

VettedTM

VetEc + VetMed, shaken not stirred

UBM

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ADVANCED

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FLAVOR

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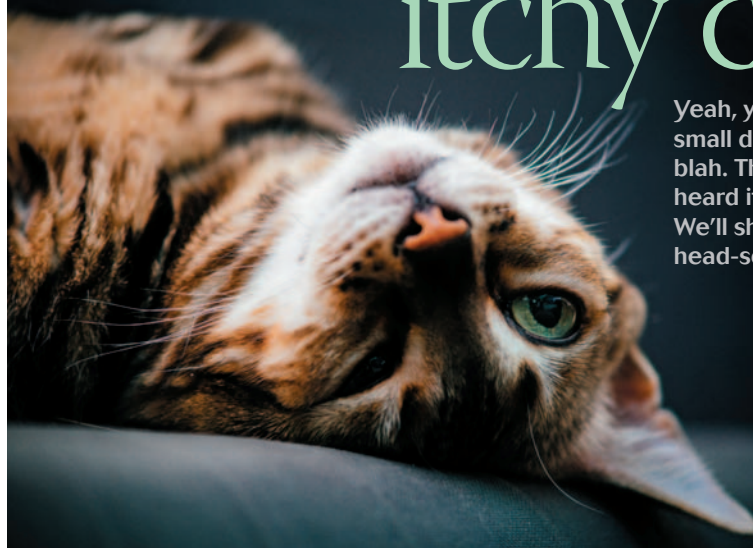
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Go to
dvm360.com/ET
for more ideas!



The many ways to store ET tubes

If you're looking for creative ways to store endotracheal tubes for quick and secure access, we'll *tackle* that problem (see what we did there?).

AT OUR CLINIC, we were having trouble keeping endotracheal tubes from getting mixed together. We had them divided by cardboard, but that didn't work. So we bought fishing tackle boxes, which keep the tubes organized and store away easily. All the tubes—except for size 11—fit into the boxes. Each slot holds four to eight tubes, depending on the size of the tube.

—Kera Nelson, LVT, and Colleen Rogensues, LVT
Williamston, Michigan

HACK ATTACK!!!

We're super jazzed to announce next month's exclusive package of veterinary hacks to help make your life easier and your clients (and their pets!) happier. Don't miss the August issue of *Vetted*, and in the meantime, go to **dvm360.com/idea** for more.



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Vetted™

Content

Editor/News Channel Director | Kristi Reimer
kristi.reimer@ubm.com

Editor/Team Channel Director | Portia Stewart
portia.stewart@ubm.com

Editor/Business Channel Director | Brendan Howard
913-871-3823 | brendan.howard@ubm.com

Editor/Medicine Channel Director | Mindy Valcarcel
mindy.valcarcel@ubm.com

Content Manager | Adrienne Wagner

Senior Content Specialist | Jennifer Gaumnitz

Associate Content Specialists | Katie James, Sarah Dowdy

Assistant Content Specialist | Hannah Wagle

Clinical Content Manager | Heather Lewellen, DVM

Technical Editor | Jennifer Vossman, RVT

Digital Content Director | Jessica Zemler

Digital Design Director | Ryan Kramer

Digital Content Manager | Alison Fulton

Multimedia Producer | Troy Van Horn

Sales

Sales Director | David Doherty

913-871-3870 | david.doherty@ubm.com

Account Manager | Angie Homann

913-871-3917 | angie.homann@ubm.com

Account Manager | Angela Paulovcin

440-891-2629 | angela.paulovcin@ubm.com

Account Manager | Terry Reilly

913-871-3871 | terry.reilly@ubm.com

Account Manager | Heather Townsend

913-871-3874 | heather.townsend@ubm.com

Digital Data Analyst | Jenny Shaffstall

913-871-3854 | jenny.shaffstall@ubm.com

Sales Coordinator | Anne Belcher

913-871-3876 | anne.belcher@ubm.com

Books/Resource Guide Sales | Maureen Cannon

440-891-2742 | maureen.cannon@ubm.com

Marketing

Marketing Director | Brenda Andresen

brenda.andresen@ubm.com

Marketing Designer | Andrew Brown

Marketing Copywriter | Tim English

UBM Americas, Veterinary

Vice President & Managing Director | Becky Turner Chapman

913-871-3810 | becky.turnerchapman@ubm.com

Vice President, Digital Product Management | Mark Eisler

Group Content Director | Marnette Falley

Medical Director | Theresa Entriiken, DVM

CVC Director | Peggy Shandy Lane

Business Manager | Chris Holston

UBM Americas Group


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UBM



Dr. Sue Ettinger, her husband,
Dr. Kerry Heuter, and their boys.

She sees. She does.

You know her as
the force behind the
“See Something, Do
Something” cancer
detection campaign.
This could also be the
tagline for Dr. Sue
Ettinger’s life thus far.

By Sue Ettinger, DVM, DACVIM (oncology)

Discerning the right path

In veterinary school, I was mentored by an amazing surgery resident and wanted to follow his path. I was crushed when I did not match for a surgery residency, but I realized oncology was where my real passion was. This was the best career decision made for me—I’m thankful for the heart-crushing rejection and the change it inspired.

Spotting significant others

Eighteen years ago I met my husband, Kerry Heuter, DVM, DACVIM, during our crazy internship in New York City. He was on the rebound, and I never thought he’d marry me. This year we celebrate our 13th anniversary.

Noticing the need for self care

To keep life manageable, I work out almost daily. More surprisingly, I wake up early to exercise first thing in the morning. I never would have imagined I’d sacrifice sleep for exercise. It clears my mind and gets me focused. I often think of ideas for lectures, articles and even options for tough cases.

Keeping eyes on the prize

I’m terrified to fly. Years ago I used to clutch Kerry’s arm or the chair during takeoff. I made myself sick, stressed and anxious. Now I speak and travel a lot more. The joy from speaking and teaching outweighs my fear. I worry less and try to enjoy the ride—a philosophy I try to carry over into my everyday life.



Dr. Ettinger—or Dr. Sue Cancer Vet, as she is known on Facebook—with India Tuthill, LVT, and Tejas, who had a soft tissue sarcoma that was successfully treated with clean, wide margins. Read about the See Something, Do Something effort at dvm360.com/SSDS.



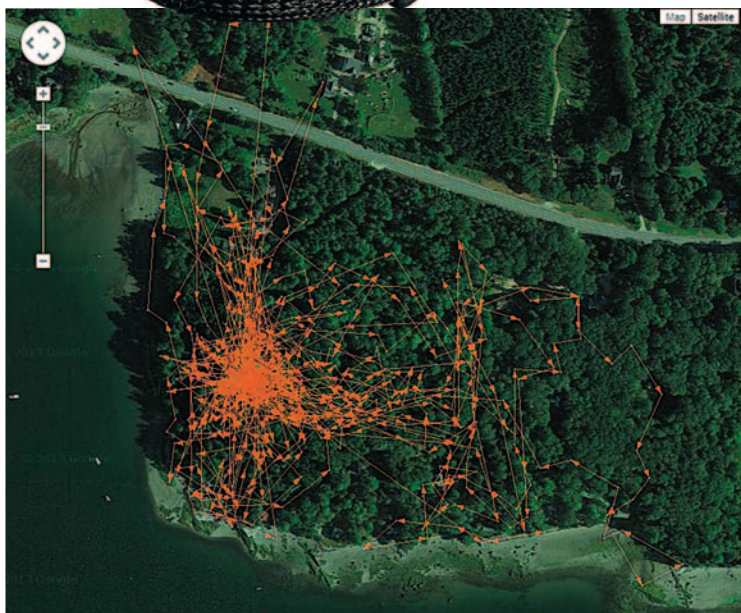
See her at CVC

Dr. Sue Ettinger discusses communicating about cancer (what they didn’t teach you in vet school) at CVC Kansas City Aug. 27. Visit thecvc.com/kc.

CAT TRACKER

Ever wonder where they wander?

The Cat Tracker device worn by a wandering feline.



The tracks of a participating cat named Roukus over a three-week period.



Roukus (far left) got gussied up for his photo. Ajax (left), another participant, sports his GPS device.

Dogging cats' footsteps

If your cat-owning clients allow their cats to wander in the great outdoors and wonder what their cats do all day, recommend they enroll in the Cat Tracker program. They'll satisfy their curiosity and contribute to scientific data gathering.

For the program, the Your Wild Life team and the North Carolina Museum of Natural Sciences have collaborated with Movebank, an online database of animal movement data, to make a definitive effort to lift a little of the mystery surrounding free-roaming cats.

Those who sign up receive instructions for buying the correct model of GPS tracker (available for about \$60) and creating a harness for their cats to attach the device to. Once the device is securely in place, the owners collect data for five-day periods and then send the data back to the Cat Tracker folks.

Catting about

So what are these folks researching? They're curious about cats' movements and diets as they ramble about. The latter is a big part of their focus at the moment. Researchers will request a hair sample and sample of the cat's normal food, which will undergo isotope analysis to determine how much cats are sticking to their diets at home or supplementing from the outdoors.

Get all the details of the Cat Tracker project at cats.yourwildlife.org.



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- **Turmeric** with active components that support the production of an antioxidant necessary for many normal cellular functions²

For more information contact your Bayer Sales Representative, your preferred distributor or call Bayer Customer Service at 1-800-633-3796.



We've Got You Covered
Since 1976

Cautions: Safe use in pregnant animals or animals intended for breeding has not been proven. If lameness worsens, discontinue use and contact your veterinarian. Administer during or after the animal has eaten to reduce incidence of gastrointestinal upset.

¹Safayhi H, Mack T, Sablieraj J, et al. (1992). Boswellic acids: novel, specific, nonredox inhibitors of 5-lipoxygenase. *J Pharmacol Exp Ther*. 261(3):1143-1146.

²Dickinson DA, Iles KE, Zhang H, et al. (2003). Curcumin alters EPR and AP-1 binding complexes and elevates glutamate-cysteine ligase gene expression. *FASEB J*. 17(3):473-475.



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

Caution:

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

Indications:

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

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

Contraindications:

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

Warnings:

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

Precautions:

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

Adverse Reactions:

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

Percentage of Dogs with Adverse Reactions in the Field Study

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

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

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

How Supplied:

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

Distributed by:

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

Made in Austria

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141487 R2

Reference: Bravecto [prescribing information] Summit, NJ: Merck Animal Health; 2014
Available by veterinary prescription only.



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

IMPORTANT SAFETY INFORMATION: The most common adverse reactions recorded in clinical trials were vomiting, decreased appetite, diarrhea, lethargy, polydipsia, and flatulence. Bravecto has not been shown to be effective for 12-weeks' duration in puppies less than 6 months of age. Bravecto is not effective against lone star ticks beyond 8 weeks after dosing.

References: 1. Bravecto [prescribing information]. Summit, NJ: Merck Animal Health; 2014. 2. Rohdich N, Roepke RKA, Zschiesche E. A randomized, blinded, controlled, and multi-centered field study comparing the efficacy and safety of Bravecto™ (fluralaner) against Frontline™ (fipronil) in flea- and tick-infested dogs. *Parasit Vectors*. 2014;7:83. 3. Freedom of Information Summary, NADA 141-426. Approved May 15, 2014.

Please see Brief Summary on page 6.

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 **MERCK**
Animal Health

THE PICKS

(what we care about now)



6 ways to promote equality

By Karen Bradley, DVM and Sarah J. Wooten, DVM

Be honest: When you see a man out at the grocery store with three unruly kids, do you think, “Wow, what a great dad, taking his kids with him!” When you see a woman with the same three unruly kids, do you think, “Why can’t she control them?” Yes or no? Do you think you have gender bias? Hint: You may not even know you do. Here are six real-life solutions to promoting equality in your veterinary hospital.

- 1 Educate yourself and your team.** When people are educated about subconscious gender bias, they tend to scrutinize their decisions more closely.
- 2 Ensure clear hiring criteria.** When your practice is hiring or promoting, help establish clear gender-neutral criteria before any of the candidates are evaluated. This applies to both raises and salary offered when hiring.
- 3 Ask for backup.** Hold decision-makers accountable. If you routinely ask people why they make certain decisions, they tend to be more deliberate when making them.
- 4 Require transparency about pay.** When it comes to every aspect of the business, your books should be open. Talk to your practice manager about providing information about anyone’s salary or hourly pay on request and not restricting employees from talking about pay. Equal work for equal pay makes inequality go away.
- 5 Foster the environment.** Advocate for gender diversity in the workplace. Pay attention to the minority gender if your clinic is heavily staffed with one gender.
- 6 Champion successful chums.** Vouch for the competence of women in veterinary medicine. Sing your colleagues’ praises. Talk them up. We’re medical professionals. We are awesome.

Say

We’re not trying to say “Gotcha!” ... but do your own pets receive the level of dental care you recommend to your clients?

Data from dvm360.com’s Clinical Updates: Dental Care study makes it clear—there’s definitely some “do as I say, not as I do” going on when it comes to pets’ pearly whites. But hey, we’re all human, right? For more information on the survey’s methodology, go to dvm360.com/saycheese.



Start brushing a dog's teeth (really!)

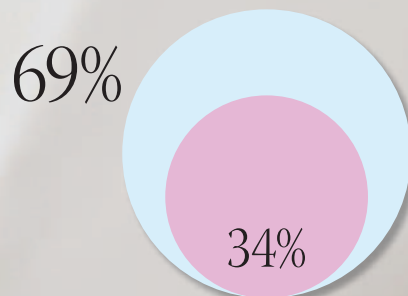
Our adorable helper Elsa demonstrates five handy tips for your clients in this handout. Scan the code to download or visit dvm360.com/really. Use it to go forth and educate about brushing, you brave veterinary dental heroes!

cheese

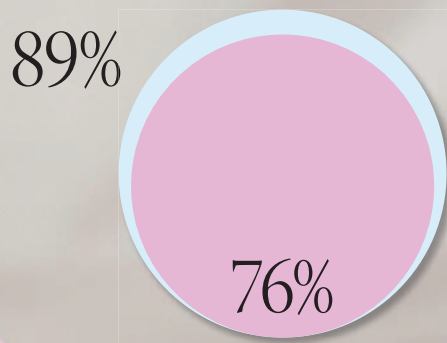
Which of the following preventive strategies do you regularly **recommend to clients**?

