academic credentials. Additionally, Adtalem would provide “expertise related to veterinary program management and accreditation, as well as capital and operating expense funding.”

“While news of the potential veterinary school has been well received, Dr. Dampmousse wants to emphasize that A-State is only in the beginning stages of this process. “This is a 6-month window to explore the opportunity. We are not committing to starting a vet school yet,” he said.

The memorandum of agreement currently awaits approval from the Arkansas State University System Board of Trustees and the ATGE board.
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² Data on file at Boehringer Ingelheim.
³ Data on file at Boehringer Ingelheim.

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Elanco, Purdue announce strategic alliance to advance animal health

One of the main goals of the partnership between these neighboring organizations is to train future animal research professionals to meet the needs of today’s workforce.

Indiana-based Elanco Animal Health, Purdue University and the Purdue Research Foundation have announced a four-year collaborative agreement whose overarching goal is to find solutions to challenges in animal health.

Through the alliance, Elanco and Purdue researchers will work together closely in a number of areas, including protein engineering and microbiome discovery. For Elanco, the partnership promises to decrease dramatically the time it takes for projects to go from the technical need stage into active work.

The agreement includes the potential for many types of research collaborations as well as intellectual property scenarios, especially in areas of expertise in which Purdue excels but Elanco has not yet invested, such as structural biology.

“This alliance … adds momentum toward Elanco’s promise to rigorously innovate for the benefit of our customers and improve the health of animals,” said Aaron Schacht, executive vice president of innovation, regulatory and business development at Elanco, in a press release announcing the agreement. “Purdue’s dedication to delivering solutions has propelled the institution into amassing strengths in a wide array of disciplines and is a natural partner of choice.”

For its part, Purdue views the partnership as a two-way street—and key to its mission of developing tomorrow’s workforce. “An alliance of this scope educates students on real industry challenges, creating students who graduate prepared to solve many of the industry’s greatest issues,” Purdue Research Foundation President Brian Edelman said in the release. “This partnership is designed to educate students on real industry problems, advance research endeavors, provide collaboration opportunities with skilled research scientists and laboratories, and train the next generation of our workforce.”

Purdue Biological Sciences Professor Richard Kuhn, PhD, agrees that the partnership benefits both parties. “It’s clear that we have expertise that we can share,” Dr. Kuhn said. “[The alliance will] develop partnerships in terms of training some [Elanco] employees in some of the latest techniques and also developing a pipeline for new employees in which they get to interview and talk to and maybe provide internships for our students.”

The partnership will also allow Purdue research faculty to expand their research into new areas in which their “discoveries could be translated and be impactful to animals,” Dr. Kuhn told Inside Indiana Business.
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*Based on label comparisons.

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Echinococcus multilocularis: Pyrantel pamoate is active against hookworms and ascarids. Pyrantel pamoate acts on the cholinergic receptors of the nematode resulting in spastic paralysis. Peristaltic action of the intestinal tract then eliminates the parasite. Febantel is active against nematode parasites including whipworms. Febantel is rapidly absorbed and metabolized in the animal. Available information suggests that the parasite’s energy metabolism is blocked, leading to energy exchange breakdown and inhibited glucose uptake.

Drontal® Plus (praziquantel/pyrantel pamoate/febantel) Anthelmintic Tablets are indicated for removal of Tapeworms (Dipylidium caninum, Taenia pisiformis, Echinococcus granulosus, and Taenia multiceps/multilocularis) and for removal of hookworms (Ankylostoma caninum, Diphyllobothrium latum, Ascaris canis, Toxocara canis, Toxascaris leonina, and Whipworms (Trichuris vulpis) in dogs.

CONTRAINDICATIONS: DO NOT USE IN PREGNANT ANIMALS. Dogs treated with elevated levels (8 mg praziquantel/kg body weight) of praziquantel have been shown to cause abortion at 55 days of gestation in laboratory dogs. In 4 well-controlled laboratory studies to establish the efficacy of Drontal® Plus Anthelmintic Tablets, in addition to dogs, pigs were included in 3 veterinary clinics at different geographic locations throughout the United States to further evaluate safety and efficacy. These studies included dogs of various sizes, ages and breeds. Data from these studies demonstrated Drontal® Plus Anthelmintic Tablets are safe and efficacious for the removal of the parasite species listed above. Results obtained in the laboratory and clinical studies indicate small numbers of hookworm or roundworm eggs may be passed in the feces up to 7 days after treatment although the worms themselves were eliminated. A follow-up fecal examination should be conducted 2 to 4 weeks after treatment to determine need for retreatment.

DIAGNOSIS: Diagnosis of E. multilocularis in canines is difficult. The adult tapeworm produces no clinical signs of infection. Tapeworm segments (proglottids) are usually not observed in the feces. E. multilocularis eggs, observed using microscopic fecal examination procedures, are similar in appearance to those of common species such as Taenia pisiformis.

Additional information regarding areas where E. multilocularis is suspected or has been confirmed may be obtained from area veterinary schools or the Centers for Disease Control in Atlanta, GA.

TREATMENT: Dogs infected with E. multilocularis should be treated to prevent exposure of humans to infective eggs and to break the parasite’s life cycle. The dosage of Drontal® Plus Taste Tabs® Tablets for removal of E. multilocularis is the same as that indicated for the removal of the other tapeworm species listed on the label. Laboratory efficacy studies conducted with Drontal Plus tablets have demonstrated the recommended dosage is 100% effective. Under condition of continual exposure to wild rodents, retreatment of the dog at 21-26 day intervals is recommended to prevent the shedding of infective eggs.

Efficacy: A total of 176 dogs and puppies with naturally acquired or experimental parasite infections were included in 4 well-controlled laboratory studies to establish the efficacy of Drontal® Plus Anthelmintic Tablets. In addition, 103 dogs and puppies were included in 3 veterinary clinics studies conducted in 3 veterinary clinics at different geographic locations throughout the United States to further evaluate safety and efficacy. These studies included dogs of various sizes, ages and breeds. Data from these studies demonstrated Drontal® Plus Anthelmintic Tablets are safe and efficacious for the removal of the parasite species listed above.

Adverse Reaction: None of the 103 dogs treated with Drontal® Plus Anthelmintic Tablets in the clinical field studies exhibited drug-related side effects. Of the 40 dogs treated with Drontal® Plus Anthelmintic Tablets in laboratory studies, 2 dogs exhibited vomiting, 1 puppy exhibited bloody/mucoid diarrhea and 1 dog exhibited mild gastro-intestinal disturbances. None of these cases was considered serious or life-threatening. On the label when as used as directed.

Palatability: Palatability studies with Drontal® Plus Taste Tabs® Tablets were conducted at 3 different geographic locations throughout the United States. These studies included a total of 72 dogs representing 24 different breeds with body weights ranging from 4.8 – 190 lbs. The tablets were offered freestyle to the dogs by their owners and over 89% of the dogs willingly consumed the tablets. Free-choice to the dogs by their owners and over 89% of the dogs willingly consumed the tablets.

For customer service or to obtain product information, including Material Safety Data Sheet, call 1-800-633-3796. For medical emergencies or to report adverse reactions, call 1-800-422-9874.

Animal Safety: Controlled safety evaluations have been conducted in dogs with Drontal® Plus (praziquantel/pyrantel pamoate/febantel) Anthelmintic Tablets. Dogs receiving up to 5 times the label dosage of praziquantel (45 mg praziquantel, 35 mg pyrantel pamoate and 179 mg febantel per kg of body weight) for 3 consecutive days (3 times the label duration) showed clinical signs of worm and intestinal disturbance. Following exposure to praziquantel, the tapeworm loses its ability to resist treatment.

Detectable levels of praziquantel were found in dogs treated with Drontal® Plus Anthelmintic Tablets for 3 consecutive days for 3 consecutive days a single oral treatment.

The adult tapeworm is small (1-4mm) and resides in the intestinal tract of the definitive host (wild or domestic canids). Eggs from the adult tapeworm are shed in the feces. Rodents such as mice and voles serve as the intermediate host. Eggs ingested by rodents develop in the liver, lungs and other organs to form multicellular cysts. The life cycle is completed after a canid consumes a infected rodent. The original geographic distribution of E. multilocularis was primarily confined to northern areas of North America. Current evidence indicates migration of the parasite west into the continental United States. Dogs living in E. multilocularis endemic areas that roam freely with the opportunity to catch wild rodents are at risk of infection. Pet owners should be advised on how to minimize this risk. Proper restraint of dogs should be encouraged, along with regular treatment with Drontal® Plus Taste Tabs® Tablets.

Additional information on the life cycle and epidemiology of this parasite is available in veterinary parasitology texts."

## References

Pet insurer says records show no early signs COVID-19 in pets

The Seattle-based company—which announced last week that it has paid out over $1 billion in veterinary invoices since it was founded more than 20 years ago—regularly reviews the pet health data it collects to monitor for changes in illness patterns.

“We monitor our data on a very granular level; daily, weekly and monthly and by breed, country, city and even at neighborhood level to make sure we understand and are on top of any health-related trends that might be out of the norm,” says Trupanion’s vice president of analytics, Mary Rothlisberger.

Trupanion will continue to monitor its data for any early indicators of COVID-19 and promises to keep the public informed with the latest news. “If things do change, we’ll be letting members, pet owners and veterinarians know immediately,” Dr. Weinrauch says.
Combatting the ‘loneliness epidemic,’ one pet at a time

A new report from Mars and the Human Animal Bond Research Institute explains how interaction with animals can help many people feel less alone and socially isolated, and provides recommendations for keeping companion animals safe and healthy in the process.

By Kerry Lengel

Research shows that loneliness and social isolation can induce negative health effects that rival those of obesity and smoking. In a 2018 report from global health insurer Cigna, nearly half of Americans reported feeling alone, isolated or left out at least some of the time. Many experts assert that today’s so-called “loneliness epidemic” is a serious threat to public health.

But Mars Petcare and the Human Animal Bond Research Institute (HABRI) believe that help for many people who feel alone, socially disconnected or isolated can come in the four-legged form through human-animal interaction (HAI) and pet ownership.

Consortium on Social Isolation and Companion Animals

Recognizing the potential of companion animals to make a real difference in human mental health, in 2018 the retail giant and the nonprofit collaborated with practitioners and researchers from human and animal healthcare to form the Consortium on Social Isolation and Companion Animals, with four overarching goals:

• Identify the potential of HAI to amuse social isolation in people.
• Specify key research topics to study.
• Pinpoint hurdles that some individuals may face in realizing the benefits of HAI.
• Propose best practices and practical solutions to address those hurdles.

Last year, the consortium convened experts in public health, research, psychology, gerontology and veterinary medicine for the first-ever Summit on Social Isolation and Companion Animals to tackle these goals, particularly as they relate to older adults and the mentally impaired.

A report released in late February by the consortium underscores the importance of social interaction in mental health and presents the results of a 2,000-person survey of both pet owners and non–pet owners throughout the United States. What they found may not be surprising to veterinary professionals:

• 80% of pet owners say their pet makes them feel less lonely.
• 54% of pet owners say their pet helps them connect with other people.
• 85% of all respondents believe that interaction with companion animals can help combat loneliness.
• 76% of all respondents agree that interacting with animals can alleviate social isolation.

“Pet ownership produces better heart health, and we have evidence that it improves mental health, but there’s an epidemic of loneliness in our society,” HABRI Executive Director Steven Feldman told dvm360. “We wanted to take a hard look at how having a pet and HAI can impact such a big societal challenge.”

Current goals

From the Summit came three primary recommendations to ensure that animals are taken into consideration when addressing the loneliness epidemic.

Advance high-quality research. Research is needed to help qualify what circumstances companion animals may be effective to help alleviate loneliness.

“We are working to facilitate and increase the amount of research in this area,” Angela Hughes, DVM, PhD, senior manager of Global Scientific Advocacy Relations at Mars Petcare, told dvm360, “because we understand that not every situation is going to be a perfect one for pet interaction.”