Which of the following preventive strategies do you **provide for your own pets**?

Dental diets

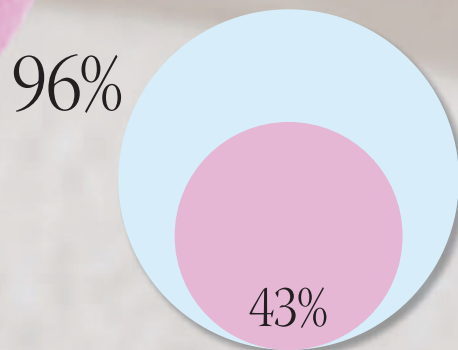


Dental treats



This one might hurt a little ...

Tooth brushing



Worst. Advice. Ever.

In which we present our simple, stress-free system for filing bad advice—toss it. More at dvm360.com/bad.

"Don't work in the veterinary field. The hours are long, the pay is small and the clients are difficult."

"Don't worry about continuing education."

"Don't spend too much time with the clients."

"Give your clients whatever they want."

"You can tell how much clients are able to pay by the way they're dressed."

"Dental radiographs are a waste of time."

"Take the first job that's offered. You might not get another one."

What are the chances I'll screw up?

Epic fail status

Who am I even?

Pretty likely

Somewhat likely

Not terrible

I got this

When I'm by myself

In front of my top techs and our most prickly client

"My dog's not scared." Yeah, right.

If your clinic is embracing the movement toward keeping each veterinary visit as low-stress as possible for every patient, you may be facing this comment from clients in the exam room: "But *my* dog's not afraid."

Behaviorist Dr. Lisa Radosta says you have two choices at this point. Either just say, "Yes, your dog is afraid" and leave it at that. Or tell the client the dog is afraid and explain how you know.

Here's an example from Dr. Radosta: "Your dog's tail is tucked. The tail below the top line equals fear. Your dog's ears are very far back against his head; that equals fear. Your dog's pupils are dilated. Look at my eyes—are my pupils dilated? My pupils are having a normal response to light. Why are your dog's pupils dilated? It's called a sympathetic nervous system response." It takes mere seconds to explain, and your clients are left thinking you're a genius (rightly so!) and have better insight into identifying signs of fear themselves.



Yep.

This dog is completely at ease.

(SARCASM BY VETTED;
IMAGE BY GETTY IMAGES)



>>> We've long admired Dr. Radosta's no-nonsense take on pets' behavior problems. What we didn't expect was to be so utterly captivated by her outlook on parenting, veterinary life and animal welfare. This interview is a thing of beauty. Do yourself a favor and listen. Go to dvm360.com/podcasts.



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Clinically tested to **dissolve struvite stones** in as little as 7 days⁴ (Average 27 days)

For more information, talk to your Hill's Representative.

¹Pereira GG, Fragoso S, Pires E. Effect of dietary intake of L-tryptophan supplementation on multi-housed cats presenting stress related behaviours, in *Proceedings: BSAVA* 2010.

²Beata C, Beaumont-Graff E, Coll V, et al. Effect of alpha-caseopine (Zylkene) on anxiety in cats. *J Vet Behav* 2007;2(2):40-46.

³Kruger JM, Lulich JP, MacLeay J, et al. Comparisons of foods with differing nutritional profiles for long-term management of acute nonobstructive idiopathic cystitis in cats. *J Am Vet Med Assoc* 2015;247(5):508-517.

⁴Lulich JP, Kruger JM, MacLeay JM, et al. Efficacy of two commercially available, low-magnesium, urine-acidifying dry foods for the dissolution of struvite uroliths in cats. *J Am Vet Med Assoc* 2013;243(8):1147-1153. Average 27 days *in vivo* study in urolith forming cats.

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5 ways to keep your practice cool this summer, without going broke

1 Use off-peak. In some cities, electricity usage is calculated on a time-of-use rate, according to experts at Ryerson University. Go online and determine when your off-peak hours are and run your washing machine and dryer at these times. Often, electricity rates are the lowest early in the morning, at night, and on the weekends.

2 Draft proof. Drafts are big energy-wasters. Find out where air is escaping by performing a simple air leak test. Go through your entire facility holding a tissue near windows and door frames, electrical outlets, baseboards, and other possible leakage locations. If the tissue moves, consider sealing in these gaps with caulking and weather stripping. The materials you need are relatively inexpensive and can reduce energy loss by up to 10 percent.

3 Keep the light out. Closing blinds during the day can naturally cool your clinic by blocking heat that can otherwise come in through windows.

4 Improve bad habits. Do you or team members keep the break room fridge door open while deciding what to eat? Be aware of these not-so-great energy habits and try to pick up a few good ones, including turning off the lights when you leave the room and watering the lawn at night.

5 Get informed about your energy use. Understand the options you have available for managing your energy consumption, such as energy monitors and other applications. And take advantage of the many rebates and incentives available from your government or local utility company.

For more energy-saving ideas from the dvm360 staff, head over to dvm360.com/keepcool.

The noncompliant client

Does your clients' lack of compliance leave you shaking your head in amazement? You are not alone.



When I see a fat dog I just want to hand the owner a package of insulin and tell them to start practicing.

Ooof, may we suggest a few different ways to go about it? Get tips at dvm360.com/awkward.

Bonus tip—help clients help themselves! Hand over one of our handouts to help educate clients on the dangers of obesity. Go to dvm360.com/obesityhandouts for more.



I love being a Veterinarian but over the years, the clients seem to be getting more demanding, more unreasonable and challenging. WTH?

Dealing with nightmare clients can turn a great day into a terrible one. But following a few tips can help you get through to them with everyone's smiles—and sanity—intact. Go to dvm360.com/difficult for more.

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with A Happy Vaccine Experience™

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by published, peer-reviewed
data. You made it America's #1
oral *Bordetella* vaccine with over
17 million doses and counting!¹

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Intravenous Administration of Maropitant Improves Flexibility for In-Clinic Protocols

The CERENIA® (maropitant citrate) Injectable label has been updated to include intravenous administration for use in dogs and cats 4 months of age and older, increasing the ability to customize patient care while providing 24 hours of reliable treatment and prevention of vomiting.

“The IV label change gives us more in-clinic flexibility regarding how we can treat patients with maropitant,” said Tamara Grubb, DVM, Ph.D., DACVAA, assistant professor of anesthesia and pain management, Washington State University College of Veterinary Medicine.* “Flexibility is important because we all know how a day in a veterinary hospital can be very unpredictable, and we don’t always want to treat a patient orally or subcutaneously.”

As the first and only FDA-approved medication for the prevention of acute emesis in dogs and

cats, CERENIA, when used intravenously, provides the same demonstrated safety and efficacy as when used subcutaneously, delivering the reliable prevention and treatment of vomiting that you trust.

Emetogenic agents such as opioids can cause acute emesis, and a significant number of dogs experience vomiting following the administration of some opioids as preanesthetics.¹ “We commonly premedicate our patients with very potent opioids, and we don’t want to give those drugs up because they provide profound analgesia,” said Dr. Grubb. “However, they often cause vomiting, which can be a problem for the anesthetist and possibly unpleasant for the patient. If the patient is very sedate from premedications or has an upper airway dysfunction, it could aspirate material into its lungs.”

CERENIA-treated group vs. placebo group



Incidence of vomiting

0% vs. 93.8%



Normal feeding[†]
20 hours postoperative

90.9% vs. 41.7%



Mean total
food consumption

190 grams vs. 39.1 grams

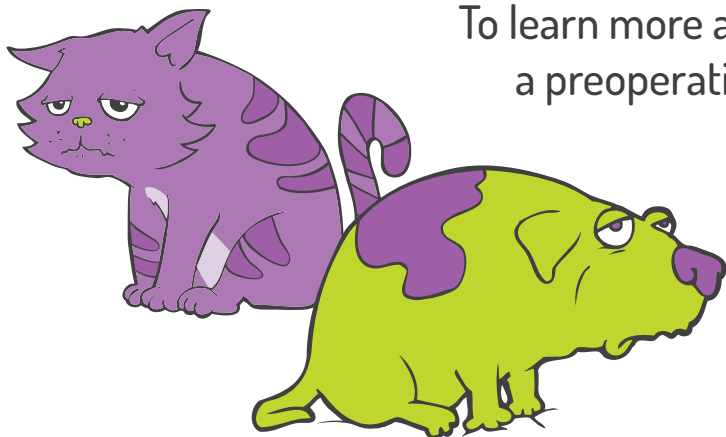
[†]Return to normal feeding was the time at which 100 grams of food was consumed.

In a blinded, placebo-controlled study, CERENIA was used preoperatively to prevent vomiting. Dosing occurred 45 minutes prior to the preoperative administration of morphine, and results demonstrated a significant ($p < 0.05$) difference in the incidence of vomiting.²

Dr. Grubb views the return to normal canine feeding as a critical indicator for the well-being of the patient. "It is an important part of normal healing as well as something we can measure. It's not just about anesthesia, it's about overall patient care," she explained. "The improved flexibility can lead to better patient outcomes due to increased uptake and increased maropitant utilization. We're adding to patient care by decreasing vomiting and then speeding up the return to normal feeding. When a dog comes home, doesn't want to eat

and possibly vomits, it does not look like a successful procedure [to a dog owner]."

The approved intravenous use of CERENIA in cats and dogs 4 months and older was obtained in January 2016 and is now reflected on the label. In two separate bioequivalence studies conducted in 2015 by Zoetis in dogs and cats, when delivered intravenously, CERENIA reached concentration and absorption levels as quickly as with subcutaneous injection.^{3,4} Additionally, two separate safety studies in dogs and cats indicated no related effects on survival or clinical findings, and there were no reports of pain on intravenous injection.^{5,6} "We now have the flexibility to treat whenever we need to treat the patient," said Dr. Grubb. "If we already have an IV catheter in the dog, why stick it with another needle?"



To learn more about making CERENIA a part of a preoperative protocol when using opioids, visit cereniadv.com.

Cerenia[®]
maropitant citrate

IMPORTANT SAFETY INFORMATION:

Use CERENIA Injectable for vomiting in cats 4 months and older. Use subcutaneously for acute vomiting in dogs 2 to 4 months of age or either subcutaneously or intravenously in dogs 4 months of age and older. Safe use has not been evaluated in cats and dogs with gastrointestinal obstruction, or those that have ingested toxins. Use with caution in cats and dogs with hepatic dysfunction. Pain and vocalization upon injection is a common side effect. In people, topical exposure may elicit localized allergic skin reactions, and repeated or prolonged exposure may lead to skin sensitization. See Brief Summary of full Prescribing Information on page 16.

^{*}Dr. Grubb is a former colleague of, consultant to and speaker for Zoetis.

¹ Hay Kraus BL. Efficacy of maropitant in preventing vomiting in dogs premedicated with hydromorphone. *Vet Anaesth Analg*. 2013;40(1):28-34. doi:10.1111/j.1467-2995.2012.00788.x.

² Ramsey D, Fleck T, Berg T, et al. Cerenia prevents perioperative nausea and vomiting and improves recovery in dogs undergoing routine surgery. *Intern J Appl Res Vet Med*. 2014;12(3):228-237. <http://www.jarvm.com/articles/Vol12Iss3/Vol12Iss3McCall.pdf>.

³ Data on file, Study Report No. A461N-US-13-289, 2015 Zoetis Inc.

⁴ Data on file, Study Report No. A461N-US-13-080, 2015 Zoetis Inc.

⁵ Data on file, Study Report No. A366N-US-13-276, 2015 Zoetis Inc.

⁶ Data on file, Study Report No. A386N-US-13-077, 2015 Zoetis Inc.

Brief Summary of Prescribing Information



Antiemetic

For subcutaneous or intravenous injection in dogs and cats

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

INDICATIONS:

Dogs: CERENIA (maropitant citrate) Injectable Solution is indicated for the prevention and treatment of acute vomiting in dogs.

Cats: CERENIA (maropitant citrate) Injectable Solution is indicated for the treatment of vomiting in cats.

DOSE AND ADMINISTRATION:

Use of refrigerated product may reduce the pain response associated with subcutaneous injection.

Dogs:

For Prevention and Treatment of Acute Vomiting in Dogs:

Dogs 2-4 Months of Age: Administer CERENIA Injectable Solution subcutaneously at 1 mg/kg (0.45 mg/lb) equal to 0.1 mL/kg (0.1 mL/2.2 lb) of body weight once daily for up to 5 consecutive days.

Dogs 4 months of Age and Older: Administer CERENIA Injectable Solution intravenously over 1-2 minutes or subcutaneously at 1 mg/kg (0.45 mg/lb) equal to 0.1 mL/1 kg (1 mL/22 lb) of body weight once daily for up to 5 consecutive days.

In dogs that are actively vomiting, it is recommended to initiate treatment with CERENIA Injectable Solution. Thereafter, CERENIA Tablets may be used for the prevention of acute vomiting at 2 mg/kg once daily. (See CERENIA Tablets package insert for complete prescribing information).

For Prevention of Vomiting in Dogs 4 months of Age and Older Caused by Emetogenic Medications or Chemotherapeutic Agents: Administer CERENIA Injectable Solution intravenously over 1-2 minutes or subcutaneously at 1 mg/kg (0.45 mg/lb) of body weight one time, 45-60 minutes prior to use of emetogenic medications or chemotherapeutic agents.

Cats:

For Treatment of Vomiting in Cats 4 Months of Age and Older:

Administer CERENIA Injectable Solution intravenously over 1-2 minutes or subcutaneously at 1 mg/kg (0.45 mg/lb) equal to 0.1 mL/kg (0.1 mL/2.2 lb) of body weight once daily for up to 5 consecutive days.

The underlying cause of acute vomiting should be identified and addressed in dogs and cats that receive CERENIA Injectable Solution. If vomiting persists despite treatment, the case should be re-evaluated.