Instead of considering whether there is a pet in the home, future HAI research should take into account the quality of pet–human interaction and the degree to which individuals are attached to their pets. Future research should also evaluate the practice of animal-assisted intervention (AAI) to create evidence-based protocols that can be shared with all programs.

Remove barriers and offer solutions. Many barriers prevent older adults and the mentally impaired from participating in HAI. According to Feldman, this is an area where veterinarians play an important role.

“One of the barriers is making sure that as people age, they can keep their pets,” he says. “Veterinarians with older clients can help those clients keep their pets healthy as they age even as they move into continuing care facilities.”

But it’s also vital to recognize when pet ownership may not be the solution. “Do they not have the ability to personally care for a pet?” Dr. Hughes asks. “Maybe an interaction with a therapy animal would be more beneficial. Instead of considering whether they need to personally care for a pet, what if we designed a model to care for a pet?”

Looking to the future

This report is just a starting point to help establish the role of pets and companion animals in helping to alleviate social isolation around the world. While some hurdles were identified at the summit, and best practices were proposed to help address these hurdles, researchers acknowledge that much more work remains.

Over the next five years, HABRI and Mars Petcare have committed to working to achieve these three goals in an effort to spark real change in society.

“Ultimately, we believe in the power of pets to help solve this pressing epidemic of loneliness and isolation,” Dr. Hughes says. “That’s why we feel like this roadmap is going to facilitate the role of HAI and pet ownership in addressing it.”

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Pet obesity today: challenges and solutions

More than half of adult dogs are overweight, according to a new report from Banfield Pet Hospital and the NAVC. Pet weight management expert Prof. Alex German shares his solutions to this growing problem.

By Maureen McKinney, Associate Editorial Director

At the 2020 Veterinary Meeting & Expo (VMX) in Orlando, Fla., Banfield Pet Hospital unveiled its fourth annual Veterinary Emerging Topics (VET) Report, developed in conjunction with the North American Veterinary Community (NAVC). The 2020 VET Report reveals that obesity in dogs and cats continues to rise. Of the 1.9 million adult dogs seen at Banfield hospitals in 2018, a whopping 51% were overweight, and less than 10% of those diagnosed as overweight or obese successfully lost weight. What’s more, of overweight dogs that do achieve a healthy weight, about 40% resume their overweight status within a year.1

Clearly, this issue needs more attention in the veterinary community.

In a session presented by Banfield, Alex German, PhD, DECVIM-CA, SHFEA, FRCVS, professor of small animal medicine at the University of Liverpool, spoke to conference attendees about the challenges today’s veterinary practices face with regard to pet obesity and his proposed solutions for overcoming these challenges to help improve health and quality of life in dogs and cats.

Challenge #1: The changing demographic of pet obesity

Shifts in the popularity of certain breeds may play a role in the increasing problem of pet obesity. The top five overweight breeds today, according to the VET Report, are pugs, English bulldogs, beagles, corgis and American cocker spaniels. “Aside from the obvious impact on quality of life, the medical impact of obesity in brachycephalic breeds will be far greater, especially the severity of respiratory disease,” Prof. German said.

The other issue facing the profession is that many pets today are extremely obese. On a nine-point body condition scale, he noted, each point above five represents about 10% extra weight for the pet. Therefore, a pet with a score of 9/9 is 40% above its ideal weight. But many pets go “beyond the scale,” he said. “If we set a weight management plan for a pet that is 9++++ on the body condition scale, our estimate of ideal body weight will be way off reality, and the weight management plan is less likely to succeed.”

Challenge #2: Imperfect weight management strategies

“Current strategies are less than perfect,” Prof. German acknowledged. In weight reduction research, where every variable is accounted for, pets are able to lose 1% to 2% of body weight per week. But laboratories aren’t reality, he cautioned, because research colonies don’t factor in compliance.

In pet dogs, studies have found weight loss rates averaging about 0.8% per week. “Weight loss is not a linear process, and the slower it goes the harder it is to achieve success, Prof. German said. “As in people, weight loss in pets will be quicker at first, then it will get harder and take longer to shed pounds. It’s kind of like there is a physiological brick wall.”

In addition, he noted, simply getting started on the weight loss journey is difficult, and veterinary professionals can do more to initiate these challenging conversations with clients. In one study of more than 21,000 veterinary medical records, researchers identified how many times veterinarians wrote the term “obese” or “overweight” in the clinical record. “If half of all dogs are overweight, then you’d expect about half of the records to include one of those terms,” he said. But what the

Do you have a weight stigma?

Veterinary professionals who have a weight stigma are less likely to engage clients in conversations about their obese pets. Some people have implicit biases they don’t even realize they have.

If you think you might have a weight stigma, or if you’re not quite sure, Harvard’s Project Implicit can help. Visit implicit.harvard.edu, which offers a number of tests that gauge biases of all kinds. If you find that you do have an implicit weight bias, adjust your actions accordingly.
investigators found was that only 1.4% of the medical record notes included those words. “These findings indicate that, setting aside tackling the weight problem itself, it’s a major problem even getting started,” he said.

**Challenge #3: Societal and professional attitudes about obesity**

Society’s impression of obesity, if YouTube popularity is used as an indicator, is that obesity is both sad and funny. Surveys show that people view overweight individuals as lazy and lacking in motivation with little self-control. People tend to blame the individual for their own excess weight, and pet obesity is often considered the fault of the owner, Prof German said.

This attitude persists even though science has shown that obesity is a complex, multifactorial disease, Prof. German said, with genetic, medical, behavioral and other components at play.12 “Knowing this, you would think that medical professionals would view obesity differently from the way the rest of society views it, but even health care professionals carry a weight stigma that makes its way into the exam room,” he said.

**Solution #1: Rethink weight management strategies.** Instead of focusing on target weights, percent weight loss, ideal body weight and other numbers-driven data, Prof. German recommended what he calls an “overn-ready” 12-week plan, especially for middle-aged or older pets and those with comorbidities.

In both people and pets, the “golden period” for weight loss—when compliance is highest and the most weight is lost—is the first three months. The idea behind the 12-week plan is to help patients have better quality of life, Prof. German said. “Don’t fret about getting them to perfect weight,” he advised. “Prioritize completing the 12-week plan, with the primary outcomes being better function and improved quality of life.” After that period, review the results and consider continuing the plan after consulting with the client.

But is 12 weeks enough time to make a difference? In two of the largest studies of pet weight loss to date (one in dogs and one in cats), pets lost an average of about 11% of their body weight in 12 weeks’ time.13 Further, another study showed that pet mobility improves after as little as 6% to 9% weight loss.6

**Solution #2: Focus more on overweight prevention.** Identify at-risk pets before obesity develops, then monitor those pets proactively for life. “Risk factors for obesity in pets include breed, neuter status and owner demographics,” Prof. German said, adding that “obesity in dogs can also be predicted in some cases by growth patterns. Pets that grow more quickly than average are more likely to become overweight later in life.” He recommended using growth charts to gauge trends (canine growth charts are free to download from the Resources page at waltham.com). “Optimal growth should follow a single line on the chart, with less than 5% movement up or down,” he said.

**Solution #3: Have better weight conversations.** “Don’t ignore the elephant in the exam room,” Prof. German said. “And the conversation doesn’t need to be an uncomfortable one.” In general, he advised:

- **Avoid blame.** Park your prejudices and opinions about obesity at the door.
- **Avoid toxic words.** “Fat” and “obese”—even though the latter is a medical term—typically don’t go over too well with clients, Prof. German said. Instead, he suggested talking with owners about body condition and sharing relevant charts.
- **Treat overweight owners the same as non-overweight owners.** “It’s the same conversation (about pet obesity) regardless of who the client is,” Prof. German said. “Focus on the pet and show your clients empathy. You’re not going to mention the owner’s weight because our obligation is to the pet.”
- **Ask permission.** After explaining a patient’s body condition score visually to the client, ask simply, “Would you be open to having a discussion about it?”

**REFERENCES**

Tustin Legacy Animal Hospital sits in a brand new shopping center amid up and coming housing communities. The hospital was built on a former military base and boasts views of famous WW2-era blimp hangars, two of the largest wooden structures ever built.

Two treatment tables (pictured above) sit opposite the fishbowl doctors’ office, which also offers a good view into isolation (pictured below). Plenty of closed cabinet storage, a nearby laundry room and imaging room, and treatment cages make treatment convenient. Here, crisp white and gray grace the walls and cabinets, with only hints of the blues and greens seen throughout rest of the hospital, transitioning to a more back-of-house style.

Separate dog (pictured above) and cat (pictured below) waiting areas adjacent to the reception desk help to maintain calm throughout the day and add comfort and ambience to the lobby. Upholstered furniture is covered in Scotchguard, and the doctors say the pieces are holding up well and that clients are really good at not letting their pets up on the nicer pieces.

The comfort room enjoys direct entrance and exit to the parking lot, a couch and rug, a Sealy Posturepedic dog bed on the floor for treatments, and even blankets and pillows to add comfort during potentially difficult appointments.
Most people would say building a brand-new practice, taking on business ownership just five and seven years out of school, and starting families all at the same time is crazy. But the owners of Tustin Legacy Animal Hospital in Tustin, California, say it made total sense to them. After meeting as associates at another practice, Drs. Celine Hayek and Kristin Negvesky became fast friends. They always talked of building a practice together sometime in the future. Fast forward a few years. They had both left the practice for various reasons. Dr. Negvesky attended the first WVC Women’s Veterinary Summit and heard a talk about starting your own practice. “It was perfect timing,” says Dr. Negvesky. “They gave us the tools to start a practice, and it just hit me. Now was the right time for us to build. I took back a lot of great ideas, and told Dr. Hayek we don’t have to wait, let’s do it now!” The two friends started planning, quickly hired a realtor, found a practice space, signed a lease, and started making designs for their dream practice. It all fell into place, but the build was not without its challenges. “We had a steep learning curve, but we have complementary styles and ways of thinking about things,” she says. “I think it came together nicely.” The 2020 dvm360 Hospital Design Competition judges agree that the practice came together more than just nicely. In fact, these first-time practice owners and builders earned Hospital of the Year honors for practices smaller than 8,000 square feet. The Hospital Design Competition judges praised the hospital for a nicely detailed interior, great finishes, and a solid, efficient plan. Learning curve Drs. Negvesky and Hayek first found a realtor to help them choose a site. Having never owned a business previously, the two say they had a steep learning curve ahead. Thankfully, their real estate agent helped lead them to the right people. “Our agent had a lot of experience with veterinary hospitals and was a huge help, directing us where to go next,” says Dr. Negvesky. “We then met someone at Bank of America for our loans, and that person recommended a CPA to us. Each step of the way someone pointed us to someone else who could help.” The two say dealing with contracts was the most difficult part. Understanding all the details and keeping up with reading all the contracts posed challenges. Securing loans and handling financing also proved challenging for these newbies, but they say Bank of America was a big help.  

Jumping in, learning curve: First time’s the charm Two young doctors dove right into practice ownership and building a facility all at once and got the practice of their dreams.

By Sarah A. Moser
**Selarid**

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

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- Selarid is recommended for use in dogs six weeks of age or older and cats eight weeks of age and older for the treatment of sarcoptic mange (Sarcoptes scabiei) and for the control of tick infestations. Selarid also is indicated for *Dirofilaria immitis* infections in cats.
- Selarid kills adult *Ctenocephalides felis* and prevents *C. felis* from hatching for one month and is indicated for *D. immitis* infections in cats.
- Selarid does not affect adult heartworms. Selarid is not effective against adult *D. immitis* and, while the treatment of adult heartworms with *D. immitis* caused by *Dirofilaria immitis*, and the treatment and control of ear mite (Otodectes cynotis) infestations. Selarid also is indicated for the treatment and control of sarcoptic mange (Sarcoptes scabiei) and for the control of tick infestations due to *Demodex canis*.
- Selarid for cats and dogs is available in cartons containing 3 single dose applicators.