WARNINGS: Not for use in humans. Keep out of reach of children. In case of accidental injection or exposure, seek medical advice. Topical exposure may elicit localized allergic skin reactions in some individuals. Repeated or prolonged exposure may lead to skin sensitization. In case of accidental skin exposure, wash with soap and water. CERENIA is also an ocular irritant. In case of accidental eye exposure, flush with water for 15 minutes and seek medical attention.

In puppies younger than 11 weeks of age, histological evidence of bone marrow hypocellularity was observed at higher frequency and greater severity in puppies treated with CERENIA compared to control puppies. In puppies 16 weeks and older, bone marrow hypocellularity was not observed (see **ANIMAL SAFETY**).

PRECAUTIONS:

The safe use of CERENIA Injectable Solution has not been evaluated in dogs or cats with gastrointestinal obstruction or that have ingested toxins.

Use with caution in patients with hepatic dysfunction because CERENIA Injectable Solution is metabolized by CYP3A, CYP2D15 (dogs) and CYP1A (cats) enzymes (see **Pharmacokinetics**). The influence of concomitant drugs that may inhibit the metabolism of CERENIA Injectable Solution has not been evaluated. CERENIA Injectable Solution is highly protein bound. Use with caution with other medications that are highly protein bound. The concomitant use of CERENIA Injectable Solution with other protein bound drugs has not been studied in dogs or cats. Commonly used protein bound drugs include NSAIDs, cardiac, anticonvulsant, and behavioral medications. Drug compatibility should be monitored in patients requiring adjunctive therapy.

The safe use of CERENIA Injectable Solution has not been evaluated in dogs or cats used for breeding, or in pregnant or lactating bitches or queens.

Adverse Reactions:

DOGS:

In a US field study for the prevention and treatment of vomiting associated with administration of cisplatin for cancer chemotherapy, the following adverse reactions were reported in 77 dogs treated with CERENIA Injectable Solution at 1 mg/kg subcutaneously or 41 dogs treated with placebo:

Frequency of Adverse Reactions by Treatment

Adverse Reaction	Placebo (n=41)		CERENIA (n=77)	
	# dogs	% occur	# dogs	% occur
Diarrhea	1	2.4	6	7.8
Anorexia	0	0	4	5.2
Injection site reaction (swelling, pain upon injection)	0	0	3	4
Lethargy	1	2.4	2	2.6

The following adverse reactions were reported during the course of a US field study for the prevention and treatment of acute vomiting in dogs treated with 1 mg/kg CERENIA Injectable Solution subcutaneously and/or CERENIA Tablets at a minimum of 2 mg/kg orally once daily for up to 5 consecutive days:

Frequency of Adverse Reactions by Treatment

Adverse Reaction	Placebo (n=69)		CERENIA (n=206)	
	# dogs	% occur	# dogs	% occur
Death during study	4	5.8	10	4.9
Euthanized during study	0	0	2	1
Diarrhea	6	8.7	8	3.9
Hematochezia/bloody stool	5	7.2	4	1.9
Anorexia	2	2.9	3	1.5
Otitis/Otorrhea	0	0	3	1.5
Endotoxic Shock	1	1.4	2	1
Hematuria	0	0	2	1
Excoriation	0	0	2	1

Other clinical signs were reported but were <0.5% of dogs.

Adverse reactions seen in a European field study included ataxia, lethargy and injection site soreness in one dog treated with CERENIA Injectable Solution.

Post-Approval Experience (Rev. 2015)

The following adverse events are based on post-approval adverse drug experience reporting. Not all adverse events are reported to FDA CVM. It is not always possible to reliably estimate the adverse event frequency or establish a causal relationship to product exposure using these data.

The following adverse events reported for dogs are listed in decreasing order of reporting frequency

for CERENIA Injectable Solution: Pain/vocalization upon injection, depression/lethargy, anorexia, anaphylaxis/anaphylactoid reactions (including swelling of the head/face), ataxia, convulsions, hypersalivation, tremors, fever, dyspnea, collapse/loss of consciousness, recumbency, injection site reactions (swelling, inflammation) and sedation.

Cases of death (including euthanasia) have been reported.

CATS:

The following adverse reactions were reported during the course of a US field study for the treatment of vomiting in cats treated with 1 mg/kg CERENIA Injectable Solution subcutaneously once daily for up to five consecutive days:

Frequency of Adverse Reactions by Treatment

Adverse Reaction	Placebo (n=62)		CERENIA (n=133)	
	# cats	% occur	# cats	% occur
Moderate Response to Injection ^{1,2}	1	1.6	30	22.6
Significant Response to Injection ^{1,3}	1	1.6	15	11.3
Fever/Pyrexia	2	3.2	2	1.5
Dehydration	0	0	3	2.3
Lethargy	0	0	2	1.5
Anorexia	0	0	1	0.8
Hematuria	0	0	1	0.8
Hypersalivation	0	0	1	0.8
Injection site swelling	1	1.6	0	0

¹ The clinician observed and graded each cat's response to injection.

² Cat objected to the injection by retreating and vocalizing

³ Cat objected to the injection by retreating, hissing, scratching, and vocalization

Post-Approval Experience (Rev. 2015)

The following adverse events are based on post-approval adverse drug experience reporting. Not all adverse events are reported to FDA CVM. It is not always possible to reliably estimate the adverse event frequency or establish a causal relationship to product exposure using these data.

The following adverse events reported for cats are listed in decreasing order of reporting frequency for CERENIA Injectable Solution: Depression/lethargy, anorexia, hypersalivation, pain/vocalization upon injection, dyspnea, ataxia, fever, recumbency, vomiting, panting, convulsion, and muscle tremor.

Cases of death (including euthanasia) have been reported.

To report suspected adverse events, for technical assistance or to obtain a copy of the SDS, 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: CERENIA Injectable Solution should be stored at controlled room temperature 20-25°C (68-77°F) with excursions between 15-30°C (59-86°F). After first vial puncture, CERENIA Injectable Solution should be stored at refrigerated temperature 2-8°C (36-46°F). Use within 90 days of first vial puncture. Stopper may be punctured a maximum of 25 times.

HOW SUPPLIED: CERENIA Injectable Solution is supplied in 20 mL amber glass vials. Each mL contains 10 mg of maropitant as maropitant citrate.

NADA #141-263, Approved by FDA

zoetis

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Zoetis Inc.
Kalamazoo, MI 49007

Revised: October 2015

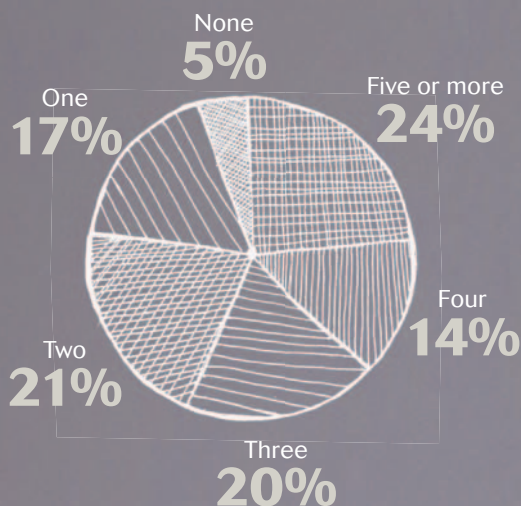
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Here, take this case

Referring clients to specialists so that pets get the care they need can be easy-breezy or ... *not so much*. We scoured data from the 2015 dvm360 State of the Profession survey to bring you the latest on how your peers are handling referrals right now.

How many cases do you refer to a specialist in an average month?



Want tips?

Looking to alleviate referral problems and make the transition smooth for all involved? Check out dvm360.com/smooth for more. And don't miss Dr. Laurie Hess at CVC Kansas City—she'll be talking about how GPs and specialists can work better together. Go to thevcv.com/kc for more!

25

percent of respondents say they're making **more referrals** than three years ago.

Only

6

percent said they make **fewer referrals**.

What types of cases do you usually refer?



Surgery
38%



Orthopedic
37%



Oncology
18%



Neurology
17%



Internal medicine
15%

Referring an ultrasound? Check out **page 38**.

INTRODUCTION TO MONOCLONAL ANTIBODIES:

Latest Advancement in Companion Animal Veterinary Medicine

Innovations in human medicine and technology have long inspired new therapies and treatments in animal health. Biological therapy is the newest area being explored to help improve the health and quality of life of companion animals.

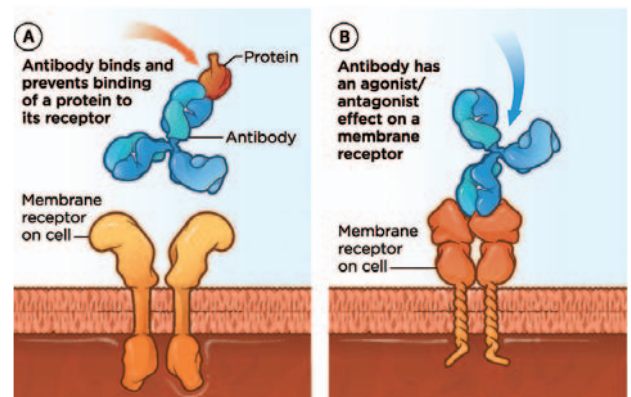
Biological therapy can take the form of vaccines, like immunotherapy, or therapeutic monoclonal antibodies. Examples of antibodies used in human health therapeutic areas include the development of Humira® for the treatment of rheumatoid arthritis and Xolair® for the control of asthma.

Monoclonal Antibodies (mAbs): A New Frontier for Animal Health*

All mammals produce antibodies to protect against foreign proteins or antigens introduced into the body. These are produced by a variety of plasma cells resulting in polyclonal antibodies. Scientists are now developing monoclonal antibodies that can be used therapeutically to mimic the immune system and to direct it against one specific antigen. The antibody is engineered with sequences compatible with the immune system of the target species (e.g., called “caninization” for the dog) so that the body does not recognize them as foreign.

These antibodies and therapeutic mAbs exert biological activity through various mechanisms. The antigen-binding fragment can interact with

high specificity and affinity to soluble targets like cytokines in the blood and tissue interstitium to prevent these molecules from binding to their receptors and thus prevent cytokine activation of the receptor (A). Alternatively, an antibody or therapeutic mAb can bind to a target receptor on a cell surface to block its activation. These are described as antagonistic mAbs; most human mAbs fall under this category (B).



Monoclonal antibodies have three main safety advantages:

- 1) mAbs have very specific targets.
- 2) mAbs don't have intercellular activity—as a result, there are few anticipated side effects and reactions.
- 3) mAbs are not metabolized by the kidney or liver but are catabolized within the cells resulting in amino acids, which are recycled within the body.

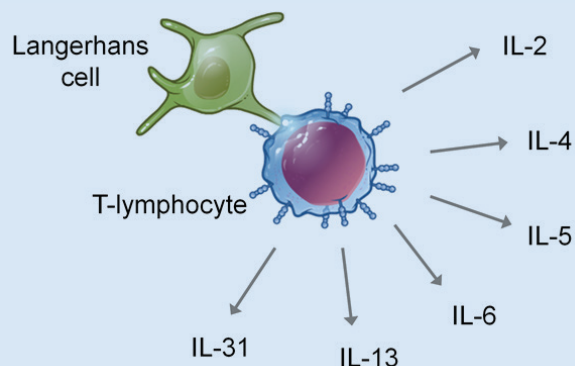
Applying Monoclonal Antibodies (mAbs) in Veterinary Dermatology

Capitalizing on knowledge from the development of human monoclonal antibodies, veterinary researchers are developing therapeutic mAbs for the treatment of many important and common conditions that affect the quality of life of dogs and cats such as osteoarthritis pain, chronic kidney disease, oncologic conditions, cardiac disease and atopic dermatitis.

The past decade has produced more insights into the pathophysiology of allergic skin disease—in particular, atopic dermatitis. Cytokines such as interleukin (IL)-2, -4, -6, -13 and -31 play an important role in orchestrating the cycle of itch as well as inflammation. Each of these cytokines plays a specific role in the production of clinical signs such as pruritus and inflammation.

Research has demonstrated that IL-31 plays a major role in the induction of pruritus in dogs with atopic dermatitis. It also has effects on keratinocytes and the inflammatory cells that are part of the condition. A mAb that inhibits the function of only IL-31 holds the potential to uniquely and specifically target the signs of atopic dermatitis without the side effects associated with broad-spectrum pharmacotherapy.

CYTOKINES INVOLVED IN CANINE ALLERGIC SKIN DISEASE



Many cytokines implicated in allergic skin disease (e.g., atopic dermatitis) are secreted from activated T-lymphocytes.

Effective therapies for atopic dermatitis inhibit T-cell and cytokine function. How they affect immune function or other organ systems may lead to differential safety profiles.

Learn More About mAb Therapy

This article provides a high-level view of mAb technology. More information is available at www.itchcycle.com/antibodytherapy.

* All data from: Olivry T, Bainbridge G. Advances in veterinary medicine: therapeutic monoclonal antibodies for companion animals. *Clinician's Brief*. <http://www.cliniciansbrief.com/article/advances-veterinary-medicine-therapeutic-monoclonal-antibodies-companion-animals>. Published March 2015. Accessed December 3, 2015.

Money-hungry:

How do I convince my practice owner that selling therapeutic diets is worth it?

dvm360 management expert Brian Conrad, CVP, talks up the benefits of therapeutic diets, how to sell them to clients and how to convince veterinary hospital management that it's a totally brilliant idea.

Q

I'm an associate and believe in the value of therapeutic diets. Problem is, both my practice manager

and practice owner are resistant to putting much effort into selling therapeutic diets. What should I say to change their minds? And what if they still say no?

A

If you're mulling over the decision to carry therapeutic diets or not, heed Conrad's

advice: If you're gonna make a recommendation in the hospital (what's best for the pet) then you better be carrying that product.

You'll want to make the case to your owner and manager that you can't send pet owners to a

megastore to search out a specific product. After all, your owner and manager know as well as you do that the chances a client will go out and find that specific product aren't great. Also, make sure you have samples in the exam rooms. Clients want to be able to see, feel and touch products. There's nothing worse than making a recommendation and then expecting the client to leave your clinic to find it.

It's important to let your owner and practice manager know they're handicapping you. It's

great that you can talk to clients about their pets' nutrition, but if you don't have those exact products sitting in your hospital, your recommendations only go so far.

Pet owners want bullet points, not protein levels and moisture content.

Conrad also says it's important to practice these practical conversations with clients in a training setting. Clients don't care about protein levels or moisture

content. What clients do want is bullet points or short summaries on why and how this recommended food is going to help their pet live a healthy life for years to come.

At your next team meeting, propose a real-life example of a conversation you had

with a client that demonstrates the value of having a therapeutic diet stocked. You can do an A/B scenario: Scenario A is when you don't have any products to show and your recommendation falls flat. The practice owner and practice manager should see the benefits of Scenario B in a hurry.

The latest technological advances have engendered a range of products and diets that can majorly benefit your patients, Conrad says. Do yourself, your clients and your patients a favor ... stock those products.



Brian Conrad, rockstar CVC speaker and president of the Veterinary Hospital Managers Association.

Think small

"It can be really helpful to carry a couple of small bags rather than just one large bag for a particular condition," Sean Delaney, DVM, MS, DACVN, founder of DVM Consulting, says. "That way you can offer a couple of varieties to a client, see which one is preferred and have them feel more involved in picking one that their pet prefers."

A huge benefit of having several options on hand? It increases client compliance. Imagine your patient actually receiving the treatment you've prescribed exactly as you prescribed it. Worth plotting out your shelf space for sure.



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How to **tame** Catzilla

By Wayne L. Hunthausen, DVM

The much-feared ferocious kitty is really just misunderstood. Let's examine the spark behind the fury of human-directed aggression and take steps to alleviate the anxiety. Everyone who has owned or treated a defensive or overplayful or high-strung cat knows the look—the dilated pupils, the ears pinned to the head, the swishing tail, the crouched position and the low menacing growl. Cats are capable of doing some major damage to their humans or pet housemates when overstimulated. What do you do with a cat with an aggression problem?

When the fur's flying right now

An attack is imminent—or in progress. How should you coach cat owners on how to effectively intervene?

What owners CANNOT do. When behavior needs to be interrupted, always emphasize to owners not to hit their cats. Cats are pretty emotionally fragile, so I recommend telling clients not to yell at cats either. These harsh interventions aren't acceptable and will damage the emotional bond between the owner and the cat. They can also be quite dangerous.

What owners CAN do. Often avoidance is prudent. Calmly walk away and leave the cat on its own to chill out. Acceptable methods to interrupt a cat's unwanted behavior include minimally direct responses such as a spray of air or water or an unpleasant noise. I recommend no eye contact between the client and the cat so that the deterrent stimulus is associated with the cat's behavior rather than with the client. The decision to use any potentially aversive response depends on the cat's temperament. Avoid aversives with fearful or sensitive cats. If anything the owner does significantly stresses the cat, it could become more aggressive.

How to prevent future attacks

Now that the cat owner has dealt with an immediate

incident, she's hopefully approached you about how to prevent further rampages. Save the household! First, rule out medical causes, even if you have to anesthetize the patient to do your diagnostic due diligence. Rule out things that cause pain, such as dental disease, abscesses, otitis, musculoskeletal problems, pancreatitis and cystitis, as well as things that cause behavior alterations, such as hyperthyroidism and cognitive dysfunction.

What you do from there depends on what you diagnose as the type of aggression each patient is exhibiting.

Pain-related aggression— "Ouch! Don't touch me!"

It is pretty obvious why pain can cause aggression in cats. Take care to minimize discomfort during handling. In some cases, analgesics might be needed.

You can help new kitten owners prevent this one in the first place by



CAT'S OUT OF THE BAG
Here are some great options for kitty restraint: dvm360.com/catrestraint



Handling a feral cat that is scared of everything? That's a whole different story. Listen to this audio clip for some tips:



For more on desensitization and counter-conditioning, and other cat-specific techniques, listen to the audio clip here:



emphasizing that handling kittens at an early age is the key. Habituation, desensitization and counter-conditioning exercises that are done when the pet is a kitten will make things easier for everyone and may increase the cat's tolerance for being handled when it is uncomfortable or in mild pain later in life. Instruct the family and their friends to gently handle various parts of the cat's body while it is being hand-fed. As days go by, the family should increase the intensity and variety of handling. Although the effects of all painful stimuli cannot be anticipated, a cat that is trained to be relaxed during a variety of types of handling should be more likely to tolerate handling when it is in pain or anxious. Make sure to tell clients to do this early in life because the socialization period starts decreasing at about 7 weeks of age in cats.

Fear aggression—"Get away!"

For cats that are fear-aggressive, you need to identify the stimulus and threshold of anxiousness before aggression rears its ugly head. Usually in cats, this is a distance threshold. To treat, you can let the cat just avoid the stimulus if possible. If it is not possible, you need to use desensitization and counterconditioning techniques.

If you determine medication is needed, I recommend starting with a selective serotonin reuptake inhibitor (SSRI), such as fluoxetine or paroxetine, at a dosage of 0.5 to 1 mg/kg orally once daily. Tricyclic antidepressants and other types of medications can be used if SSRIs fail to help.

Play aggression—"Are you ready to rumble?!"

While not truly a type of social aggression, feline play attacks can be frightening and damaging. If the attacks are quiet, stealthy attacks not accompanied by vocalization, you're probably dealing with play behavior. Cats that are predisposed are young, from a single-cat household, spend a lot of time alone or have a family member who encourages rough play. The good news: In mild cases the cat will probably grow out of it.

But sometimes you have someone with fragile skin or who is immunocompromised, diabetic



Boo! Hiss! I have a mean cat!

Grumpy behavior in cats can be okay (and, we admit, kinda funny). Physical aggression directed at humans or other animals, however, can mean trouble. If you have a client enduring a cat's reign of terror, use this handout to explain the possible underlying medical causes of feline aggression and the steps that your veterinary team will take to safely resolve the issue. Get that kitty cuddling once again—scan to download now.

or on anticoagulant therapy in the household. Owners will also want solutions if the behavior is nocturnal and the owner is sleep-deprived or if the behavior is directed toward a passive, fearful pet in the house.

This situation is just about the only one in which I commonly recommend adopting another cat if they can—one of similar age and temperament. Otherwise, they need to keep the cat worn out—recommend lots of physical exercise, stop inappropriate play but engage the cat in appropriate play, and interrupt the behavior. Environmental enrichment in the form of increased perching spots, kitty condos, kitty gardens, food-dispensing toys and treat treasure hunts can also help.

Redirected aggression—"Gah! There's nothing I can do!"

The definition of redirected aggression is targeted, aggressive behavior against a different stimulus than the one that caused it to be aroused. The most common cause for this stimulus is territorial. And affected cats can stay in an aroused state sometimes for long periods. These attacks can be very unpredictable and cause serious injuries. For unknown reasons, the bite pressure seems to be very uninhibited in these cats.

Treatment involves removing the pet's access to the aggravating stimuli if possible and modifying the response to the stimuli. If the pet becomes highly aroused when it goes outdoors, it should be confined indoors. If it becomes aroused watching outdoor cats through the windows, that opportunity should be removed. SSRIs may help reduce the animal's response to stimuli. Desensitization and counterconditioning can sometimes be effective for changing the cat's response to arousal stimuli.

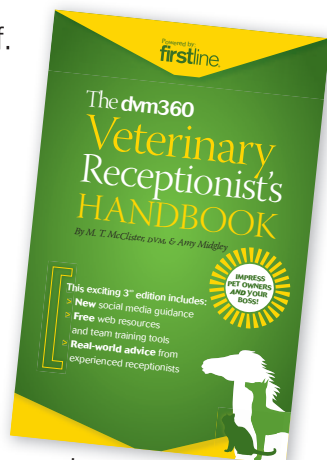
Wayne L. Hunthausen, DVM, Animal Behavior Consultations and Westwood Animal Hospital in Westwood, Kansas.

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Diagnosing canine hyperadrenocorticism: You have questions, “Dr.

Dr. David Bruyette, AKA “Dr. Endocrine,” keeps your cortisol concentrations from rising with these tips for confirming hyperadrenocorticism in dogs.

Some weeks it seems like every single low-dose dexamethasone suppression test (LDDS) or adrenocorticotropin hormone (ACTH) stimulation test you perform yields ambiguous results. *Arrrrgh!* So, what’s a diagnostician like you to do (besides stay awake all night and agonize over the outcomes)? Keep calm, and read on.

Question 1: **Where do I start?**

Perform a thorough physical examination, including a complete blood count, a serum chemistry profile and a urinalysis. Request a urine culture and sensitivity testing as well. About 30% to 40% of dogs with hyperadrenocorticism have urinary tract infections—even with no clinical signs or evidence of infection on the urinalysis—most likely because hypercortisolemia is immunosuppressive and causes dogs to become polyuric.¹⁻³

Question 2: What do I do when I’m positive the miniature poodle in front of me is cushingoid, but the results come back normal?

As an attendee at one of my lectures once answered, “You keep going until you get the answer that you like.” So, go ahead—run another test.

There are three common tests for measuring cortisol, including a urine cortisol-to-creatinine ratio test and two types of blood tests: an LDDS test and an ACTH stimulation test—all of which can give false positive and negative results. And because they all measure different things, if you get discordant results, it doesn’t necessarily mean that one of the tests is wrong. Results can vary based on the phase of hyperadrenocorticism the dog is currently experiencing. Dogs with early PDH may not have developed adrenal hyperplasia yet, so an ACTH stimulation test may be normal and small pituitary tumors may still respond to dexamethasone.

Question 3: What do the tests measure?

ACTH stimulation test

Does this dog have increased adrenal mass?

The ACTH stimulation test protocol and reasoning behind it are fairly simple, so

I’m going to mix things up and ask you a question: Which kind of cosyntropin do you use: compounded gel or injectable pre-prepared product?

Interestingly, researchers compared the two formulations in normal and cushingoid dogs and couldn’t tell a difference.⁴ However, they also analyzed the concen-



of your patients will have **pituitary-dependent hyperadrenocorticism (PDH)** from a pituitary tumor.

Endocrine” has answers

trations of cosyntropin in the gel preparations and found they varied widely. These findings tell us that the dose of cosyntropin dogs need for maximum adrenal stimulation is tiny—possibly as low as 1 µg/kg—not an entire 250-mg vial per dog.

Some experts (including myself) currently recommend using injectable cosyntropin at a dose of 5 µg/kg. I know what you’re thinking: “But wait, Dr. Endocrine ... er—Dr. Bruyette! The thought of tossing the extra cosyntropin left in the open vial makes my head (and wallet) hurt!” Fear not. Instead, following reconstitution, use the amount you need for the present test, and leave the rest in the vial. If you think you will use the leftovers within the next 30 days, put the vial in the refrigerator. If not, draw it up into 0.1-ml aliquots in plastic syringes and store in the freezer where it will stay good for at least six months.⁵

LDDS test

Is there loss of feedback between the pituitary gland and the adrenal glands?

The LDDS test is not an adrenal function test. It is a pituitary function test.

The classic hallmark of PDH is a lack of com-

munication between the pituitary gland and the adrenal glands. The pituitary does not “hear” the adrenal glands’ feedback. The LDDS test can diagnose PDH in about 90% of dogs with PDH and allows you to determine both whether a dog has hyperadrenocorticism and if it is pituitary-dependent.

If dexamethasone is administered at the test dosage to a normal dog, it will be suppressed for about 24 hours. If the dog has been receiving iatrogenic corticosteroids, LDDS test results will be completely unreliable because the dog is already chronically suppressed, and you will have to do an ACTH stimulation test.

If you have diagnosed hyperadrenocorticism by performing an LDDS test, you do not need to perform an ACTH stimulation test to establish a baseline set of cortisol concentrations. It doesn’t really matter what the cortisol concentrations were to start. We should just care that they are less than 9 µl/dl after the patient begins treatment.

Want to know the easiest and fastest way to interpret LDDS test results? Go straight to the eight-hour measurement of cortisol concentration. Here are two more pearls of wisdom:

1) If the eight-hour measurement of cortisol concentration is elevated, the

dog has hyperadrenocorticism. Now you care about the other measurements of cortisol concentration on the results chart.

2) If there is at least 50% suppression of cortisol concentration at any time point in the study, the animal must have PDH. Period. But here’s the kicker: If you don’t see less than or equal to 50% suppression at any time during the test, you can’t rule out PDH.

Urinary cortisol: creatinine ratio

Does this dog produce more cortisol in a 24-hour period than a normal dog? This test has the highest sensitivity of the three but has poor specificity. Positive results must be confirmed with an LDDS test.

To drive down your false positive rate, follow proper protocol for sample collection. The first morning urine should be obtained by the owner at home three days in a row. The three urine samples should then be pooled together by the owner and brought into the clinic for testing.

References for this article can be found at dvm360.com/drendocrine.



Hi, I’m Dr. Endocrine!
(David Bruyette,
DVM, DACVIM)

**10-12
PERCENT**

will have **adrenal-dependent hyperadrenocorticism**, which is caused by a cortisol-secreting unilateral or bilateral adrenal tumor.

**20-30
MINUTES**

usual intervals dogs and cats will secrete ACTH (unlike people).

Time of day doesn’t matter when testing for hyperadrenocorticism!

Canine Hyperadrenocorticism (Cushing's disease)

SCREENING TESTS FOR DIAGNOSING CUSHING'S DISEASE:

Based on clinical signs and initial laboratory results, we suspect your pet may have Cushing's disease. In order to confirm the diagnosis, we need to run another test. Two options are detailed below.