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**HOW SUPPLIED:** Available in cartons containing 3 single dose applicators.

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**NEWS | Cover story**

**Design dreams**

“Our main goal was to design a place that gave people a really good vibe when they walked in the door,” says Dr. Negvesky. “At our place, client service is number 1, and we wanted our hospital to feel approachable, with a clean, fresh style.”

There was also one more must-have: “A chandelier, a big one!” says Dr. Negvesky.

**Labor of love**

One last detail to mention: Tustin Legacy Animal Hospital opened in June 2018, and Dr. Hayek had her first child in early July. Dr. Negvesky also had her first child in late 2019. Talk about a labor of love. Who better to travel this journey with than a good friend and business partner who really understands your needs? 

Sarah A. Moser is a freelance writer in Lenexa, Kansas.
IMPORTANT SAFETY INFORMATION: Do not use SELARID on sick, weak or underweight cats and dogs. Use only on cats 8 weeks and older and on dogs 6 weeks and older. Prior to administration, dogs should be tested for heartworm. Side effects may include digestive upset and temporary hair loss at application site with possible inflammation. In people, SELARID may be irritating to skin and eyes. Wash hands after use. See Brief Summary for full Prescribing Information.

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What the survey found

In their collaborative follow-up study, the results of which were published last month, Merck, the AVMA and Brakke Consulting reexamined job satisfaction, compensation, burnout, substance use disorder, cyberbullying and suicide among veterinarians. More than 2,800 U.S. veterinarians—both practitioners and non-practitioners—participated in the online survey in October 2019. Here’s a snapshot of the results:

- Wellbeing among veterinarians has remained relatively unchanged since the previous study (conducted in late 2017), with just over 9% of respondents in both surveys admitting to “suffering.”
- Veterinarians have higher levels of burnout than physicians, despite working fewer hours.
- Wellbeing is lowest among younger veterinarians, with 13% of 18- to 34-year-old respondents admitting to “suffering” and only 46% “flourishing” (Figure 1).
- Younger veterinarians are more likely than any other age group to suffer serious psychological distress.
- Although the overall level of serious psychological distress remained relatively steady in the two years between surveys, significantly more women than men in the current survey indicated that they experience psychological distress (6.3% vs. 8.1%).
- Veterinarians are much more likely than non-veterinarians to think about suicide and 2.7 times more likely to attempt it.
- Food animal practitioners have better mental health than mixed-animal, companion animal, equine and nonpractitioners. Only 0.7% of food animal veterinarians said they experience serious psychological distress, compared with 6.4% of the overall veterinarian population.

“Our research shows that attitudes toward mental health in the veterinary field are improving, but we still have work to do as it relates to treatment.”

— Judson Vasconcelos, PhD, DVM, director of Veterinary and Consumer Affairs for Merck Animal Health

"Our research shows that attitudes toward mental health in the veterinary field are improving, but we still have work to do as it relates to treatment." According to Christine Royal, DVM, director of veterinary professional services at Merck Animal Health, these results shouldn’t come as too much of a shock.

"I wasn’t surprised by the findings,” Dr. Royal said in an interview with dvm360. "Because although we have been focused on (veterinary wellbeing) over the past couple of years, we’re still in the process of developing tools and resources, and identifying gaps so that we can figure out the best ways to help.”

The war rages on

Giving up the battle against burnout is not an option. It’s not even on the table. "One thing that is really evident to me is that this is not a simple problem; therefore, there is not a simple solution. It is multidimensional,” she explains. “Ten years down the road, as we reflect back, we’ll start to see changes and that’s what is important.”

Dr. Royal says she would like to see both practices and individual veterinary professionals take advantage of the myriad mental health resources available to them, noting that only 12% of the veterinarians surveyed said they’ve accessed those resources (see sidebar on page 34). But she has heard numerous personal stories that prove the heightened focus on wellbeing is having a positive impact on the profession. Nevertheless, she says, “big changes don’t happen overnight. We’re all busy, whether it be seeing patients, managing staff members or going from exam room to exam room. If you’re going to make larger changes within a practice, it takes time.”
1. Study conducted by the Royal Veterinary College. Data on File.


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Ready, set, start!
If you know you need to do something to reduce your stress level and get back to loving the job you love, but you don’t know where to begin, here are Dr. Royal’s top three recommendations.

Develop a stress management plan
Based on key study findings, Dr. Royal recommends that all veterinary professionals have a stress management plan in place—and students should create one before graduation. There is no one-size-fits-all plan, she acknowledges, suggesting a dvm360 article about the previous study as a great place to start.1

One of the best ways to combat mounting stress is to make sure you have someone to talk to, keeping in mind that “being on social media is not socializing,” she says. Important features of a well-rounded plan include practicing mindfulness and eating a balanced diet.

Have a financial planner
This is vital across the board, Dr. Royal explains, whether you have student debt or are planning for the future. “Having someone to talk to about your finances is critically important.”

Commit to work-life balance
Establishing boundaries for yourself between your career and your personal life was found to be one of the key predictors of high wellbeing. “Your work-life balance might look different than a colleague’s, so you need to figure out what works for you,” Dr. Royal says.

The profession is at an impasse
Every veterinary professional who attends a symposium on work-life balance or engages in discussions about mental health pushes the needle closer to creating a more positive and healthier experience for future veterinarians. Consistent with 2017 results, the current study revealed that despite high job satisfaction rates, 52% of those surveyed would not recommend the profession to others, citing high student debt, low pay and stress as the main reasons.

“As a veterinarian, I love my job but there are some negatives that go along with it. I am OK carrying that on myself,” Dr. Royal explains. “We’re such caregivers that we want to take care of those around us but don’t always do the best jobs of taking care of ourselves.”

Like many other veterinary professionals who are working to keep the conversation about mental health moving forward, Merck Animal Health and the AVMA hope that conversations about stress management are soon commonplace in both the classroom and the hospital, and that veterinary professionals will be able to detect signs of emotional distress within themselves as easily as they can diagnose fleas in a dog.

In support of AVMA’s veterinary wellness efforts, Merck Animal Health is making a second $100,000 commitment following up on its 2017 promise to support AVMA’s workplace wellbeing efforts and resources.2

Mental health resources for veterinary professionals
A number of online and in-person resources are available to veterinary professionals dealing with distress. Here are just a few:

• AAHA’s Culture Initiative: Members can schedule an appointment with an AAHA consultant for a review of wellbeing issues and receive recommendations on how to get started on improving their practice’s culture.

• AVMA’s Workplace Wellbeing Certificate Program: Consists of five modules aimed at empowering veterinarians and team members with the skills to create a culture of wellbeing in their workplace.

• E-Counseling.com: Offers tele-behavioral health solutions to make access to mental healthcare more flexible, inexpensive and time efficient.

• Vets4Vets: A confidential support system provided by the VIN foundation. Veterinarians needing emotional or psychological support can call 530-794-8094 or email Vets4Vets@VINFoundation.org. Veterinary support staff are encouraged to contact Support4Support@VINFoundation.org.

• VIN Foundation Student Debt Center: Helps veterinary students and graduates manage their student loan debt (vinfoundation.org/resources/student-debt-center/).

• VHMA Employee Assistance Program: Provides employers with a constructive approach to working with employees who experience personal and work-related concerns.
How to avoid pre-sale remorse when selling your practice

It’s widely been said that one cannot chart a route until their destination is known. For many long-time veterinary practice owners who are considering a sale, there is a good deal of obsessing over the route and precious little hard thought about the destination.

Many veterinarians dreaming of selling their practice focus on whether they should court private buyers, corporations or both. They wonder what their spouse or children will think if they decided to sell out and retire. Sometimes they fear they may end up being bored. And, naturally, they wonder how much their business would bring in the current torrid veterinary hospital market.

Then, once concrete steps are taken toward a sale and the ultimate disposition of the clinic becomes clear, many practice owners who have engaged in mental gymnastics about prospective buyers suddenly realize that they never seriously considered their reasons for selling in the first place. And they often haven’t thought about the objectives of the buyer who will own the business into which they have poured their heart and soul for many years.

Once the realization hits that signing a contract for sale means imminently sayonara to the clinic, many sellers experience a sort of “pre-sale remorse,” second-guessing themselves and wondering if they will end up questioning the wisdom of the sale—perhaps indefinitely.

Putting the cart behind the horse

To avoid doubt about an imagined or pending practice sale, we recommend that our clients engage in some meaningful self-evaluation. Often private veterinary practitioners are so fully engaged in day-to-day clinical and management duties that they deny themselves a genuine opportunity to ponder how they would like to live five, 10 or 20 years hence.

After giving the future good and realistic consideration, it is time for the selling veterinarian to begin evaluating all the options and routes to that future life. But this is precisely the opposite of what is so commonly done.

Of course, your future self and future life can’t be imagined fully without considering those around you. Does your spouse want to stay near family in the East while you want to move to the Rockies? Has your nephew decided for certain that he doesn’t want to become a veterinarian and take over your clinic? Is that daughter of yours who’s in her third year of vet school sure she wants to take over your hospital, or does she have indomitable wanderlust?

Then there’s the money. Once your post-ownership plans are in focus, have you done enough research regarding your finances and the anticipated payout on your clinic sale that you know that you can afford to live in the Rockies?

Remember that the veterinary clinic market of the new millennium is far different than in the past. Prices are higher. Ownership options are wider. The availability of private buyers is more uncertain than it was back when the cost of veterinary school was rational.

But once you have thoroughly—and I do mean thoroughly—considered your objectives for selling (and yes, simply being sick of it is a rational and fair reason to want out), then it’s time to look into the ways those goals might be met. Trust me: This order of operations beats leaving the closing table with a seven-figure check and then wondering “what now?”

Let’s have a look at the numerous new options, other than the obvious immediate and total cash sale of their hospital, that are available to meet practice owners’ well-considered goals.

Cultivate an ambitious, hungry associate

For some long-time practice owners, it is very difficult to imagine suddenly losing control over the business that has taken them years to establish and nurture. It’s really tough. But also tough is graduating from veterinary school and wanting to be a practice owner but having such an overwhelming debt burden that no traditional lender will consider loaning the full price of a solid practice.

For practice sellers who are willing to accept some degree of risk in exchange for realizing their dream of keeping their “baby” in private hands, one answer may be aggressive associate recruitment. Corporate hospital chains, of course, have entire departments dedicated to locating associates for their clinics. But what their headhunters cannot offer is something that might be just the ticket for some practice sellers: a practice buyout over time, with a “sweat equity” investment by the ownership-hungry associate that plays out over several years.

If the right associate is recruited—savy recruitment is key—the seller can eventually walk away with a payout. In this scenario the seller receives a sort of annuity that has a far better return than the historical investment in stocks or bonds. All this occurs while not losing immediate control and having a chance to mold the new “eventual owner” into the kind of boss to which a dedicated, hard-working staff can be devoted.

Creative sale to corporate

As more and more practices are sold to consolidators, the number of quality practices available for acquisition continues to diminish. As a result, corporate buyers are becoming more flexible with their buyout options, offering a number of heretofore unavailable choices for sellers who want to retain some degree of input into the clinic culture. Owners who participate in one of these creative sale arrangements can often “ease out” of the ownership role instead of bailing out immediately.

Limited time majority/ minority ownership split. Under this arrangement, the purchasing corporation may buy a controlling interest in the hospital while leaving the seller still substantially invested, say, by retaining 40% to 45% ownership. Simultaneously there is a contractual obligation for the seller to part with their remaining interest three to seven years down the road.

Associate minority interest upon sale. Some corporate chains are allowing well-qualified associates to purchase from the seller a minority stake in the clinic to be sold. Depending on the management skill of the corporation, this can allow the associate to influence clinic culture during years of transition and also to be financially incentivized to help keep the clinic “the kind of place it’s always been.” For many sellers, this continuity is emotionally important.

Seller accepting consolidator stock. In some instances, if a seller is convinced that the practice will thrive under corporate ownership, the buyer/consolidator will be willing to pay the seller partially in pre-IPO (initial public offering) or “pre-sale to a bigger consolidator” stock in the acquiring entity. This can permit the seller to feel as if they still are experiencing upside profit potential in the acquired shares and in some way remain somewhat ‘involved’ in the former practice’s health and wellbeing.

Dr. Christopher Allen is president of Associates in Veterinary Law PC, which provides legal and consulting services to veterinarians. Call 607-754-1510 or email info@veterinarylaw.com.
W e learn very early in life how to speak. In society, we learn to communicate in a manner that is generally standardized so that we can be understood by others. As infants and children, we learn language primarily by exposure and imitation; you say a word and I repeat something similar. (Remember your first days of high school French?)

Learning languages as a child is easier than learning as an adult because there is less complex information to digest and transmit. We learn to associate words with meanings. Conceptual applications are generally very simple, and grammatical rules are of little importance. If you listen to people speak English in developing countries, you’ll notice that the use of incorrect verb tense and incorrect pronouns is common.

I remember as a small child learning pronouns to the tune of a song. Sixty-plus years later I can remember not only the tune but all of the pronouns. And while they are a relatively small part of our language, pronouns make a big impact when used incorrectly. Living in the Caribbean for some years, I am still amused when I hear an elderly Anguillan ask, “When them went?” or “Where she be?”

The gender shift

Increasing numbers of employees entering the workplace have gender identities and expressions that differ from what we commonly might think of when discussing gender. Recently someone close to me shared that they had struggled with their gender identity for years, finally realizing that their assigned gender at birth was not who they are. In fact, this person feels neither male nor female but both and at the same time. This is known as “gender fluid.”

After the surprise wore off, I became confused … not so much by who my friend was but by how I would relate to them and honor their wishes. The first thing that hit me was “How do I address them?” Do I say “he” or “she” or some other newly coined term? Then I realized it wasn’t just me who had always referred to them by their gender-associated pronoun. What about their other friends? Their family? Their coworkers?

So, I started reading and found to my surprise that the issue is less confusing than we might think. Keep in mind that gender and sexual orientation are very different. Sexual orientation indicates who you are attracted to, while gender applies to who you are. Most of us grew up with two genders—male and female—but it isn’t that simple anymore. A term commonly applied today is “nonbinary,” which means neither exclusively male nor exclusively female. (Some people who are nonbinary experience their gender as both male and female, while others experience their gender as neither male nor female.) According to the most widely cited definition, a person is called transgender (or trans) if their gender identity—their internally experienced gender—differs from the gender identity expected on the basis of what was legally assigned at birth.

It’s nothing new

Gender diversity may be new to most of us, but it is not new to society. There is evidence of transgender and nongender people dating back 4,000 years, and research indicates well over 100 instances of diverse gender expression in Native American tribes at the time of early European contact. “Two-Spirit” is a modern term used by some indigenous Native Americans to describe Aboriginal people in their communities who fulfill a traditional and necessary third gender ceremonial role in their culture. The cultural legacy of these people was nearly erased by religious indoctrination and the imposition of laws criminalizing varied sexuality and gender expression.

More recently, a UCLA study showed that the percentage of trans adults has doubled in the past 10 years, increasing from 0.3% to 0.6%.1 In some survey reports, up to 2.7% of today’s youth identify as gender nonconforming.3,4

As it should be, most communities in recent years have become more inclusive and accepting of gay and lesbian neighbors, employees and coworkers. Long a visible part of society, LGBTQ individuals have made great strides socially, politically and economically. Today there is increased awareness of nonbinary individuals being subjected to harassment and denial of basic rights. Nonbinary and transgender colleagues, coworkers and clients deserve and will demand equality.

So, what impact will this have on your practice culture? How will it affect your business? (And it will.) We will have to learn sensitivity to LGBTQ employees, clients and colleagues.

Nonbinary in the workplace

The implications for the workplace in general and for veterinary practices in particular are obvious: Things will change. According to social-science company CivicScience, nonbinary people have higher unemployment rates than those who identify with a specified gender.5 Masculine nonbinary people who still appear male or are not “passing as female” generally have a harder time in the work environment. Yet many companies are making small but measurable efforts to recognize nonbinary employees and customers, and nonbinary is increasingly offered as an option with male or female on credit applications, insurance forms and driver’s licenses.

In English, a noun can be one of four genders: masculine (man, actor), feminine (woman, mare), common (parent, friend), and neuter (house, car). So, if a person can appear male but consider themselves female, or they were born female but consider themselves male—or consider themselves neither male nor female—how should we address or refer to or them? First, avoid using the gender-specific pronouns “he,” “she,” “her” or “his.” Rather than struggle uncomfortably with searching for the correct pronoun, it is common and surprisingly easy to simply ask how the individual wants to be referred to. In some settings, applications and email signatures include the individual’s preferred pronouns.

The bottom line

All of this may be new to you and unprecedented in your workplace. But acceptance of political, religious, racial and sexual differences will broaden our horizons and enhance our life experiences. The most important thing to remember is that while their experience may seem foreign, we should always address all of our employees, coworkers and clients with tolerance, respect and courtesy.

REFERENCES

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Dr. Reed owns a successful five-veterinarian hospital in a large urban area, and he’s constantly on the lookout for ways to control expenses without compromising medical care or staff quality. Recently, his hospital administrator brought a disconcerting expense line to his attention. Courtesy discounts given to staff family members, hardship clients and certain organizations were becoming a financial burden. Dr. Reed had no issues when one of his veterinarians requested a fee discount for a family member or an indigent client. However, his doctors were no longer using enough discretion when requesting these courtesies.

Dr. Reed met with his hospital administrator and suggested a new experiment to offset the discounts: shared responsibility. For example, if a staff member’s mother brought a dog to the clinic and received a 20% courtesy, Dr. Reed would shoulder 10% of the fee reduction and the staff member the other 10%. He felt this would lead to less abuse of the courtesy discount policy and a better understanding of how much these courtesies affect the hospital’s finances. Dr. Reed considered his administrator’s suggestions and changed course. He called a staff meeting to discuss the need for clinic discounts to be reduced in the interest of fiscal responsibility. He explained that he’d adjust the percentage of discounts offered and eliminate discounts for some organizations they’d discounted in the past. Finally, discounts for clients in critical situations would be scrutinized more carefully before approval. Dr. Reed strongly believed—and told his staff—that the practice needed to meet specific financial goals before certain discounts were offered. Unless this was accomplished, the well-intentioned discount policies would be undermined.

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

Dealing with a discount leak

Price breaks for staff family members, hardship clients and rescue organizations are costing Dr. Reed’s veterinary practice. His idea? Have staff members pay a percentage of the discount. Hold on, says his hospital administrator.

“They come to work,” she told Dr. Reed. “They do their job, they get paid.” Yes, the clinic’s financial success benefits everyone, the hospital administrator argued, but the staff doesn’t need to participate so blatantly in the facility’s internal financial management. Why not just decrease the courtesy percentage offerings or discontinue one of the courtesy offer categories?

Dr. Reed considered his administrator’s suggestions and changed course. He called a staff meeting to discuss the need for clinic discounts to be reduced in the interest of fiscal responsibility. He explained that he’d adjust the percentage of discounts offered and eliminate discounts for some organizations they’d discounted in the past. Finally, discounts for clients in critical situations would be scrutinized more carefully before approval. Dr. Reed strongly believed—and told his staff—that the practice needed to meet specific financial goals before certain discounts were offered. Unless this was accomplished, the well-intentioned discount policies would be undermined. dvm360

Dr. Rosenberg’s response

Dr. Reed’s practice is part of the community and doesn’t exist in a vacuum. It may be true that courtesy discounts aren’t scrutinized carefully enough in his practice. However, it’s highly unlikely these discounts are the cause of the practice’s financial issues. Reasonable courtesy gestures for the staff, the community and the needy should be factored into practice overhead. It’s important never to underestimate the value that these gestures have when it comes to generating a positive public image and maintaining overall client loyalty.

Certain overhead considerations are often overlooked and not properly budgeted for—courtesy discounts, inclement weather and routine state and local regulatory audits are just a few. Often, when a clinic starts to experience some financial stress, the first response is to be penny-wise and pound-foolish. There are many ways to make a practice more financially efficient. Cutting back on reasonable courtesy discounts should not be at the top of the list. These gestures generate a lot more goodwill and financial reward than Dr. Reed and many others realize.
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If you’ve ever sat in a room with an English bulldog or a pug, you know exactly what a dog with brachycephalic obstructive airway syndrome (BOAS) sounds like. And as a veterinary professional, you can probably recognize the sound of BOAS before you even see the dog itself.

The components of this syndrome (stenotic nares, elongated soft palate, everted laryngeal saccules, laryngeal collapse and hypoplastic trachea) can occur independently or in combination with one another. The snoring, snorting and other breathing abnormalities can be so severe that some dogs require emergency surgery. Nevertheless, pet owners don’t always understand the significance of these respiratory aberrations.

According to Kevin Benjamino, DVM, DACVS, with MedVet in Columbus, Ohio, even owners who notice the signs may dismiss their significance. “A lot of the time, the owners just don’t know. They think, this is what a bulldog is ‘supposed’ to be like,” he says. “But these dogs are at a real disadvantage because the normal airway structures are so compressed. The conformational changes create tremendous resistance to air flow.”

At a recent Fetch dvm360 conference, Dr. Benjamino reviewed important diagnostic and treatment considerations for dogs with BOAS.

**Overall presentation and diagnosis**

Stenotic nares and elongated soft palate are primary conformational changes, but the other components of BOAS >>
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(everted laryngeal saccules, laryngeal collapse and hypoplastic trachea) tend to occur secondarily. For example, everted laryngeal saccules usually develop when chronic difficulty in the passage of air into the nasopharynx and oropharynx causes negative pressure. "Normally, the saccules should be positioned at four o'clock and eight o'clock, adjacent to the vocal folds, just outside the airway. But eversion can make them obstruct the airway," Dr. Benjamino said.

Routine bloodwork (complete blood count and serum chemistry profile) and urinalysis are helpful, as is blood gas analysis, to assess the pet’s overall health.

Hypoplastic trachea can be identified on radiographs in some cases. However, Dr. Benjamino likes to rule out aspiration pneumonia before sedating a pet for surgery. In an older patient, he said, it’s also important to look for heart enlargement and signs of lower airway disease.

Once a diagnosis is made, it’s time to consider medical and surgical options. Medical options are limited but include weight loss, controlling allergies, keeping the pet in a cool environment, avoiding neck leads and potentially using GI protectants if regurgitation is an issue. Moderately to severely affected pets are more likely to need surgery.

**Surgical options**

Dr. Benjamino urged clinicians to discuss surgical options with owners early, before secondary issues worsen the dog’s overall condition. "If you intervene when these dogs are six to twelve months old, before there’s a (chronic) problem, your success rate is better. There are certain problems that we just can’t change surgically."

—Kevin Benjamino, DVM, DACVS

Common signs of BOAS include stridor, snoring and exercise intolerance. Potential triggers like hot weather, exertion and obesity exacerbate the condition. Dogs with BOAS are also predisposed to aspiration pneumonia and gastrointestinal (GI) signs such as regurgitation and vomiting. Severely affected pets may develop apnea, syncope, cyanosis and pronounced respiratory distress—presentations that are more likely to require emergency intervention.

Physical exam findings include referred upper airway noise during thoracic auscultation, stridor and visually narrowed nares. During physical examination, it’s important to investigate other differentials, such as neoplasia, laryngeal paralysis and cardiac disease.

"Oral exam under sedation is very helpful," Dr. Benjamino advised. Diagnostic objectives include determining the position of the soft palate, checking for masses or redundant pharyngeal tissue, evaluating the laryngeal structures and assessing tonsillar enlargement. Also performed under sedation, endoscopy facilitates evaluation of the pharynx and upper airway, as well as the upper GI tract for dogs with vomiting and regurgitation.