1. ACTH stimulation test

- > An exaggerated response to ACTH is consistent with Cushing's disease.
- > Blood samples will be taken before and after injection of ACTH for cortisol assay. This procedure can be performed within two hours.
- > Test results should be back from laboratory within 3-4 business days.
- > Procedure cost: \$

2. Low-dose dexamethasone suppression test

- > Failure to suppress cortisol levels is consistent with Cushing's disease.
- > Blood samples will be taken before and after injection of dexamethasone for cortisol assay. This procedure takes 8 hours to perform, therefore, your pet must remain in the clinic all day.
- > Test results should be back from laboratory within 2-3 business days.
- > Procedure cost: \$

TREATMENT FOR CUSHING'S DISEASE:

If your pet is diagnosed with Cushing's disease, we will discuss treatment options. It is important to know that lifelong therapy and follow-up care is required.

MONITORING FOR CUSHING'S DISEASE:

Following the diagnosis of Cushing's disease and initiation of treatment, we need to monitor your pet's response to the treatment and make adjustments if necessary. The following schedule is recommended:

ACTH stimulation test, serum chemistry profile with electrolytes, and physical exam

- > 10-14 days after beginning treatment and following any dosage adjustments.
- > Repeat within two to three weeks if the dose is changed.
- > Repeat every three to six months if the patient is stable.
- > Procedure cost: \$



Ultimately, it's up to you and your team to communicate about Cushing's syndrome and other adrenal conditions in a way that eases clients' minds and helps them confront their fears about the pet's future. Scan the QR code to download this tool or head over to dvm360.com/cushingstool.

Continuing ed on endocrinology

Because how much fun can you possibly handle?! OK, so maybe the endocrine system doesn't tickle your fancy, but here's your chance to hear the newest info about treatments like GLP-1-based drugs and get the latest on insulin resistance in cats. Don't miss out! Head to thecvc.com/kc for more information.



ALL 'BOUT THAT ENDOCRINE

These products will get your levels up. Head over to dvm360.com/endocrine.

You can still turn things around.

Chronic diseases like hyperadrenocorticism can be hard for owners of afflicted dogs to swallow. And while you can't make the disease go away, you can ease pet owners' anxiety and confusion.

Clients need to know about the financial responsibility and time commitment involved in managing a chronic illness like Cushing's disease. You can help!

At left is a client handout that details the tests needed to confirm the disease and monitor the pet's progress once treatment is underway, as well as the costs involved, will help your clients take an active role in their pet's long-term care—not to mention improve your practice's efficiency.

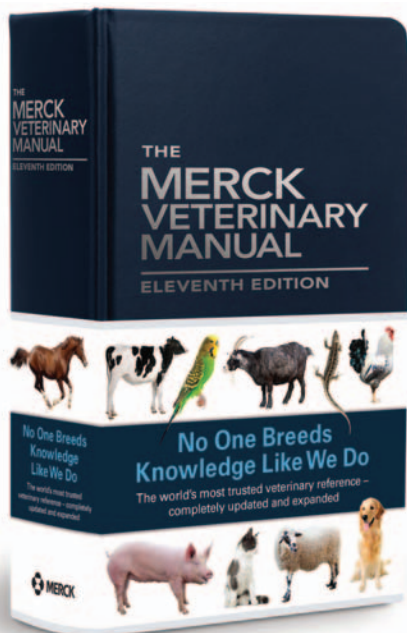
And just for fun ... did you know Dr. Bruyette is a Cushing's superfan? He collects Harvey Cushing memorabilia—including his books and manuscripts, and even a signed copy of

a manuscript written by James Parkinson called "Essay on the Shaking Palsy" that Harvey Cushing gave to one of his surgery residents as a Christmas gift.



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Fluo

Are you using topical dental fluoride treatment to benefit your veterinary patients' teeth?

By Edward Eisner, DVM, DAVDC

Just as children benefit from early fluoride treatment, dogs and cats in their first 18 months of age will also benefit from this practice. In fact, one of the most important juvenile veterinary dental services for otherwise healthy puppies and kittens is treating the newly erupted adult teeth with topical fluoride.

Because dogs and cats lose their deciduous teeth in the first six months of life, while children have baby teeth for eight years, in animals, you only need to treat your patients' adult teeth with fluoride. At 6 months of age, most juvenile pets will have completed their transitional dentition and all of the adult teeth will have erupted.

WAIT—he did
what with
Hemingway?!

Dr. Eisner is a diplomate and the chief of dental services at the VCA Highlands Ranch Animal Specialty and Emergency Center, a veterinary referral hospital in Highlands Ranch, Colorado, and co-author of the textbook Veterinary Dental Techniques. He has published more than 70 professional articles and book chapters and served as a speaker at numerous national and international meetings.

Turn the page to find out!



ride: It's not just for humans anymore!

Application specifics

Ideally, this treatment would occur when most patients are anesthetized for spaying or neutering, near the age of puberty. Perform careful occlusal re-evaluation and dental prophylaxis with subgingival curettage and polishing before applying a fluoride treatment. A remarkable number of dogs and cats will have calculus, especially on their caudal (back) teeth at 6 months of age.

Now you are ready to apply a 1.23% solution of fluoride to all exposed surfaces. Leave the fluoride on the teeth for five minutes, and then wipe it off with a gauze pad. Note that the fluoride is not rinsed off but wiped, so a protective residue is left on the tooth's surface. It is important, after five minutes, to wipe all excess fluoride off because the solution is very acidic, with a 3.0 pH, and can cause gastric upset and esophageal irritation if swallowed. Because of this acidity, it is also important to have an endotracheal tube in place during the procedure to avoid aspiration of the product.

Fluoride's favorable effects

A fluoride treatment will benefit newly erupted teeth by making the crown surface more impervious to infection and making it a harder and smoother surface. Chemically, enamel is hydroxyapatite and is composed of approximately 95% inorganic material, contributing to it being the hardest tissue in the body. By comparison, dentin is composed of approximately 70% inorganic material and is more porous than enamel. Topical fluoride treatments consist of fluoroapatite crystals, which are similar but larger, less reactive, and with less soluble components than hydroxyapatite and replace the organic portion of the enamel, thus making the surface of the tooth more impervious to caries (bacterial invasion).

Fluoride application will aid your patients most during their first two years, while the teeth are still developing. After 18 months of age, topical dental fluoride treatment is indicated only in patients that have periodontal disease to help desensitize exposed roots.

No cavities, no problem

You know that dogs and cats have caries less frequently than people. But why? For one, most of their teeth are sectorial in design. Our patients generally do not pack food between their teeth, because most dog teeth and all cat teeth are conical in shape and tend to shed food. In addition, the average pH of a cat or dog's saliva is 7.5, compared with 6.5 in humans. A pH of 7.5 discourages the growth of the cariogenic bacteria *Streptococcus mutans* and *Bacillus acidophilus*, which need an acidic environment to survive.

Another reason why dogs have few caries is that the urea content of their saliva is markedly higher than it is in people. Thus, the teeth are constantly bathed by ammonium carbonate, an excellent acid-neutralizing agent.

Despite these natural defense mechanisms, a fluoride treatment is still indicated for extra protection. Caries, when they do occur in dogs and cats, most often occur on the flat occlusal surfaces of the upper and lower molars and the proximal (interdental) surfaces of the incisors, where food is trapped.

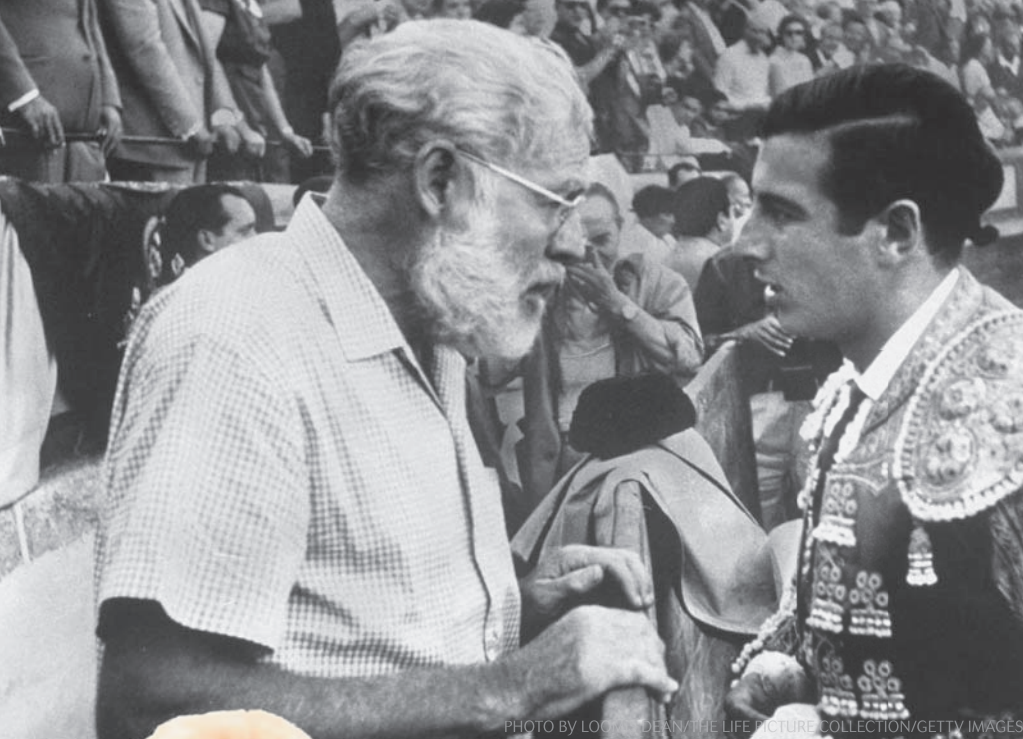


PHOTO BY LOOKS LIKE DEAN/THE LIFE PICTURE COLLECTION/GETTY IMAGES

Oh Papa!

In my teenage years, in 1959, at the Festival of San Fermin, in Pamplona, Spain, I met Ernest

Hemingway and swapped botas with him—a tradition in which you toss your goatskin pouch sealed with pitch and filled with wine to your acquaintance or friend, and, at arm's length, each squirts the wine around his nose and it runs down into the mouth. I was there running the bulls in that famous year of the mano a mano in which world's Numero Uno, The Great Dominguín, was defeated by his brother-in-law, Antonio Ordóñez. I have Ordóñez's and Hemingway's autographs on a bullfight ticket."

*—Dr. Edward Eisner
(officially, Vetted editors' hero!)*



Passive marketing: It's not just for big box stores anymore!

By Mark Opperman, CVPM

Want to send some dental products home with your clients? Try passive marketing.

To engage in passive marketing, you need an open shelf in each exam room. It doesn't need to be big, just large enough to shelve eight or 10 different products.

Here's how passive marketing works. During a visit, if a client asks which oral rinse or dental chew to use, the doctor or exam room assistant takes that product down from the shelf, gives the client some details about the item and explains why it's the product of choice.

The assistant or doctor then places the merchandise on the corner of the exam room table closest to the exiting door of the exam room. At the end of the visit, the client chooses to pick up the

product and walk out with it—or not.

Here's an important point: I would never want someone to recommend a product just to make money. That's not what this is about. But if that patient needs a pet toothbrush and toothpaste, it should come from the veterinary hospital and not Walmart, PetSmart, or whatever "mart" is down the street. The veterinarian needs to be the source of information, and the veterinarian should be offering a full-service approach to the client.

Want to guess how often the client will buy the product when you market it this way? Up to 80 percent of time. Why? It was veterinarian-recommended. So now you've just increased that doctor's average transaction by \$15 or \$20—whatever the cost of the product is—but you've also provided a great service for the patient, and they're not getting some ineffective product from the "mart."

Only stock one of each item on the passive marketing shelf. This concept is used for over-the-counter products that are important for the pet, such as dental chews, ear cleaners, shampoos and nutritional supplements, not prescription items, which of course are not optional.

CHECK OUT AT-HOME DENTAL PRODUCTS to start practicing passive marketing now at dvm360.com/homedental. Then get more advice—live—from Mark Opperman at CVC Kansas City, Aug. 26 to 29.

Mark Opperman, CVPM, is co-owner of VMC Inc., a veterinary consulting firm based in Evergreen, Colorado.




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The idiosyncrasies of itchy cats

Cats are not small dogs—you've heard that before. But nowhere is it more apparent than dermatology: "You can't base your dermatologic differential list on what part of the body is affected by evidence of pruritus like you can with dogs," says Rudayna Ghubash, DVM, DACVD.



Figure 1.
A cat with mosquito bite hypersensitivity, showing lesions on the pinna and nares.



Figures 2 and 3:
Cats with pemphigus foliaceus lesions on their pinna.

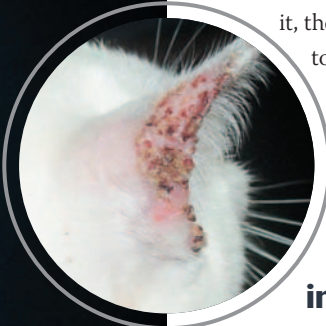


Figure 4.
A cat with pemphigus foliaceus lesions on the paws, specifically around the base of the nailbeds.



So what is the answer for felines' dermatologic mysteries? Dr. Ghubash reiterates that because cats' physiologic response to allergenic opportunities are so different from dogs', it takes a different approach to diagnosing what's causing the clinical signs.

Dr. Ghubash's recommended approach to a cat presented to you for pruritus is to start with a careful and deliberate history and to examine each pruritic cat in a methodical way. She estimates that about 50% of your valuable information will come from the signalment and history, if you ask the client the right questions. For example, a cat younger than 6 months old is more likely to have an underlying parasite or dermatophyte causing its pruritus. Atopy is rare in kittens that young.

A complete history-taking of the cat's previous and concurrent disease is very important. For example, cats don't get pododermatitis from allergies like dogs do. If they get it, the underlying cause is more likely to be pemphigus foliaceus. Dr. Ghubash says they tend to get more of the "shake and bake" appearance of ear crusts.

Particulars on pruritic predicaments in cats

Dermatophytosis

Explore dermatophytosis in your patients first because it can mimic any other dermatologic disease, pruritic or not, says Dr. Ghubash. Always recommend performing a dermatophyte test medium (DTM) culture. Keep in mind that Wood's lamp examinations are only accurate about 50% of the time.

If you've taken a biopsy, you should request periodic acid-Schiff (PAS) and Gomori's methenamine silver (GMS) stains if you're concerned about dermatophytes.