Routine bloodwork (complete blood count and serum chemistry profile) and urinalysis are helpful, as is blood gas analysis, to assess the pet’s overall health.

If you intervene when these dogs are six to twelve months old, before there’s a (chronic) problem, your success rate is better. There are certain problems that we just can’t change surgically.

—Kevin Benjamino, DVM, DACVS

Laryngeal collapse. Laryngeal collapse occurs when the laryngeal cartilages weaken and begin to fold in on each other as a result of chronically increased pressure. It’s a secondary change that is more likely to occur in older patients, although younger pets can also be affected. Dr. Benjamino described three grades of laryngeal collapse:

- **Grade 1**: The laryngeal saccules evert and narrow the pharyngeal lumen.
- **Grade 2**: Grade 1 collapse is accompanied by inward folding of the cuneiform processes and failure of the cuneiform processes to abduct during inspiration.
- **Grade 3**: Cuneiform and corniculate processes fold down or inwardly on each other during inspiration.

Surgical correction is more difficult in dogs with grade 2 or 3 laryngeal collapse. Surgical options include laryngeal tieback, but success rates can vary. Some dogs benefit from a permanent tracheostomy, which bypasses the upper airway entirely. "Dogs with severe grade 3 collapse may need a permanent tracheostomy," Dr. Benjamino warned.

Postoperative care recommendations following correction of BOAS include soft food for approximately 14 days, GI protectants (omeprazole or pantoprazole), glucocorticoids for inflammation, and acetylmethane and butorphanol if sedation is needed. **dvm360**

Dr. Todd-Jenkins received her VMD degree from the University of Pennsylvania School of Veterinary Medicine. She is a medical writer and has remained in clinical practice for over 20 years. She is a member of the American Medical Writers Association and One Health Initiative.
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Antibiotics are often prescribed for dogs with gastrointestinal (GI) signs. In fact, three studies surveying veterinary prescribing habits in the U.K. showed that antimicrobials were prescribed as first-choice therapy in 50% or more of dogs presenting with acute diarrhea.\(^1\)\(^-\)\(^3\) While antibiotics can certainly be beneficial or even lifesaving for some dogs with GI disease, for others these drugs are unnecessary and may even be harmful.

**Potential adverse effects**

**Antimicrobial resistance**

As antimicrobial resistance becomes an ever-pressing concern in modern human medicine, there has been a growing movement in veterinary medicine to promote appropriate and judicious use of antibiotics.\(^4\)\(^-\)\(^6\) Oral administration of antibiotics may lead to the rapid development of resistant strains in the GI tract; cross-resistance to other antimicrobial agents can also occur.\(^7\)

**Effects on the microbiome**

Opinions vary about the short- and long-term effects of antibiotics on the microbiome, which plays an important role in health and immunity, but it’s clear that concern is warranted. In one study, metronidazole was shown to cause a transient decrease in pathogenic bacteria and an increase in beneficial bacteria,\(^8\) but a different study showed that the fecal dysbiosis index was significantly increased in healthy dogs receiving metronidazole, indicating significant alterations in the microbiome structure and diversity, with some changes remaining up to 4 weeks after the completion of antibiotic administration.\(^9\) (The fecal dysbiosis index is a polymerase chain reaction [PCR] assay that quantifies the abundances of various bacterial groups, with values less than 0 indicating a normal fecal microbiota and values higher than 0 indicating dysbiosis.)

Fenbendazole has no significant effects on the microbiome of healthy dogs,\(^10\) but tylosin, another commonly prescribed medication for GI disease, can have prolonged effects.\(^11\) In one study, healthy dogs receiving standard doses of oral tylosin had significantly increased fecal dysbiosis indices, persisting for at least 2 months in some dogs.\(^12\) Although none of the dogs in these studies had (or developed) GI signs, the effects of antibiotics on the microbiome warrant further investigation.

**Long-term consequences**

While we know antibiotic use affects the microbiome, we do not know the potential long-term consequences. Links have been found in humans between antibiotic exposure early in life and the development of various diseases, such as inflammatory bowel disease and allergies.\(^13\)\(^-\)\(^15\) Thus, it is reasonable to be concerned that antibiotic use in our own patients—especially young, growing dogs—might suffer similar consequences.

**Antibiotics in specific conditions**

Uncomplicated acute diarrhea in dogs has many possible causes, but a primary bacterial etiology is uncommon. Although diarrhea is often self-limiting, antibiotics are sometimes prescribed by practitioners in an effort to expedite recovery.

Studies evaluating whether antibiotics have a discernible effect on time to resolution of diarrhea in dogs have had mixed results. One study failed to identify a significant difference in time to recovery in dogs treated with metronidazole compared with placebo,\(^16\) and another found that metronidazole hastened resolution of diarrhea by about 1.5 days (both groups in this study recovered quickly).\(^17\) A large, retrospective observational study found that dietary modification and nutraceuticals (which included probiotics) were positively associated with resolution of acute diarrhea, but no such association was found with pharmaceutical agents (including antibiotics).\(^3\)
Given that there is minimal (if any) proven benefit of antibiotic use in dogs with uncomplicated acute diarrhea, there is no basis to support the routine prescription and use of antibiotics in these cases.

Canine parvovirus has a tropism for rapidly dividing cells, including those of the intestinal crypt epithelium, which leads to a severe enteritis. This, paired with the neutropenia that classically occurs with this disease, places patients at risk for bacterial and endotoxin translocation, which can result in bacteremia, systemic inflammatory response syndrome (SIRS) or multiorgan dysfunction. For this reason, broad-spectrum antibiotics are warranted in neutropenic patients suffering from canine parvovirus infection.

Typically, a beta-lactam antibiotic (ampicillin 22 mg/kg IV three times daily) is used, alone or in conjunction with enrofloxacin (5-10 mg/kg/day IV); see Table 1. Enrofloxacin may cause cartilage damage in young, growing animals, but this is rare with standard doses. Aminoglycosides can also be considered in well-hydrated dogs, but its use carries a risk for acute renal failure.

Acute hemorrhagic diarrhea syndrome (AHDS), formerly known as hemorrhagic gastroenteritis, is associated with a small intestinal overgrowth of *Clostridium perfringens*, although it should be noted that this organism is present consistently in the feces of healthy dogs. The netF toxin gene produced by *C. perfringens* might play an important role in the pathogenesis of this disease. Although there is no significant difference in *C. perfringens* encoding for the alpha toxin or enterotoxin between dogs with AHDS, parvovirus or healthy controls, a significantly greater number of dogs with AHDS have the netF toxin gene. While the presence of netF gene in fecal samples supports *C. perfringens*–associated AHDS, there is no difference in outcome between netF-positive and netF-negative dogs. It should also be noted that there is a 10% to 12% prevalence of this gene in nonspecific diarrhea cases and healthy controls, and about 50% of dogs with AHDS are netF negative.

There is no significant difference in the recovery and outcome of dogs treated with or without amoxicillin/clavulanic acid, and in a study evaluating the effects of a probiotic on the clinical course of AHDS, dogs made a rapid recovery without antibiotics. For this reason, unless evidence of sepsis exists (such as fever or toxic change of neutrophils on a leukogram), antimicrobials are unlikely to be necessary for the treatment of this syndrome.

Dogs with AHDS that do not receive antibiotics have a good prognosis and rapid recovery, despite roughly one-third of these patients meeting two or more SIRS criteria. This suggests that standard SIRS criteria alone may not be strict enough to guide appropriate use of antimicrobials.

Antibiotic-responsive diarrhea (ARD) describes a chronic (>3 weeks) enteropathy for which...
no underlying cause is found and which is completely responsive to antibiotic treatment. Classically, ARD is seen in young, large-breed dogs, with German shepherds being over-represented. It is characterized by chronic intermittent diarrhea as well as weight loss, a variable appetite, and possible vomiting.

The diagnosis is based on a positive response to therapy, exclusion of other diseases (e.g. exocrine pancreatic insufficiency in a young German shepherd with weight loss and diarrhea) and a demonstration of disease relapse when antibiotics are withdrawn. Excluding other diseases is important as many of them may improve temporarily with antibiotics; thus a positive response to therapy does not negate the need for appropriate workup.

About two-thirds of dogs with chronic enteropathies have food-responsive enteropathies, with ARD and steroid-responsive diarrhea making up the remaining third.23,24 Dogs with food-responsive diarrhea have better outcomes than dogs with either ARD or steroid-responsive disease. Therefore, an antibiotic trial should be considered only after a strict diet trial (hydrolyzed protein or novel protein diet) for a minimum of 3 weeks with no response.25

The antibiotics recommended for treatment of ARD are metronidazole (10-15 mg/kg PO twice daily) and tylosin (25 mg/kg PO once or twice daily). Some dogs respond specifically to tylosin,25 so it may make more sense to look to tylosin before metronidazole in an antibiotic trial for a chronic enteropathy. Response to therapy should be quick (within 2 weeks), and dogs with a positive response to tylosin at 25 mg/kg/day might respond to doses as low as 5 mg/kg/day.26 Thus, dose reduction can be considered following a positive response to the standard dose. As noted earlier, ARD is definitively diagnosed when relapse occurs following antibiotic withdrawal and clinical signs resolve when the antibiotic is re-introduced.27 That said, not all dogs require lifelong therapy and periodic withdrawal of antibiotics should be attempted to determine whether ongoing therapy is necessary.

**Escherichia coli–associated granulomatous colitis** is characterized histologically by granulomatous inflammation with periodic acid–Schiff–positive macrophages. This disease classically is seen in young boxer dogs or French bulldogs.28 Patients usually present with a combination of colitis, hematochezia and weight loss. With the use of fluorescence in situ hybridization (FISH; Figure 1), mucosally invasive *E. coli* was identified as the likely cause of this disease. Long-term remission is associated with eradication of the bacteria.29,30 Typically, it is treated with a long course of fluoroquinolones, such as enrofloxacin (5-10 mg/kg/day for six to eight weeks). This disease has been identified in a variety of other breeds and even in cats, with reported remission with fluoroquinolone therapy.31 However, resistance of *E. coli* to fluoroquinolones has been demonstrated. Therefore, bacterial culture and sensitivity testing of the tissue is recommended. Due to the potential for the development of antimicrobial resistance, empiric therapy for this disease is not recommended.

**Enteropathogenic bacteria** (and/or their toxins) are often detected today using fecal PCR panels, which allow for the identification of organisms such as *Clostridium difficile, C. perfringens, Campylobacter spp.*, and *Salmonella spp.*, among others. An ACVIM consensus article regarding enteropathogenic bacteria offers a more detailed discussion on this topic.32

As these organisms can be found in both healthy animals and in those with diarrhea, interpretation of the results of these panels can be confusing. For some organisms, identification of enterotoxin genes may be more helpful. Enterotoxin genes are produced by both *C. perfringens* and *C. difficile* and are found more frequently in dogs with diarrhea than in those without.