QUICK TIP: In young Persian cats with dermatologic ailments, dermatophytosis should be at the top of the differential diagnosis list until proven otherwise by diagnostics, the gold standard currently being dermatophyte culture, Dr. Ghubash says.

Food allergy

Food allergies can start at any age, so it isn't unusual to have an older cat that breaks out with pruritus due to food allergies. Dr. Ghubash cautions that, in her opinion, you should be on the lookout for this more in Siamese and Siamese crossbreeds than other cats.

CONSIDER THE CALENDAR: If a cat's pruritus is seasonal, you do not need to perform a food trial. But if the pruritus is not seasonal, you do need to perform a food trial. Dr. Ghubash adds, "Blood testing for food allergies is unreliable, inaccurate and a total waste of your client's money."

Changing the diet to a veterinary therapeutic diet for 12 weeks is the only accurate way to diagnose food allergies in Dr. Ghubash's opinion. The reason the over-the-counter (OTC) diets don't work for food trials is because the food companies frequently "cobatch" when they produce their foods. This means they use the same equipment to produce different brands of specific foods. This can frequently lead to differences in allergen content in each bag on the shelf. Dr. Ghubash points out that there was a study that demonstrated that OTC venison diets had microscopic traces of other proteins in them.¹ As a result, there is no OTC diet that she recommends for a food trial.

Think food allergies are off the hook if the cat improves with corticosteroids? Dr. Ghubash says think again, as some cats do.

Allergies to parasites

If the cat goes outdoors at all, rule out flea allergies before anything else, even if you don't find any fleas or flea dirt and the cat is



Don't fear forward booking

Why is forward booking the Freddy Krueger of veterinary medicine? Two reasons, says Mark Opperman, CVPM, co-owner of VMC Inc. in Evergreen, Colorado:

1 You're not comfortable offering it to your clients.

Solution (and you'll love this one): Ask your receptionist to do it! She's your rock star client communicator, right? After the appointment, as the receptionist helps the client check out, she says something like:

>>> "Shall we go ahead and schedule Casey's appointment for six months from now?"

>>> And many times clients will say, "Sure."

See? Told you it was easy! Which brings us to the second boogeyman of forward booking:

2 You're afraid of no-shows.

Solution: Call 30 days before the appointment. 'Cause, you know, clients forget that appointment they made six months ago. And they've got meetings and vacations and that can't-miss lunch meeting with Great Aunt Marge, and if you only call the day before you're 1) gonna go straight to voicemail and 2) the client's going to call and cancel or, worse, not show up at all.

Here's the less-than-scary protocol to stop "no-shows." (Hint: This one involves your receptionist too. Yay for delegation!)

1. Call 30 days before the appointment. Say, "Hi, Mrs. Smith. I'm calling to confirm Casey's upcoming appointment on [date]. Does this time still work for you?" (This works fine for voicemail too. Just ask clients to call you if they need to reschedule.)

2. Call again (or text! Come on now) a day or two before the appointment as a last reminder.



That's it! No more nightmare "no-shows." Opperman predicts we'll see forward booking catch on more. Watch him explain it all by scanning the code or visiting dvm360.com/forward.

What IS a total nightmare is missing the excellent practice management program at **CVC Kansas City, Aug. 26-29**. We've brought out the big guns—including Mr. Opperman, of course, who promises insightful "must-dos" for every successful practice. Don't miss it! After all, you can't learn, you can't laugh, and you can't change ... if you don't come. Get info at thecvc.com/kc.



receiving monthly flea control. Some cats are excellent groomers and can groom any live fleas or their evidence (flea dirt) of their bodies before a reaction is shown. Dr. Ghubash says that, "regardless of the history, the vast majority of itchy cats that you see are going to be flea-allergic."

You may note a pattern in these cases, with the pruritus being located mostly in the dorsal and lumbar regions. If you see that, think parasites: fleas, *Cheyletiella* and *Notoedres* species and *Demodex gatoi*.

A NOTE ABOUT DIAGNOSIS: It can take months to rule out flea allergy, but Dr. Ghubash would recommend doing that before initiating food trials. "Putting them on once-a-month flea preventives and still letting them go outside is not ruling flea allergy out," she says. She recommends keeping the cat indoors, implementing environmental flea control and using a topical flea control product every two weeks for at least three doses (selamectin-containing products are some of her favorites in cats since they also rule out *Notoedres* species infection).

Taking a thorough history with cats that are allergic to mosquito bites is also super important. Dr. Ghubash has seen cats with mosquito bite hypersensitivity be misdiagnosed as having neoplasia. These cats often present with dermatitis on their ears, rostral nares and paws (Figure 1, previous page).

Pemphigus foliaceus

This autoimmune disorder can certainly mimic allergies in cats, says Dr. Ghubash, which is another reason why vaccination and drug administration history is important. Cats with pemphigus foliaceus tend to present with lesions on their ears, nailbeds and nipples (Figures 2-4). As a side note, Dr. Ghubash says, "Cats don't get allergic dermatitis like dogs do." If the nailbeds are involved, think pemphigus first.

Reference

1. Raditic DM, Remillard RL, Tater KC. ELISA testing for common food antigens in four dry dog foods used in dietary elimination trials. *J Anim Physiol Anim Nutr (Berl)* 2011;95(1):90-97.

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Hitting the road for an ultrasound?

You don't have that ultrasound machine in your practice (yet), but you're thinking it might be ideal for a case that just walked in your door. Here's some guidance on which cases will mostly likely yield a diagnosis—and how you can manage clients' expectations when you refer. *By Ryan King, DVM, DACVR*

Ultrasonographic examinations are becoming more common in veterinary medicine and can be a useful tool in certain situations. But in managing a pet owner's expectations, it's crucial to communicate that most ultrasonographic findings are nonspecific and additional diagnostic steps may be required to obtain a definitive diagnosis.

First, inpatient or outpatient?

From an imaging perspective, an "outpatient" is a patient referred exclusively for an imaging diagnosis. This situation is ideal for clients looking to follow up with their regular veterinarian for further diagnostics or treatment. Ideal cases often include disease of acute onset, with a suspected therapeutic or surgical intervention in mind.

Sedation is not likely to be given for outpatient cases, so fractious, uncooperative or aggressive patients are best suited for inpatient referral. This allows time for a complete examination of the pet and adequate observation after the use of sedation, anesthesia or both.

Alternatively, an "inpatient" is simply one that has met with and been examined by a doctor in the referral practice. Although this may yield a more thorough and complete consultation—and may allow use of medications, intervention and treatments—this type of referral tends to be more costly. Ideal cases are those involving chronic or multisystemic disease, where differentiation of subtle changes may require more diagnostics.

Some specialty practices offer a mixed model in which a patient is referred exclusively for diagnostic imaging but receives a brief physical examination and assessment by a specialty practice doctor so sedation or anesthesia can be performed. A discussion with the specialty center before referral will help general practitioners determine which

imaging modality and referral type is best for an individual patient.

Into a patient's particulars

Here are the types of cases you might be considering for ultrasound referral—and what you can generally expect.

Hazy hepatic findings. Evaluation of the liver is likely the least appropriate outpatient referral case since 80% of cases leave outpatient imaging for hepatic disease without a diagnosis. There's a great deal of overlap in the ultrasound appearance of hepatic disease, and a biopsy or aspirate is often required to establish a definitive diagnosis. Exceptions would be gallbladder and biliary disease (for



"Before you go ..."

Instruct pet owners to fast the patient before an ultrasonographic examination. This prevents a food-filled stomach from obscuring visualization of the abdomen and also allows for safe use of sedation if it's deemed necessary.

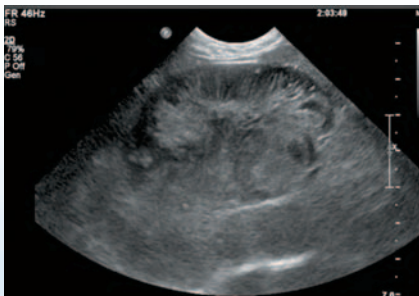


Figure 1. A gallbladder mucocoele.

example, gallbladder mucocoele, cholelithiasis, obstruction) in which abdominal ultrasonography may be a definitive test (see Figure 1). Patients with suspected portosystemic shunts should be referred for inpatient ultrasonography since they may require sedation or further diagnostics.

A suspect spleen. Ultrasonography of the spleen is most often performed to detect a mass. However, it can be difficult to assess whether the mass is benign or malignant with ultrasonography, and rarely can a definitive diagnosis be reached without further diagnostics, such as fine-needle aspiration or biopsy. Often, however, the definitive presence of a mass lesion is enough for owners to make a decision about a next step, such as surgery.



Figure 2. A linear foreign body.

An unruly urinary system. Suspected ureteroliths, cystoliths, pyelonephritis, ectopic ureters, prostatic abscesses and cysts make ideal referral ultrasonography cases. A definitive diagnosis can often be reached based on imaging findings.

A dubious digestive system. The utility of ultrasonographic examination of the gastrointestinal tract varies. Foreign bodies can be the most straightforward diagnosis (see Figure 2), whereas inflammatory and neoplastic diseases are the least straightforward because of the overlap in ultrasonographic appearance. Generally, further testing in the way of ultrasound-guided diagnostic techniques, endoscopy, or laparoscopic or abdominal exploratory surgery may be necessary to distinguish

between these two diseases and to differentiate the types of neoplasia.

A challenging chest. Since it's impractical to examine the entire thorax ultrasonographically, a targeted approach based on radiographic findings is usually used. Although pleural effusion is easily detected and characterized, rarely is a definitive cause found on ultrasonography. Pulmonary nodules may be detected if they are located peripherally. In these cases, ultrasonography is used to help guide fine-needle aspiration or biopsy to help make a definitive diagnosis.

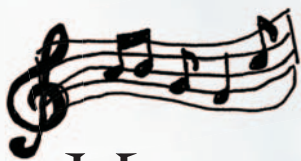
So, with these pointers in mind, you can select the best cases for referral, decide whether an inpatient or outpatient examination is best, and educate your clients appropriately. Time to hit the road!



Ryan King, DVM, DACVR, is an assistant professor at the Cummings School of Veterinary Medicine at Tufts University in North Grafton, Massachusetts. When attending a CE conference, you might spot Dr. King on his

bike. He takes it with him to every conference he attends. "There's no better way to see a city than to see its green space in the morning!" he says.





How much is that ultrasound in the window? (Arf! Arf!)

Thinking of purchasing a machine yourself? A little thought and some simple division helps you figure your payoff time.

If your vision for a brand-new ultrasound machine is to improve patient care and improve your veterinary hospital's reputation in the long run, stop agonizing. If you can afford it and you're ready to use it, buy it.

If, however, you're just curious—or your practice manager sighs loudly whenever you mention buying new equipment—why not run the numbers?

It's easy math (with a little digging in your financials) with a handy-dandy formula from Karen Felsted, CPA, MS, DVM, CVPM, CVA.

Payback period

To figure out how long it will take to pay off an ultrasound purchase, you take the **total purchase price**—this includes

the machine, monitor, probes, shipping cost, service contract, supplies, installation cost, training, taxes and, if you're leasing or buying on credit, interest expense—**divided by the annual net income from equipment**—

your gross revenue less operating costs (service contract, maintenance costs over the life of the equipment, supplies, and doctor and staff time).

So let's say you pay a total of \$20,000 for a unit, decide to charge \$400 per procedure, have \$90.40 in doctor and staff time per exam and \$3,000 in other costs annually, and estimate you can do 52 procedures a year—about one per week.

$$\frac{\$20,000}{(\$400 - \$90.40) \times 52 - \$3,000} = 1.5 \text{ years}$$



Brush up on your ultrasound skills

Sign up for the Intermediate Abdominal Ultrasonography course or the Specialty Focus Abdominal Ultrasonography course at CVC Kansas City in August by visiting thecvc.com/kc.

"Pay it off in a year and a half or so?" Dr. Felsted says. "I'd be happy with that."

You're worth it ... if the client says so

You probably don't need to be reminded of this, but just in case: It's not about what you're comfortable charging for your new service; "it's what you can communicate to clients so they understand the real value to the pet of having this procedure done," Dr. Felsted says.

"It's easy to look at the individual cost of a diagnostic and say, 'That doesn't look too bad,'" she says. "But where's the tipping point? When is the client willing to spend \$550, but not \$600?"

Surveying your clients, studying fee references (see "What to charge," left) and brushing up on client communication strategies for the whole team will help you arrive at the right number.

What to charge

What do well-run hospitals charge for an ultrasound? Here are the average ultrasound fees at American Animal Hospital Association (AAHA) practices and those included in Benchmarks 2015: A Study of Well-Managed Practices.

	Benchmarks	AAHA
Ultrasound, abdominal	\$260	\$229
Ultrasound, chest	\$265	\$238
Ultrasound, chest and abdominal	\$375	\$342

Sources: AAHA Veterinary Fee Reference 2015 and Benchmarks 2015: A Study of Well-Managed Practices

READY TO SHOP?

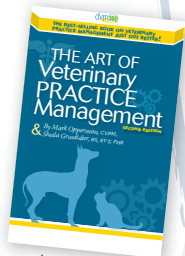
Check out platforms and accessories online at dvm360.com/ultrasoundproducts.

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HELPFUL STUFF

Vanquishing the vaccine factor: Dependable in-clinic FIV diagnosis possible after all

By Michael Nappier, DVM, DABVP

Your patient just tested positive for feline immunodeficiency virus (FIV), so you're ready to deliver the bad news to its owner, right? Oh wait, maybe it's been vaccinated? You know that ELISA point-of-care tests are reported to be incapable of distinguishing between vaccine- and disease-associated antibodies. The authors of a recent study decided to review whether this is really the case, especially since newer test kits have become available.

The authors recruited 119 cats

with a verified history of FIV vaccination as well as 239 with no history of FIV vaccination from an area with a perceived high degree of FIV.

Blood was collected from each of the cats and tested with three different kits: SNAP FIV/FelV Combo (IDEXX), Witness FeLV/FIV (Zoetis) and Anigen Rapid FIV Ab FeLV Ag (Bionote). A separate sample was also tested using the commercially available FIV RealPCR (IDEXX). For cats with discordant ELISA and PCR results, virus isolation testing was used to

determine FIV status. Virus isolation was also used to confirm FIV-positive status in cats identified by these test results as both vaccinated and infected.

What they found

The authors found that the SNAP test was unable to distinguish between vaccine-induced and disease-induced antibodies but was useful for confirming a humoral response to FIV vaccination. Both the Witness and Anigen Rapid tests were able to reliably distinguish between the two.

WHAT TO KNOW

According to this study, using point-of-care ELISA kits it is now possible to reliably determine FIV status in areas where FIV vaccination is practiced. Unfortunately, the Anigen Rapid kit is not currently available in the United States. However, using the Witness test alone as opposed to the SNAP test would result in far fewer false positive results in areas where FIV vaccination is prevalent. This is especially applicable to shelters or other situations where further PCR testing is unavailable for financial reasons and decisions on euthanasia or adoptability may be made based on a point-of-care test alone.

For more information about this study, go to dvm360.com/FIVdiagnosis.



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REVOLUTION[®] (selamectin) effectively kills fleas and prevents flea eggs from hatching, while providing broad-spectrum parasite control. Unlike some parasiticides, it's safe for breeding and nursing cats and doesn't require separation from family or other pets after application.



revolution4catsdvm.com

IMPORTANT SAFETY INFORMATION:

Do not use REVOLUTION on sick, weak, or underweight cats. Use only on cats 8 weeks and older. Side effects may include digestive upset and temporary hair loss at application site with possible inflammation. In people, REVOLUTION may be irritating to skin and eyes. Wash hands after use. See Brief Summary of full Prescribing Information on page 44.

*VetInsight[™] Analytics January 2016. Zoetis data on file.

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zoetis[™]

revolution® (selamectin)

Topical Parasiticide For Dogs and Cats

BRIEF SUMMARY:

See package insert for full Prescribing Information.

CAUTION:

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

INDICATIONS:

Revolution is recommended for use in dogs six weeks of age or older and cats eight weeks of age and older for the following parasites and indications:

Dogs:

Revolution kills adult fleas and prevents flea eggs from hatching for one month and is indicated for the prevention and control of flea infestations (*Ctenocephalides felis*), prevention of heartworm disease caused by *Dirofilaria immitis*, and the treatment and control of ear mite (*Otodectes cynotis*) infestations. Revolution also is indicated for the treatment and control of sarcoptic mange (*Sarcoptes scabiei*) and for the control of tick infestations due to *Dermacentor variabilis*.

Cats:

Revolution kills adult fleas and prevents flea eggs from hatching for one month and is indicated for the prevention and control of flea infestations (*Ctenocephalides felis*), prevention of heartworm disease caused by *Dirofilaria immitis*, and the treatment and control of ear mite (*Otodectes cynotis*) infestations. Revolution is also indicated for the treatment and control of roundworm (*Toxocara cati*) and intestinal hookworm (*Ancylostoma tubaeforme*) infections in cats.

WARNINGS:

Not for human use. Keep out of the reach of children.

In humans, Revolution may be irritating to skin and eyes. Reactions such as hives, itching and skin redness have been reported in humans in rare instances. Individuals with known hypersensitivity to Revolution should use the product with caution or consult a health care professional. Revolution contains isopropyl alcohol and the preservative butylated hydroxytoluene (BHT). Wash hands after use and wash off any product in contact with the skin immediately with soap and water. If contact with eyes occurs, then flush eyes copiously with water. In case of ingestion by a human, contact a physician immediately. The material safety data sheet (MSDS) provides more detailed occupational safety information. For a copy of the MSDS or to report adverse reactions attributable to exposure to this product, call 1-888-963-8471.

Flammable - Keep away from heat, sparks, open flames or other sources of ignition.

Do not use in sick, debilitated or underweight animals (see SAFETY).

PRECAUTIONS:

Prior to administration of Revolution, dogs should be tested for existing heartworm infections. At the discretion of the veterinarian, infected dogs should be treated to remove adult heartworms. Revolution is not effective against adult *D. immitis* and, while the number of circulating microfilariae may decrease following treatment, Revolution is not effective for microfilariae clearance.

Hypersensitivity reactions have not been observed in dogs with patent heartworm infections administered three times the recommended dose of Revolution. Higher doses were not tested.

ADVERSE REACTIONS:

Pre-approval clinical trials:

Following treatment with Revolution, transient localized alopecia with or without inflammation at or near the site of application was observed in approximately 1% of 691 treated cats. Other signs observed rarely (<0.5% of 1743 treated cats and dogs) included vomiting, loose stool or diarrhea with or without blood, anorexia, lethargy, salivation, tachypnea, and muscle tremors.

Post-approval experience:

In addition to the aforementioned clinical signs that were reported in pre-approval clinical trials, there have been reports of pruritus, urticaria, erythema, ataxia, fever, and rare reports of death. There have also been rare reports of seizures in dogs (see **WARNINGS**).

SAFETY:

Revolution has been tested safe in over 100 different pure and mixed breeds of healthy dogs and over 15 different pure and mixed breeds of healthy cats, including pregnant and lactating females, breeding males and females, puppies six weeks of age and older, kittens eight weeks of age and older, and avermectin-sensitive collies. A kitten, estimated to be 5-6 weeks old (0.3 kg), died 8 1/2 hours after receiving a single treatment of Revolution at the recommended dosage. The kitten displayed clinical signs which included muscle spasms, salivation and neurological signs. The kitten was a stray with an unknown history and was malnourished and underweight (see **WARNINGS**).

DOGS: In safety studies, Revolution was administered at 1, 3, 5, and 10 times the recommended dose to six-week-old puppies, and no adverse reactions were observed. The safety of Revolution administered orally also was tested in case of accidental oral ingestion. Oral administration of Revolution at the recommended topical dose in 5- to 8-month-old beagles did not cause any adverse reactions. In a pre-clinical study selamectin was dosed orally to ivermectin-sensitive collies. Oral administration of 2.5, 10, and 15 mg/kg in this dose escalating study did not cause any adverse reactions; however, eight hours after receiving 5 mg/kg orally, one ivermectin-sensitive collie became ataxic for several hours, but did not show any other adverse reactions after receiving subsequent doses of 10 and 15 mg/kg orally. In a topical safety study conducted with ivermectin-sensitive collies at 1, 3 and 5 times the recommended dose of Revolution, salivation was observed in all treatment groups, including the vehicle control. Revolution also was administered at 3 times the recommended dose to heartworm infected dogs, and no adverse effects were observed.

CATS: In safety studies, Revolution was applied at 1, 3, 5, and 10 times the recommended dose to six-week-old kittens. No adverse reactions were observed. The safety of Revolution administered orally also was tested in case of accidental oral ingestion. Oral administration of the recommended topical dose of Revolution to cats caused salivation and intermittent vomiting. Revolution also was applied at 4 times the recommended dose to patent heartworm infected cats, and no adverse reactions were observed.

In well-controlled clinical studies, Revolution was used safely in animals receiving other frequently used veterinary products such as vaccines, anthelmintics, antiparasitics, antibiotics, steroids, collars, shampoos and dips.

STORAGE CONDITIONS: Store below 30°C (86°F).

HOW SUPPLIED: Available in eight separate dose strengths for dogs and cats of different weights (see **DOSAGE**). Revolution for puppies and kittens is available in cartons containing 3 single dose tubes. Revolution for cats and dogs is available in cartons containing 3 or 6 single dose tubes.

NADA 141-152, Approved by FDA

zoetis

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www.revolutionpet.com
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MORE POUNDS = MORE PAIN

Packing on the pounds is no good for a frisky feline, because it'll likely mean pain on the horizon. One key to help cats experience less pain as they age is to keep their weight at an optimal level. More pounds equals more weight on a cat's tender frame.

Kara Amstutz, DVM, CCRT, CVPP, owner of Hometown Veterinary Hospital & River Canine Rehabilitation in Springfield, Missouri, says encouraging inactivity may make aging more difficult and painful for cats. In fact, helping cat owners promote an active lifestyle in their senior pets through daily physical exercise may be the No. 1 thing you can do to promote muscle strength, joint flexibility and overall health in your feline patients. Scan for a handout on fun feline exercises to help cats keep slim and strong, scan the code below or head over to ...



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



CATCHING THE LIGHT: An essential step when using laser pointers

Do you advise your cat-owning clients to exercise their cats by having them chase the light from a laser pointer? It's an effective and easy activity. But our veterinary practitioner in the trenches Dr. Sarah Wooten pounced onto one finer point of this exercise in a talk by veterinary behaviorist



Dr. John Ciribassi: Let the cat catch the light once in awhile or you could be cultivating compulsive behavior. How can you catch a light? Dr. Wooten caught Dr. Ciribassi to get the details. Scan to watch



the video or go to dvm360.com/lasertip.



Use these takeaways to manage your nasty ear cases with ease.

Uh oh, you've got a nasty case of chronic otitis externa in front of you. Keep the following in mind to prevent this protracted and painful process from happening in the next patient that presents with ear issues.

1. THOROUGHLY EXAMINE the ear canal (under sedation if necessary) for any foreign body.

2. PERFORM CYTOLOGY from the exudate in the canal, to determine the type of infection.

3. REMEMBER THAT many recurrent otitis externa cases have an underlying allergic component (atopic dermatitis or food allergy).

4. SHOW THE OWNER how to flush and administer topical medications.

5. IF A BACTERIAL ORGANISM is not responding to empiric treatment, culture the ear.

Information provided by Stephen D. White, DVM, DACVD

Can't get enough otitis info? We hear you. (Heh.) Find more great resources at dvm360.com/otitistoolkit.

Monitor the buzz about your practice.

Google your clinic's name at least weekly to see what people are saying. Bring the online comments to staff meetings. Brainstorm ideas with your team about how to avoid problems in the future. Go beyond just fixing the negatives and identify ways to delight clients so they say wonderful things about you online.

Recommended by Veterinarians specifically for cats!

Mason Company's Fiberglass Cat Condo

was designed to meet the "Association of Shelter Veterinarians" guidelines. This five-foot-wide unit features a central divider that reduces stress for cats, and French doors to provide easy interior access. Manufactured with durable fiberglass materials, the condos offer a warmer, quieter and more attractive environment than cold, loud and institutional-looking metal cages.

Also available with horizontal, powder-coated wire bars.



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- Optional removable shelf for more vertical space and height cats love.
- Stack units for added capacity.
- Easy to clean.
- Optional powder coated wire for a warmer, more updated look than stainless steel bars.



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Stellar ways to store stuff

Organizing nerds: This Arizona veterinary team has an almost-magical storage system. Let's take a peek ...

Everyone has one. You know the drawer we're talking about. The junk drawer, or drawers. That one drawer that you have to dig through for a few minutes to find what you need? Or maybe in your practice it's the closet. The closet that looks more like a Jenga tower waiting to happen than an actual storage space? Whip your space into shape with these ideas from Dreaming Summit Animal Hospital in Litchfield Park, Arizona.



Spills contained

Stackable storage tubs (above and left) not only allow for labeling but keep funny-shaped objects contained. Nothing rolls off the shelf or tips over onto the floor here. Begone, piles of precariously perched tubes!

Loud noises can be scary.

At least one-third of all dogs in the United States experience noise aversion,¹ a condition that can lead to distress and suffering^{2,3} during noise events. If left untreated, the condition may worsen over time. Now there's SILEO® (dexmedetomidine oromucosal gel), the first and only FDA-approved treatment for canine noise aversion. SILEO provides fast and effective at-home treatment that calms without sedating.

Sileo®
(dexmedetomidine
oromucosal gel)

Visit sileosoundsolution.com or ask
your Zoetis Representative about SILEO.



IMPORTANT SAFETY INFORMATION: Do not use SILEO in dogs with severe cardiovascular disease, respiratory, liver or kidney diseases, or in conditions of shock, severe debilitation, or stress due to extreme heat, cold or fatigue or in dogs hypersensitive to dexmedetomidine or to any of the excipients. SILEO should not be administered in the presence of preexisting hypotension, hypoxia or bradycardia. Do not use in dogs sedated from previous dosing. SILEO has not been evaluated in dogs younger than 16 weeks of age or in dogs with dental or gingival disease that could have an effect on the absorption of SILEO. SILEO has not been evaluated for use in breeding, pregnant or lactating dogs. Transient pale mucous membranes at the site of application may occur with SILEO use. Other uncommon adverse reactions included emesis, drowsiness or sedation. Handle gel-dosing syringes with caution to avoid direct exposure to skin, eyes or mouth. See Brief Summary of full Prescribing Information on page 50.

¹ Based on online survey conducted by Harris Poll on behalf of Zoetis in November 2013 among 784 dog owners.

² Sherman BL, Mills DS. Canine anxieties and phobias: An update on separation anxiety and Noise Aversions. *Vet Clin Nor Amer: Small Anim Pract*, 2008; 38: 1081-1106.

³ Shull-Selcer EA, Stagg W. Advances in the understanding and treatment of noise phobias. *Vet Clin Nor Amer: Small Anim Pract*, 1991; 21: 353-367.

HOSPITAL DESIGN

Smash-proof sundry items

Keep jars of cotton swabs and tongue depressors from being swept off the counter by a pet or pint-sized client with secure wall mounting.



Streamlined drawer space

Consistency is a main component of efficiency. Keep essential items such as needles, gauze and blood tubes at your fingertips and neatly sorted using drawer dividers. Each space can be adjusted to fit the item stored. Keeping the items in the same spot from exam room to exam room will save time spent rummaging around trying to find the needle you need.



veterinary economics



Design your dream hospital

Attend the Hospital Design Conference at CVC Kansas City Aug. 24-26 to hear from all the top veterinary architects on how to create the perfect veterinary hospital for you. Visit thecvc.com/HD to register.

Enter the 2017 Hospital Design Competition

Already finished with your pride and joy? Enter our annual Hospital Design Competition by visiting us online at dvm360.com/hdentryform.