### Table 1. Indications, antibiotic agents, and doses for treating GI disease in dogs

<table>
<thead>
<tr>
<th>CONDITION/AGENT</th>
<th>APPROPRIATE ANTIBIOTIC(S)</th>
<th>COMMENTS</th>
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| Parvovirus infection (with neutropenia) |  • Ampicillin 22 mg/kg IV three times daily  
  • Ampicillin and sulbactam 20-30 mg/kg IV three times daily  
  • Enrofloxacin 5-10 mg/kg/day IV  
  • Amikacin 20 mg/kg/day IV | Amikacin carries a risk for acute renal failure and should be used only in euhydrated patients. |
| Antibiotic-responsive diarrhea (after other causes are excluded) |  • Tylosin 25 mg/kg PO once or twice daily  
  • Metronidazole 10-15 mg/kg PO twice daily | Patients may respond to tylosin doses as low as 5 mg/kg/day PO. |
| *E. coli*–associated granulomatous colitis | Enrofloxacin 5-10 mg/kg/day PO | Prolonged treatment (6-8 weeks) is required. Culture and susceptibility testing on colonic tissue is recommended. |
| *Clostridium difficile* | Metronidazole 10-15 mg/kg PO twice daily for five days | Only treat dogs with signs of systemic illness. |
| *Clostridium perfringens* |  • Amoxicillin 20 mg/kg PO twice daily  
  • Tylosin 25 mg/kg PO once or twice daily  
  • Metronidazole 10-15 mg/kg PO twice daily | Only treat dogs with signs of systemic illness. |
| *Salmonella* |  • Ampicillin 22 mg/kg IV three times daily  
  • Enrofloxacin 10 mg/kg/day IV | Only treat dogs with signs of systemic illness. These antibiotics represent empiric treatment; culture and susceptibility testing is recommended. |
| *Campylobacter* |  • Erythromycin 10-15 mg/kg PO three times daily  
  • Azithromycin 5-10 mg/kg/day PO | Only treat dogs with signs of systemic illness. |

Figure 1. Fluorescence in situ hybridization of the colonic tissue of an 11-year-old male castrated boxer. Note the abundant mucus-associated rods (red) with neutropenia. This disease is characterized by granulomatous colitis. Therefore, bacterial culture and susceptibility testing of the tissue is recommended. Due to the potential for the development of antimicrobial resistance, empiric therapy for this disease is not recommended.

**Enteropathogenic bacteria** (and/or their toxins) are often detected today using fecal PCR panels, which allow for the identification of organisms such as *Clostridium difficile, C. perfringens, Campylobacter spp.*, and *Salmonella spp.*, among others. An ACVIM consensus article regarding enteropathogenic bacteria offers a more detailed discussion on this topic.32

As these organisms can be found in both healthy animals and in those with diarrhea, interpretation of the results of these panels can be confusing. For some organisms, identification of enterotoxin genes may be more helpful. Enterotoxin genes are produced by both *C. perfringens* and *C. difficile* and are found more frequently in dogs with diarrhea than in those without.
When it comes to **fast** relief from allergic itch without the common side effects of steroids*

**IT WOULD BE A SHAME TO MAKE THEM WAIT**

APOQUEL (oclacitinib tablet) gives dogs fast, effective allergic itch relief that **starts working within 4 hours**

*Common side effects of steroids include polyuria, polydipsia and polyphagia. Side effects of APOQUEL reported most often are vomiting and diarrhea.

**INDICATIONS**

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

**IMPORTANT SAFETY INFORMATION**

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

For more information, please see Brief Summary of full Prescribing Information on adjacent page.


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Brief Summary of Prescribing Information

For oral use in dogs only

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

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

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

Dosing Chart

<table>
<thead>
<tr>
<th>Weight Range (in lb)</th>
<th>Weight Range (in Kg)</th>
<th>Number of Tablets to be Administered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>High</td>
<td>3.6 mg Tablets</td>
</tr>
<tr>
<td>0.5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1.0</td>
<td>1.9</td>
<td>0.5</td>
</tr>
<tr>
<td>2.0</td>
<td>4.5</td>
<td>0.5</td>
</tr>
<tr>
<td>5.0</td>
<td>9.9</td>
<td>0.5</td>
</tr>
<tr>
<td>10.0</td>
<td>14.9</td>
<td>0.5</td>
</tr>
<tr>
<td>15.0</td>
<td>19.9</td>
<td>1</td>
</tr>
<tr>
<td>20.0</td>
<td>29.9</td>
<td>1</td>
</tr>
<tr>
<td>30.0</td>
<td>44.9</td>
<td>-</td>
</tr>
<tr>
<td>45.0</td>
<td>59.9</td>
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</tr>
<tr>
<td>60.0</td>
<td>89.9</td>
<td>0.5</td>
</tr>
<tr>
<td>90.0</td>
<td>129.9</td>
<td>-</td>
</tr>
<tr>
<td>120.0</td>
<td>175.9</td>
<td>-</td>
</tr>
</tbody>
</table>

Warnings:

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

APOQUEL is not for use in dogs with serious infections.

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

Human Warnings:

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

Precautions:

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

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

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

Adverse Reactions:

Control of Atopic Dermatitis

In a masked field study to assess the effectiveness and safety of oclacitinib for the control of pruritus associated with allergic dermatitis in dogs, 216 dogs treated with APOQUEL and 220 dogs treated with placebo (vehicle control) were evaluated for safety. During the 30-day study, there were no fatalities and no adverse reactions requiring hospital care. Adverse reactions reported (and percent of dogs affected) during Days 0-7 included diarrhea (2.3% APOQUEL, 0.9% placebo), vomiting (2.3% APOQUEL, 1.6% placebo), lethargy (1.8% APOQUEL, 1.4% placebo), anorexia (1.4% APOQUEL, 0% placebo), and polydipsia (1.4% APOQUEL, 0% placebo). In most of these cases, signs spontaneously resolved with continued dosing. Five APOQUEL group dogs were withdrawn from study because of diarrhea, anorexia, and lethargy (1 dog); fever, lethargy and cytostis (1 dog); an inflamed footpad and vomiting (1 dog); and diarrhea, vomiting, and lethargy (1 dog). In the placebo group, 9 dogs developed a low grade oral spindle cell sarcoma after 320 days of APOQUEL administration. Serum cholesterol increased in 25% of APOQUEL group dogs, but mean cholesterol remained within the reference range. Mean lymphocyte count for dogs in the APOQUEL group increased at Day 7, but returned to pretreatment levels by study end without a break in APOQUEL administration. Serum cholesterol increased in 25% of APOQUEL group dogs, but mean cholesterol remained within the reference range.

Continuation Field Study

In a masked field study to assess the effectiveness and safety of oclacitinib for the control of pruritus associated with allergic dermatitis in dogs, 216 dogs treated with APOQUEL and 220 dogs treated with placebo (vehicle control) were evaluated for safety. During the 30-day study, there were no fatalities and no adverse reactions requiring hospital care. Adverse reactions reported (and percent of dogs affected) during Days 0-7 included diarrhea (2.3% APOQUEL, 0.9% placebo), vomiting (2.3% APOQUEL, 1.6% placebo), lethargy (1.8% APOQUEL, 1.4% placebo), anorexia (1.4% APOQUEL, 0% placebo), and polydipsia (1.4% APOQUEL, 0% placebo). In most of these cases, signs spontaneously resolved with continued dosing. Five APOQUEL group dogs were withdrawn from study because of diarrhea, anorexia, and lethargy (1 dog); fever, lethargy and cytostis (1 dog); an inflamed footpad and vomiting (1 dog); and diarrhea, vomiting, and lethargy (1 dog). In the placebo group, 9 dogs developed a low grade oral spindle cell sarcoma after 320 days of APOQUEL administration. Serum cholesterol increased in 25% of APOQUEL group dogs, but mean cholesterol remained within the reference range.

Continuation Field Study

After completing APOQUEL field studies, 239 dogs enrolled in an unmasked (no placebo control), continuation therapy study receiving APOQUEL for an unrestricted period of time. Mean time on this study was 372 days (range 1 to 610 days). Of these 239 dogs, one dog developed demodicosis following 273 days of APOQUEL administration. One dog developed dermal pigmented viral plaques following 266 days of APOQUEL administration. One dog developed a moderately severe bronchopneumonia after 272 days of APOQUEL administration; this infection resolved with antimicrobial treatment and temporary discontinuation of APOQUEL. One dog was euthanized after developing abdominal ascites and pleural effusion of unknown etiology after 450 days of APOQUEL administration. Six dogs were euthanized because of suspected malignant neoplasms, including thoracic metastatic, abdominal metastatic, splenic, frontal sinus, and intracranial neoplasms, and transitional cell carcinoma after 17, 120, 175, 49, 141, and 286 days of APOQUEL administration, respectively. Two dogs each developed a Grade II mast cell tumor after 52 and 91 days of APOQUEL administration, respectively. One dog developed low grade B-cell lymphoma after 92 days of APOQUEL administration. Two dogs each developed an apocrine gland adenocarcinoma (one dermat, one anal sac) after approximately 210 and 320 days of APOQUEL administration, respectively. One dog developed a low grade oral spindle cell sarcoma after 320 days of APOQUEL administration.

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

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

Storage Conditions:

APOQUEL should be stored at controlled room temperature between 20° to 25°C (68° to 77°F) with excursions between 15° to 40°C (59° to 104°F).

How Supplied:

APOQUEL tablets contain 3.6 mg, 5.4 mg, or 16 mg of oclacitinib as oclacitinib maleate per tablet. Each strength tablets are packaged in 20 and 100 count bottles. Each tablet is scored and marked with AG and either an S, M, or L that correspond to the different tablet strengths on both sides.

NADA #141-345, Approved by FDA

Made in Italy

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Kalamazoo, MI 49007

February 2013

428007803A&P
Clinically, many of these cases will present as self-limiting diarrhea that does not require antimicrobial therapy. In fact, overuse of antibiotics in these scenarios may promote drug-resistant organisms.

Conversely, if a patient presents with systemic signs of illness (e.g., fever, toxic changes or a degenerative left shift) and is diagnosed with an enteropathogenic bacteria, appropriate antibiotic therapy may be warranted. Despite the zoonotic potential of *Salmonella* and *Campylobacter* spp., antimicrobial therapy is not indicated in nonclinical or mildly affected dogs. This recommendation remains the same even with an immunocompromised owner. In this case, appropriate husbandry and hygiene become the more important aspects of management.

**Conclusions**

Despite the frequency of antibiotic use for GI disease in dogs, there are relatively few indications for prescribing antimicrobials in this context (Table 2). Overuse could result in antimicrobial resistance and may have long-reaching effects on the host microbiome. Therefore, in the absence of evidence to support their use, antibiotics should be avoided in systematically healthy animals. For systemically ill animals, clinical judgment should be used until more specific criteria are developed.  

### References


**Table 2. When to use (or avoid) antibiotics**

<table>
<thead>
<tr>
<th>ANTIBIOTICS INDICATED</th>
<th>ANTIBIOTICS NOT INDICATED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parvovirus infection with neutropenia</td>
<td>Uncomplicated acute diarrhea</td>
</tr>
<tr>
<td>ADHS with signs of sepsis</td>
<td>AHDS without signs of sepsis</td>
</tr>
<tr>
<td>ARD trial</td>
<td>ARD trial</td>
</tr>
<tr>
<td>After appropriate workup</td>
<td>In lieu of workup</td>
</tr>
<tr>
<td>After strict diet trial</td>
<td>Before diet trial</td>
</tr>
<tr>
<td>In an appropriate patient</td>
<td></td>
</tr>
<tr>
<td>E. coli-associated granulomatous colitis</td>
<td>Chronic large bowel diarrhea</td>
</tr>
<tr>
<td>Based on FISH +/- culture and susceptibility testing of colonic tissue</td>
<td>In lieu of workup</td>
</tr>
<tr>
<td>Enteropathogenic bacteria with signs of systemic illness</td>
<td>Enteropathogenic bacteria in nonclinical cases or mild, self-limiting disease</td>
</tr>
</tbody>
</table>

AHDS = acute hemorrhage diarrhea syndrome, ARD = antibiotic-responsive diarrhea, FISH = fluorescence in situ hybridization.
Within a fibrous sac in the retroperitoneal space, an air gun pellet may be periureteral or perirenal, though periureteral is more common. However, to our knowledge no report of a periureteral urinoma exists in the canine literature. This article describes the diagnosis, surgical treatment and long-term outcome of a dog with a perirenal urinoma associated with an intraureteral air gun pellet.