When noise hurts, SILEO can help

SILEO, the first and only FDA-approved treatment for canine noise aversion, calms without sedating—freeing dogs from fear and anxiety triggered by noise events, including construction, fireworks, thunder and traffic.

Sileo[®]
(dexmedetomidine
oromucosal gel)

Visit sileosoundsolution.com or ask
your Zoetis Representative about SILEO.



IMPORTANT SAFETY INFORMATION: Do not use SILEO in dogs with severe cardiovascular disease, respiratory, liver or kidney diseases, or in conditions of shock, severe debilitation, or stress due to extreme heat, cold or fatigue or in dogs hypersensitive to dexmedetomidine or to any of the excipients. SILEO should not be administered in the presence of preexisting hypotension, hypoxia or bradycardia. Do not use in dogs sedated from previous dosing. SILEO has not been evaluated in dogs younger than 16 weeks of age or in dogs with dental or gingival disease that could have an effect on the absorption of SILEO. SILEO has not been evaluated for use in breeding, pregnant or lactating dogs. Transient pale mucous membranes at the site of application may occur with SILEO use. Other uncommon adverse reactions included emesis, drowsiness or sedation. Handle gel-dosing syringes with caution to avoid direct exposure to skin, eyes or mouth. See Brief Summary of full Prescribing Information on page 50.

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zoetis

Brief Summary of Prescribing Information

NADA 141-456, Approved by FDA

Sileo®

(dexmedetomidine oromucosal gel)

Each mL of SILEO contains 0.09 mg dexmedetomidine

(equivalent to 0.1 mg dexmedetomidine hydrochloride).

For oromucosal use in dogs only. Not intended for ingestion.

CAUTION:

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

INDICATIONS: SILEO is indicated for the treatment of noise aversion in dogs.

CONTRAINDICATIONS:

Do not use SILEO in dogs with severe cardiovascular, respiratory, liver or kidney disease, or in conditions of shock, severe debilitation, or stress due to extreme heat, cold or fatigue. Do not use in dogs with hypersensitivity to dexmedetomidine or to any of the excipients.

WARNINGS:

Human Safety: Not for human use. Keep out of reach of children.

Avoid administering the product if pregnant, as exposure may induce uterine contractions and/or decrease fetal blood pressure.

Appropriate precautions should be taken while handling and using filled syringes. **Impermeable disposable gloves should be worn when handling the syringe, administering SILEO, or when coming in contact with the dog's mouth after application.**

If skin is damaged, dexmedetomidine can be absorbed into the body. In case of skin contact, wash with soap and water. Remove contaminated clothing.

SILEO can be absorbed following direct exposure to skin, eyes, or mouth. In case of accidental eye exposure, flush with water for 15 minutes. If wearing contact lenses, eyes should be rinsed first, then remove contact lenses and continue rinsing, then seek medical advice immediately.

Accidental exposure may cause sedation and changes in blood pressure. In case of accidental exposure, seek medical attention immediately. Exposure to the product may induce a local or systemic allergic reaction in sensitized individuals.

Note to physician: This product contains an alpha-2 adrenoceptor agonist.

The safety data sheet (SDS) contains more detailed occupational safety information. To report adverse reactions in users or to obtain a copy of the SDS for this product call 1-888-963-8471.

Animal Safety: SILEO should not be administered in the presence of pre-existing hypotension, hypoxia, or bradycardia. Sensitive dogs may experience a drop in body temperature and heart rate, and may appear sedated. These dogs should be kept warm and not offered food or water until SILEO's effects have worn off (usually within a few hours). Do not use in dogs sedated from previous dosing.

PRECAUTIONS:

SILEO is not meant to be swallowed. Instead, it must be placed onto the mucosa between the dog's cheek and gum. If SILEO is swallowed, the product may not be effective. If SILEO is swallowed, do not repeat the dose for at least two hours. Feeding and giving treats within 15 minutes after administration should be avoided.

The use of other central nervous system depressants may potentiate the effects of SILEO.

As with all alpha-2 adrenoceptor agonists, the potential for isolated cases of hypersensitivity, including paradoxical response (excitation), exists.

SILEO has not been evaluated in dogs younger than 16 weeks of age or in dogs with dental or gingival diseases that could have an effect on SILEO's absorption. SILEO has not been evaluated for aversion behaviors to thunderstorms.

The safety and effectiveness of SILEO in breeding, pregnant, and lactating dogs has not been evaluated. Administration to pregnant dogs may induce uterine contractions and/or decrease fetal blood pressure.

ADVERSE REACTIONS:

In a well-controlled European field study, which included a total of 182 dogs ranging from 2 to 17 years of age and representing both mixed and pure breed dogs (89 treated with dexmedetomidine oromucosal gel and 93 treated with control), no serious adverse reactions were attributed to administration of dexmedetomidine oromucosal gel.

Table 2 shows the number of dogs displaying adverse reactions (some dogs experienced more than one adverse reaction).

Table 2. Adverse Reactions - Number (%) of dogs

Adverse Reaction	Control N = 93	Dexmedetomidine 125 mcg/m ² N = 89
Emesis	1 (1.1)	4 (4.5)
Gastroenteritis	0	1 (1.1)
Periorbital edema	0	1 (1.1)
Drowsiness	0	1 (1.1)
Sedation	0	1 (1.1)

Pale mucous membranes were frequently seen in dogs treated with dexmedetomidine oromucosal gel. In most cases, the effect was transient and no adverse reactions due to mucosal irritation were reported.

In a second well-controlled European field study which included a total of 36 dogs ranging from 2 to 17 years of age and representing both mixed and pure breed dogs (12 treated with dexmedetomidine oromucosal gel at 125 mcg/m², 12 treated with dexmedetomidine oromucosal gel at 250 mcg/m², and 12 treated with a vehicle control), no serious adverse reactions were attributed to administration of dexmedetomidine oromucosal gel. Table 3 shows the number of dogs displaying adverse reactions (some dogs experienced more than one adverse reaction).

Table 3. Adverse Reactions - Number (%) of dogs

Adverse Reaction	Control N = 12	Dexmedetomidine 125 mcg/m ² N = 12	Dexmedetomidine 250 mcg/m ² N = 12
Sedation	0	2 (16.7)	4 (33.3)
Lack of effectiveness	4 (33.3)	0	1 (8.3)
Urinary incontinence	0	1 (8.3)	1 (8.3)
Emesis	0	2 (16.7)	0
Head tremor	0	0	1 (8.3)
Inappropriate urination	0	1 (8.3)	0
Ataxia	0	0	1 (8.3)
Mydriasis	0	0	1 (8.3)
Anxiety disorder	0	0	1 (8.3)
Tachypnea	1 (8.3)	0	0
Lethargy	1 (8.3)	0	0
Tachycardia	1 (8.3)	0	0

To report suspected adverse events, for technical assistance or to obtain a copy of the SDS call 1-888-963-8471.

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>

HOW SUPPLIED:

SILEO is packaged in HDPE dosing syringe enabling doses from 0.25 to 3 mL. The syringe is fitted with plunger, dosing ring and end cap. Each syringe is further packed into a carton with a label and a leaflet.

Package sizes: (1 syringe per carton) 1 x 3 mL, 3 x 3 mL, 5 x 3 mL, 10 x 3 mL, 20 x 3 mL.

Not all package sizes may be marketed.

STORAGE INFORMATION:

Store unopened and opened syringes in the original package at controlled room temperature 20-25°C (68-77°F) with excursions permitted to 15-30°C (59-86°F). Use syringe contents within 2 weeks after opening the syringe.

SILEO® is a trademark of Orion Corporation.

Mfd by:



Orion Corporation
Turku, Finland

Dist by:



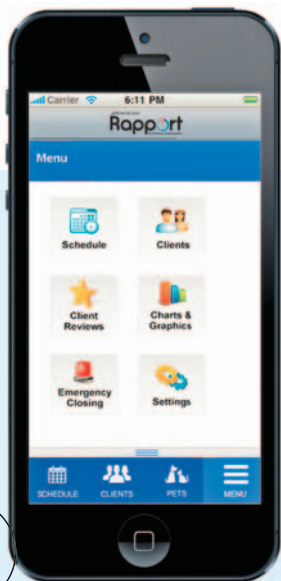
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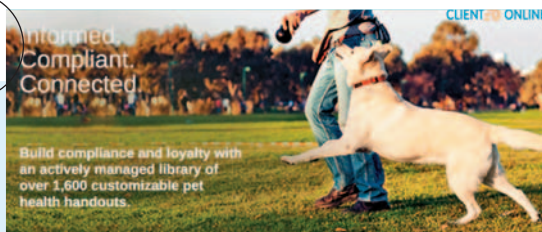
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2



Connect with clients

Find tech-savvy tools to reach pet owners in the digital age.

1 HEAD IN THE CLOUD?

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2 GET VET-UCATED!

Lifelearn's ClientED Online offers access to more than 1,200 Lifelearn client education articles. Access them from your software, print or email them to clients, edit and personalize articles and link them to diagnostic and treatment codes for automatic printing and storage.

3 TICKED OFF? TIME TO GET THE TICKS OFF

Dogsandticks.com offers tools for pet owners, including maps showing the incidence of tick diseases state-to-state and even county-by-county, risk assessment for dogs, and info on a range of ticks and diseases.

4 NOT TO PAT OURSELVES ON THE HEAD, BUT ...

The dvm360.com social media marketing toolkit offers free Facebook posts and tweets your team can use to raise awareness of key health issues, including parasites, dental care, senior wellness and much more.

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Before

After

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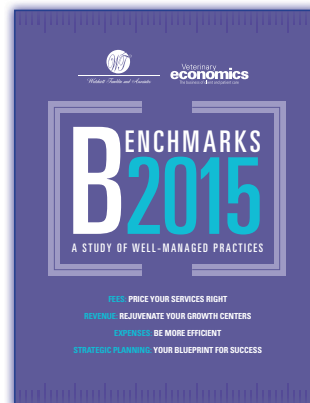


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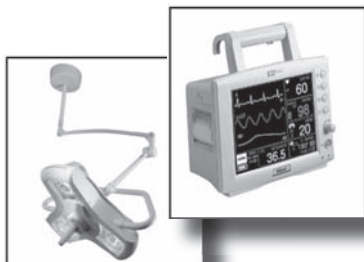
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ADI +/- \$167;

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Medicine, Estimated ADI +/- \$118K.

Iowa, Hardin County: SA, Estimated ADI +/- \$96K.

Maine, York County: SA, Estimated ADI +/- \$99K.

Michigan, Bay County: SA, Estimated

ADI +/- \$100K;

Western UP: Practice, home, acreage,

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Missouri, Southeast: SA, Estimated ADI +/- \$400K;

St. Louis: Feline, Estimated ADI +/- \$110K.

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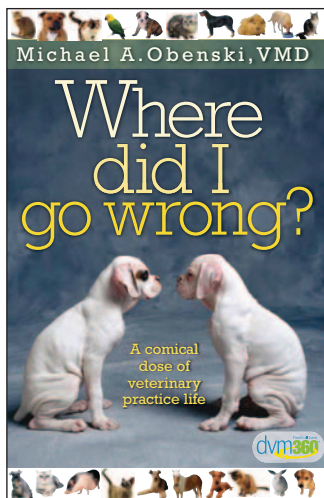
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STAGES of Shaving a PET:

Part 1: The Reckoning

O.M.G.
I'm gonna have
to shave this:

Dog



And, of course,
it's a frickin'
SHAR-PEI.
It's ALWAYS
A Shar-pet.

Cat



OH NOOO!
THIN SKIN.
(And probably
a PERSIAN,
amiright?!)

Rabbit



Bunny?!
They have
even thinner
skin than
CATS.

Part 2: Acceptance

There's gonna be some poo. 💩
And maybe some FLEAS. And
a sore under that... and...
YUP. MAGGOTS. Hello, old friends.

Part 3: Action (and accomplishment)

Look, this is sooo matted
I can take it all off in one go.

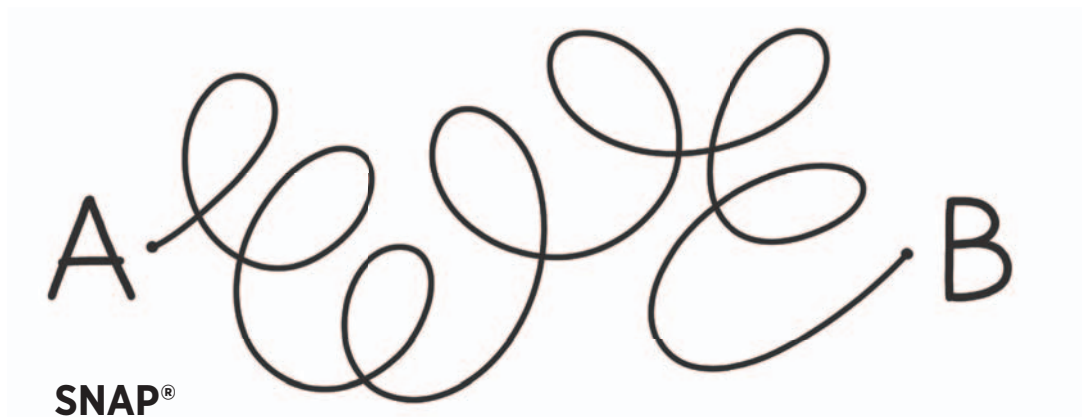
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↓
Hair splinter.

→ Ok, where are
all the lint rollers?
(And how did I get
fur in my bra?)



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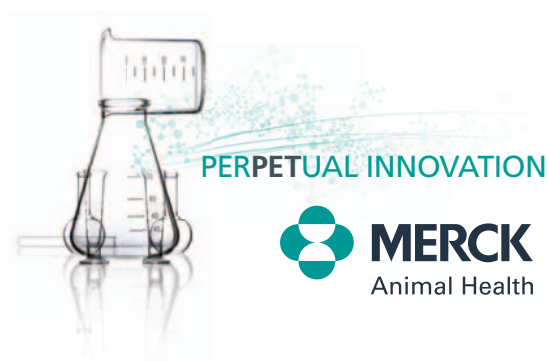
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