Urinomas, or uriniferous pseudocysts, are the result of chronic accumulation of urine within a fibrous sac in the retroperitoneal space. Urinoma development is due to urine extravasation from the kidney or ureter associated with trauma, surgical injury or urolithiasis. Urinomas are rarely reported in cats and are extremely rare in dogs; only two canine cases have been reported in the literature. Urinomas may be periureteral or perirenal, though perirenal is more common. However, to our knowledge no report of a perirenal urinoma exists in the canine literature. This article describes the diagnosis, surgical treatment and long-term outcome of a dog with a perirenal urinoma associated with an intraureteral air gun pellet.

Case presentation
A 9-year-old, 24-kg mixed-breed female spayed dog was admitted to the Veterinary Centre of Thessaloniki with a 24-hour history of anorexia and depression for further investigation and treatment. The dog had been found as a stray and adopted by the owner three years previously, and since then the dog had had an indoor-outdoor lifestyle. No history of trauma was reported since adoption.

Clinical examination revealed the dog was in good general condition with an elevated temperature of 103.5°F (39.7°C) and mild pain on palpation of the cranial abdomen. A complete blood count and serum chemistry profile revealed leukocytosis (27 × 10^3/μl = reference range = 6 to 15 × 10^3/μl), mild hyperkalemia (3.3 mmol/L; reference range = 3.7 to 5.8 mmol/L) and hyponatremia (128 mmol/L; reference range = 138 to 160 mmol/L).

An abdominal ultrasonographic examination showed an anechoic mass immediately caudal to the left kidney (compatible with a cystic lesion) and dilation of the left renal pelvis and the left ureter. No free abdominal fluid was detected. Fine-needle aspiration of the urinoma under ultrasonographic guidance revealed a clear yellow fluid. Analysis of the fluid revealed a specific gravity of 1.010 and creatinine concentration of 24 mg/dl (compared with a serum creatinine concentration of 1.1 mg/dl; reference range = 0.3 to 1.4 mg/dl), the presence of degenerate neutrophils and macrophages, and no microorganisms. The fluid was submitted for bacterial culture and sensitivity testing but no bacteria were evident. The analysis showed that the fluid was compatible with urine accumulated in the retroperitoneal space.

On excretory urography with intravenous infusion of iodine contrast, the left renal pelvis and ipsilateral ureter were found dilated; contrast medium was present in the retroperitoneal space caudal to the left kidney. An air gun pellet was also visualized in the left ureter (Figure 1).

Anesthesia was induced with intravenous (IV) midazolam (0.5 mg/kg), followed by an intravenous bolus of fentanyl (5 μg/kg), and maintained with isoflurane in oxygen. Butorphanol was administered at a dose of 0.1 mg/kg intramuscularly every four hours for the first 24 hours after surgery and at a dose of 0.1 mg/kg intramuscularly every six hours for another two days.

The dog was fully monitored (cardiovascular and respiratory monitoring) during and after the surgical procedure. An exploratory midline laparotomy was performed, and a large thin-walled capsular structure was detected surrounding the hilus of the left kidney and firmly attached to the ventral sublumbar musculature on the left side. The left kidney adhered to the capsular structure. Most of the left ureter was dilated. The dilated ureter was traced from the renal pelvis to the bladder, and a foreign body compatible with an air gun pellet was found in the lumen 2 cm before the ureterovesical junction. The capsular structure was punctured, and about 70 ml of urine was retrieved by suction. The left renal hilus, part of the parenchyma and about 1.5 cm of the proximal ureter were covered with granulomatous tissue.

Histopathologic examination of the left kidney and ureter revealed a dilated renal pelvis and ureter and a severe pyogranulomatous infiltration involving the renal parenchyma, perirenal adipose tissue and the ureter wall, without penetration of the epithelium. The inflammatory infiltrate consisted of numerous degenerate neutrophils, macrophages, lymphocytes and plasma cells admixed with red blood cells, fibrin and cellular debris. Reactive fibroblasts created an emerging stroma, mainly in the periphery of the inflammatory infiltrate. The ureter’s lamina propria was thickened due to edema and infiltration by lymphocytes and plasma cells, and the transitional epithelium was infiltrated multifocally by leukocytes. Histopathologic examination of a section of the wall of the cyst revealed a fibrous reaction with no epithelial lining, consistent with a urinoma.

This case hinged on the discovery of a stray air gun pellet in a stray dog, detected by excretory urography.
At re-examination one month after surgery, no abnormalities were noted. Telephone communication with the owner 10 months after surgery found that the dog continues to do well.

Discussion
In this case, a urinoma was diagnosed in a dog based on analysis of the fluid obtained from the retroperitoneal urine space. Although no history of trauma was reported and no entrance point to the kidney or ureter was detected at surgery or on histopathologic examination of the left kidney and ureter, the intraluminal air gun pellet found to obstruct the left ureter may have been responsible for creating the urinoma in this case. The pellet may have penetrated the renal parenchyma or pelvis or ureter within the renal capsule, resulting in urine extravasation and accumulation in the retroperitoneal space. The pellet also obstructed the left ureter, contributing to the maintenance of a persistent flow of urine to the retroperitoneal space.

This is the first case in which an intraluminal obstruction was shown to clarify the pathophysiology of urinoma formation. After extravasation, the urine caused inflammation, lipolysis, fat necrosis and long-term formation of a fibrous capsule with no epithelial lining that encased the urine.

Diagnostic imaging of the abdomen in this case aided in identifying urine leakage and determining the cause and extent of the disease. Abdominal ultrasound proved valuable as it allowed for fluid aspiration and biochemical analysis to confirm the presence of urine in the retroperitoneal space.

Diagnostic differentials for the anechoic mass detected ultrasonographically included urinoma, localized ureteral dilation, hematoma, abscess or neoplasia. However, the cystic mass detected on ultrasound associated with renal and ureteral dilation and the absence of free fluid in the abdominal cavity led to the tentative diagnosis of urinoma.

Another case report found that ultrasound-guided percutaneous antegrade pyelography and computed tomography were also diagnostic for a urinoma formation associated with partial ureteral rupture in a dog. In our case, confirmation of the presence of urine in the cystic mass was made by analysis of the fluid obtained at aspiration. The fluid's elevated creatinine concentration in contrast to the normal creatinine concentration in the serum led to the diagnosis of retroperitoneal urine collection. Excretory urography aided in identification of the cause of the urine accumulation.

Demonstration of contrast extravasation immediately caudal to the kidney, the presence of pelvic dilation and hydroureter, and the air gun pellet along the course of the left ureter helped in clarification of the cause of the condition and identification of the specific side of leakage in our study.

In the case presented here, the proximity of the extravasated contrast to the left kidney or renal pelvis was highly suggestive of a perirenal urinoma. However, the exact origin is unknown since there were no signs of trauma in the kidney or any other part of the urinary tract during surgery. Perirenal urinomas have been reported in only two cats.

Treatment of urinomas in dogs and cats is surgical. Options include placing a subcutaneous ureteral bypass (SUB) system or performing a ureteronephrectomy combined with omentalization of the urinoma.

Renal function of the left kidney would have been evaluated by measuring the glomerular filtration rate or monitoring urine output by placing a nephrostomy tube. In case of a functional kidney, SUB would be a better option. In our case, ureteronephrectomy along with omentalization were elected because of the owner’s financial constraints. Omentalization of the cystic mass was considered beneficial to eliminate dead space after partial ablation of the mass.

Conclusion
Perirenal urinoma should be included in the list of differentials for dogs presented with urinary tract trauma due to air gun pellet injury. Ultrasound-guided aspiration of the cystic mass and excretory urography aid in diagnosis. Ureteronephrectomy along with cystic mass omentalization provided a favorable outcome.

See references online at dvm360.com
**Strangles: Identifying the chronic shedder**

Clients are often quick to place blame on the new horse for introducing strangles to a herd, but veterinarians who provide appropriate client education can control the pandemonium before it begins.

*By Kate Hepworth-Warren, DVM, DACVIM (LAIM)*

Strangles is an infectious condition of the upper airway caused by *Streptococcus equi* subsp *equi* that can wreak havoc on even the most organized and well-managed equine facility. So named because of the severe upper airway compression that can occur when the retropharyngeal lymph nodes become enlarged, strangles targets younger horses more frequently but can affect horses of any age. It can also be harbored in chronic shedders without clinical evidence of disease.

**Strangles and shedding**

Strangles occurs when *S. equi* subsp *equi*, a gram-positive, aerobic coccal bacteria, enters the mouth or nose and attaches to the tonsillar crypts. Within a few hours of attachment, bacteria can be found inside the nasal epithelial cells; shortly thereafter the bacteria translocate to the submandibular and retropharyngeal lymph nodes. Fever and lethargy usually develop within three to 14 days of infection, preceding abscessation of the lymph nodes. Lymphadenopathy occurs in most cases, often concurrently with a painful pharyngitis. Abscesses usually rupture anywhere from seven days to four weeks after the initial infection. Abscesses rupture either externally or internally into the guttural pouch.

Nasal shedding begins two to three days after the initial fever and persists for at least two to three weeks past the resolution of clinical signs, although it can last as long as 6 weeks in uncomplicated cases.

Most horses clear the infection on their own, but some become persistent carriers and continue to shed bacteria despite being asymptomatic for months or years after infection.1,2 In a group of 25 horses infected for more than 40 days, nearly 50% showed no clinical evidence of strangles but were still shedding the bacteria.3 In two other outbreaks, 12% and 37% of horses were classified as carriers 10 and 14 months, respectively, after the index case was identified, with no clinical signs of strangles.4

**Identifying the shedder**

A scenario that may suggest the presence of a chronic shedder in a herd may be one in which a new horse is brought into the boarding barn and quarantined for four weeks before being introduced into the herd. A week after being turned out with the previous residents of the farm, the new horse develops bilateral nasal discharge and a fever, consistent with strangles. Given that this horse was quarantined for longer than is usually recommended, there are a few possible explanations for the sudden development of clinical signs. Abscess development generally occurs within two weeks of initial exposure. Therefore, if the horse had an active infection when it was moved, it would probably have developed outward evidence of disease before the end of the quarantine period. A probable scenario would be that another horse in the group is a chronic shedder, and the other animals may already have immunity against *S. equi* subsp *equi* infection. If a more longstanding member of the herd had developed strangles after the new individual was introduced, the new horse should be ruled out as a chronic shedder.

Initially, when one horse on a farm develops signs of strangles, appropriate biosecurity measures should be taken regardless of the initial source of infection. The affected animal should be isolated so that it does not have nose-to-nose contact with any other horse, and it should be fed and cared for last to decrease the risk of caretakers spreading the bacteria. Personal protective equipment should be worn to minimize the risk for transmission via clothes, shoes and hands.

The temperature of unaffected animals should be monitored twice daily, and any horse that develops a fever should be separated from the herd and tested.1,2 Washes of the nasal passages, pharynx or guttural pouch; swabs; or aspirates taken directly from abscessed lymph nodes should be submitted for either polymerase chain reaction (PCR) testing or culture. It is important that samples for PCR be taken with rayon swabs, as cotton contains PCR inhibitors. For the same reason, culture transport media should not be used for samples on which PCR will be performed.

If test results are negative when there is high clinical suspicion, then retesting is recommended with a new sample as handling may affect final results. It is important to remember that dead bacteria will still
lead to positive PCR results, so test selection can affect results. In horses without purulent nasal discharge, a deep pharyngeal or guttural pouch lavage is more likely to yield a positive result as intermittent shedding can lead to false negatives from samples taken more rostrally.1

In strangles outbreaks that do not have an obvious source of infection (i.e. no new horses introduced to herd, no recent travel with exposure to outside horses), it is important to examine all animals that have come in contact with the affected horses to identify the presence of chronic shedders. Upper airway endoscopy is often recommended to examine the guttural pouches for the presence of chondroids, although in one group only 25% of horses that were identified via culture to be shedding S. equi subsp equi actually had visible chondroids on endoscopy.1 The presence of S. equi subsp equi M protein antibody titers of 1:12,500 or greater has 67% sensitivity and 43% specificity in an outbreak for identification of persistent guttural pouch infections eight weeks after infection.2 Nevertheless, the recommended method of sampling when looking for carrier animals is an endoscopically guided guttural pouch lavage and subsequent quantitative PCR of the fluid.2

After identifying the carriers

Once carrier animals have been identified, they need to be isolated from the herd and treated. Depending on the amount and character of the purulent material in the guttural pouches, treatment may consist of lavage, surgery and/or antimicrobials. While antimicrobial therapy is generally not recommended in uncomplicated “classic” cases of strangles, it may be warranted in the case of a chronic carrier. Foley catheters can be placed into the guttural pouches and isotonic fluid used to lavage purulent material and chondroids from the pouches. Animals are generally sedated for this procedure as sedation allows for better drainage due to a lower head position. Systemic penicillin, topical penicillin, or a combination have also been used. Penicillin can be mixed into a gelatin product that solidifies at body temperature, thus allowing for prolonged antimicrobial effect within the guttural pouch. Acetylcysteine has been administered into the pouches as a mucolytic in an attempt to break up the empyema. Endoscopic removal of chondroids with either snares or endoscopic forceps is required in some cases, and in severe cases surgical removal of chondroids may be warranted.1,2,6,7

While a number of factors play a role in propagating and controlling strangles outbreaks, identification of chronic carriers is a crucial task that can aid in ending a current outbreak, and preventing re-infection and future outbreaks within a herd. Studies have shown that a variable proportion of horses—ranging from 0.3% to 37% of affected animals—can become chronically infected after an outbreak.2-4,7 Through use of appropriate biosecurity measures, endoscopic examination and sampling of the guttural pouches, chronic carriers can be identified and treated so that they no longer pose a risk to the rest of the herd.8-10

REFERENCES

Dr. Hepworth-Warren is an equine internal medicine specialist who currently works as a clinical assistant professor of equine medicine at North Carolina State University College of Veterinary Medicine in Raleigh. Outside of work, she enjoys traveling, cooking, reading, running and the beach.
The itchy cat—fleas aside—is not a common sight. But when cutaneous manifestations of allergy do occur in cats, they can be quite complicated and require multimodal therapy, according to Amelia White, DVM, MS, DACVD, assistant clinical professor of dermatology at Auburn University College of Veterinary Medicine. Dr. White offered attendees at the Veterinary Meeting & Expo (VMX) in January her insight about managing several types of allergies in cats.

**Feline allergies: causes and imposters**

The excessive groomer looks allergic, and indeed may be, Dr. White said. “But a cat that grooms excessively might be doing so for reasons other than being pruritic,” she explained. Cats can respond to uncomfortable conditions like urinary tract infections and anal sacculitis by pulling out their hair.

Overgrooming can also be psychogenic; in many cases, it kicks off because of a true dermatologic condition (e.g. parasite infestation) but morphs into habit even after the underlying problem has resolved. “Allergic can become psychogenic very quickly,” Dr. White said.

**Cats and their eosinophils**

Most true allergies in cats fall under eosinophilic granuloma complex (EGC), which can manifest as different lesion types:

- **Miliary dermatitis**: small, raised, crusty papules
- **Eosinophilic plaque**: elevated, flat thickening with a red-orange center and crusting
- **Rodent/indolent ulcer**: eosinophilic infiltrate that occurs as bilateral, raised lesion(s) at the upper lip margins
- **Eosinophilic granuloma**: linear plaques, often on one or both hind legs, and dome-like masses that may occur in the interdigital tissues.

EGC is treated with multimodal therapy that sometimes includes antibiotics. “Steroids have a very strong inhibitory effect on eosinophils,” Dr. White said.

**Creepy crawlies**

Feline pruritus can be rooted in parasites. The most common pruritic skin disease in cats is flea allergy dermatitis (FAD), which may or may not be seasonal depending on geographic region. While flea bites themselves are itchy, most cats develop type I and type IV hypersensitivities to flea salivary antigens. The head, neck and caudal half of the body typically manifest bilateral, symmetrical alopecia as well as miliary dermatitis.

While there are no age, gender or breed predilections for FAD, atopic cats—as well as cats with intermittent flea exposure—are most severely affected; cats that are exposed to fleas continuously tend to build up tolerance. Diagnosis of FAD is generally made by the distribution of lesions and itchiness on the cat, as well as the presence of fleas and/or flea dirt. Trichograms may show broken-ended hairs. Serologic and intradermal skin testing may be diagnostic, although false-positives can occur.

The treatment mainstays for FAD are corticosteroids, but immunosuppressants such as cyclosporine (Atopica—Elanco) and oclacitinib (Apoquel—Zoetis) are effective as well. Atopica, which inhibits the inflammatory activator calcineurin, requires 30 to 90 days for onset of action. Twice-weekly dosing has been shown to be 63% effective in cats with EGC. Apoquel can be used off-label in cats at a dose of 1 to 2 mg/kg twice daily, but Dr. White added that it should not be the first choice for treating feline allergies.

Like flea bites, mosquito bites can also produce hypersensitivity (type I) in cats, with no predilections. Bloody, oozing, pruritic lesions typically develop on the rostrum, ears, face and paw pads. Corticosteroids and insect repellents are effective.

**Tips and tricks for managing feline allergies**

Developing a successful treatment plan for common allergies in cats first requires an accurate diagnosis. A veterinary dermatologist provides diagnostic and treatment details to help you put a stop to the scratching.

By Joan Capuzzi, VMD

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**Location, location, location**

When it comes to cutaneous manifestation of allergies, Dr. White advised, lesion location is the biggest clue to allergy type:

- **Head and caudal part of body**: Think fleas.
- **Head, neck and belly**: Think food-induced.
- **Diffuse pattern**: Think atopy.

Immune hypersensitivities can also encompass locations below the skin surface. Associated signs include upper respiratory abnormalities, nasal/ocular discharge, asthma and inflammatory bowel disease.
When food's the culprit

Food allergy is an uncommon cause of nonseasonal pruritus in cats. Raised, crusty, erythemic plaques typically appear on the head, neck, pinnae and abdomen. Signs are typically first seen when a cat is quite young or geriatric, but a food allergy could manifest at any age, Dr. White said.

Once parasites and primary skin infection are ruled out, diagnosis can be made by a food elimination trial conducted over 8 to 12 weeks. The smoking gun is generally 10- to 70-kD proteins found in beef, fish or dairy, although dietary carbohydrates, preservatives and artificial flavors are lesser-known triggers. Food allergy is managed with steroids, antibiotics and dietary change to novel/hydrolyzed protein diets.

Atopy: allergies ‘on steroids’

Once fleas, food allergy and infectious dermatitis have been ruled out as the cause for nonseasonal pruritus, consider atopy, Dr. White said.

Atopy is cutaneous inflammation often associated with the production of IgE against environmental allergens. Atopic cats may have a genetically predisposed abnormal cutaneous barrier to begin with; antigens easily penetrate the skin and are escorted to the lymph nodes by sentinel cells called Langerhans cells. Here, the lymphocytes produce antibodies that initiate the inflammatory cascade.

Atopy is the underlying state that “greases” the immune system: It makes every allergic condition worse, be it flea allergy or food hypersensitivity. It also intensifies allergic responses with subsequent exposures, and seasonal flares can turn into everyday issues. In fact, said Dr. White, 75% of atopic cats have year-around pruritus. “Even in cats that started out with seasonal allergies, over time they eventually become nonseasonal,” she said.

Atopic cats have widely distributed lesions, and diagnosis can be made by history, clinical signs and the process of diagnostic exclusion. Allergen-specific immunotherapy is the gold standard of treatment for feline atopy, Dr. White said. Immunotherapy is developed from results obtained on an intradermal allergy test or serology (which generally shows high levels of IgE in circulation). Vials typically are limited to 10 to 12 antigens apiece, possibly because there is cross-reactivity between different antigens and to avoid diluting therapy to the point of making it ineffective.

Treatment is most effective with a multimodal protocol that includes allergen-specific immunotherapy, anti-inflammatories (corticosteroids, Atopica, Apoquel, antihistamines and essential fatty acids) and allergen avoidance. Because stress can exacerbate pruritic behaviors, Dr. White also recommended the use of behavior modulators like amitriptyline, fluoxetine and clomipramine in cats with intense pruritic behaviors.
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**March 26-28**
**VeteranCE**
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**March 28-29**
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**April 17-19**
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(931) 438-0238
aava.org

**April 25-26**
**Emergency/Critical Care: A Review of Toxicology, Anesthesia, and Infectious Disease**
San Antonio, TX
lanestartvetacademy.com

**April 25-26**
**San Diego VMA Spring Conference: Endocrinology for the General Practitioner**
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(619) 640-9583
dcvma.org

**April 30**
**AVMA Convention**
San Diego, CA
(800) 268-2862
pacvet.net

**May 17-20**
**NAVC Institute**
Orlando, FL
(352) 375-5672
navc.com/institute

**June 12-13**
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What’s for supper?

Being out of your element can be an interesting—and sometimes unpleasant—experience.

My daily route to work is a nine-mile stretch of road that is so flat and treeless that on a dark night you can see the lights of towns 15 or 20 miles away. The people here drive pickups and talk about tractors and horses. A “night on the town” means a 60-mile trip to Lubbock to take in some barbecue and a movie. It’s who we are and what we do, and I guess I just figured the whole world was that way.

A few years back I was asked to join an advisory board for a pharmaceutical company. This was, of course, quite an honor and it meant spending some time in the northeastern United States. The plane tickets arrived complete with hotel reservations and papers for a car rental. They were even footing the bill for my wife Kerri to come along.

The hotel was so big that it could sleep almost as many people as there are in my hometown of Lamesa. The company spared no expense: a hotel room with two bathrooms, unlimited room service, little pieces on candy on the pillow, a newspaper delivered to your room every morning and unbelievable dining experiences.

On our first night there, we were told that a car would pick us up and take us to a restaurant for dinner with the other advisory board members. I told Kerri that we might want to dress up a little. She put on a nice pant suit and I slipped into a pair of khakis with a pressed Wrangler 20X shirt.

A man met us in the hotel lobby and drove us about three blocks in a limousine to a French restaurant.

When we were seated with the others on the advisory board—all of whom were wearing suits or evening dresses—uncomfortable was the word that came to mind as they brought us menus and filled our water glasses. Our dinner companions were strangers to us, and none looked like they’d be able to discuss tractors or horses.

I opened the menu and saw French … the entire menu was written in French. I don’t know a word of French, so I sat there for a minute trying to think if I even knew one word in French. Nope, not even a cuss word. Kerri made the discovery about the same time I did and started kicking me gently under the table.

Not wanting to appear any more ignorant than I already felt in my khakis and white socks, I smiled politely and pointed to two items on the menu as the waiter graciously jotted down our order.

“What did you get us?” my wife whispered from the corner of her mouth as the tuxedo-clad waiter moved on to collect everyone else’s orders. “I have no idea,” I whispered back. “Just smile and eat it when it gets here!”

About 20 minutes later the food arrived. My plate was adorned with two brown piles of something surrounded by some green leaves. Kerri’s was red and, when it arrived, the waiter struck a match to it and the food burned brightly for about 15 seconds until the flames burned out.

As bad as the conversation was, the food was worse. I could barely choke it down. When no one was looking, Kerri slipped hers off the plate and into her purse. I had no choice but to eat mine because, well, her purse was already full.

When the evening finally ended, I asked the waiter on the way out what we had eaten. He smiled and said that Kerri had eaten some kind of raw fish and I had eaten “ze liver from ze duck.”

What are the odds of pointing to two things on a menu and getting raw fish and duck liver? I don’t know, but it kinda makes you wish for nine miles of flat road and a 60-mile trip to Lubbock where you can read the menu and wear white socks.

“The hotel was so big that it could sleep almost as many people as there are in my home town of Lamesa.”

—Bo Brock, DVM

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