



# firstline<sup>®</sup>

The best read veterinary team journal. Bam.

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# Bored SICK

**dvm360**  
**leadership**  
**CHALLENGE**  
pet enrichment

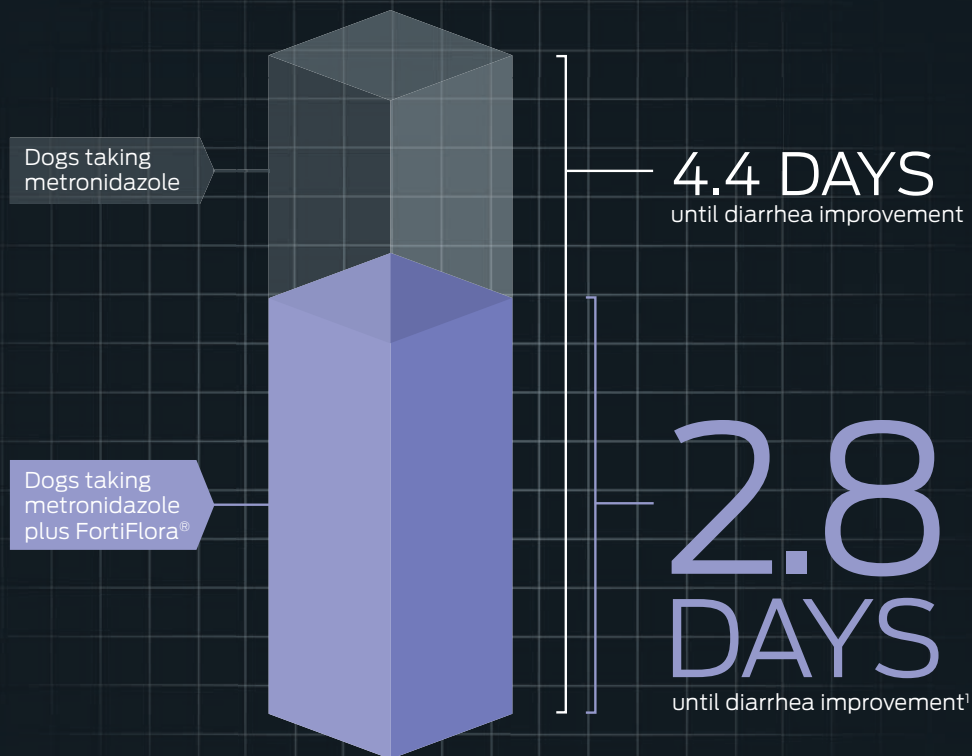
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Tamp down  
toxic teams  
at Fetch  
dvm360  
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1. Fenimore A, Groshong L, Scorza V, Lappin MR. Evaluation of Enterococcus faecium SF68 supplementation with metronidazole for the treatment of nonspecific diarrhea in dogs housed in animal shelters. J Vet Intern Med. 2012;26:793.

2. Kantar Millward Brown Veterinary Tracker, 2016

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**DIETS**

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# Tamping out. toxic teams



**T**oxic teams drag down productivity and can make team members feel downright unhappy at their work. At the Fetch dvm360 conference in Kansas City, Oriana Scislowicz, BS, LVT, practice manager at CVCA Cardiac Care for Pets in Richmond, Virginia, asked attendees to share the team issues keeping them awake at night—like this one:

**Q** I'm a male veterinary assistant and I'm treated as an outcast because I won't join the all-female clique. What should I do?

**A** It certainly isn't necessary to join a clique in the workplace, and it often can backfire when leadership associates your identity with that of the group. Try to be friendly and engage in small talk. Ask about your coworkers' hobbies and interests—this is a healthy habit we should all do more of to build morale.

Suggest more team-building activities in your team meetings. Not only is this good for the work environment, but it tends to break up cliques over time. Small gestures on your part—bringing in doughnuts for the group, commending individuals on a job well done or organizing a potluck—could build a positive relationship with your coworkers, and it will still keep you away from being deeply tied to a clique. See more questions and answers at [dvm360.com/toxicteamrelief](http://dvm360.com/toxicteamrelief). Got a question? Join us at Fetch dvm360 conference in San Diego and ask it in person. Can't be there? Email us at [firstline@ubm.com](mailto:firstline@ubm.com).

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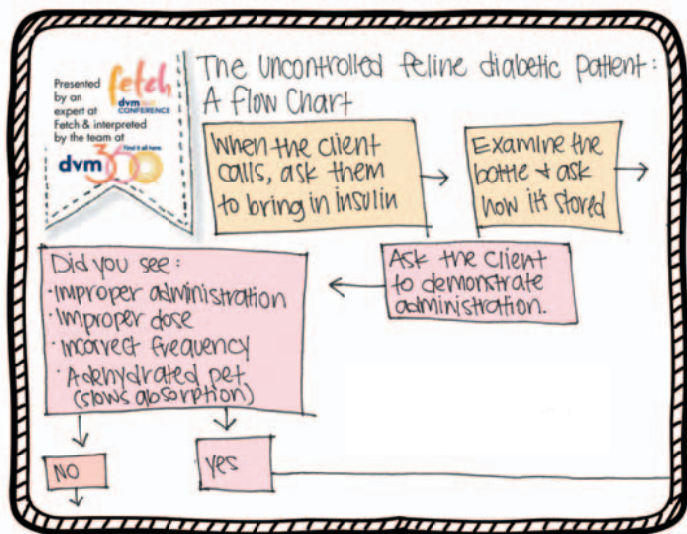
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Meet  
Zoey

# PEARLS

(Lustrously good advice and tips)



## The unstable feline diabetic patient

**H**ow does a feline diabetic patient go from simple to complicated? It takes detective work, says Fetch dvm360 conference speaker Paula Plummer, LVT, VTS (ECC, SAIM).

Taking a good history is an important part of this detective work, especially when it comes to the insulin that the patient receives and how the client administers it.

Things you should ask during your history:

- > How was the insulin stored?
- > Is it expired?
- > Has it been exposed to direct heat or light? Also ask clients if food ever freezes in their refrigerator.

- > Has it been diluted? (Insulin should not be diluted. Once this has been done, the accuracy of the dose and stability of the drug become compromised, causing complications with the patient. Sometimes pet owners will have a pharmacist dilute it anyway because it is easier to give a larger diluted dose rather than a tiny undiluted dose.)

If the client answers yes to any of the above, let your DVM know.

If the client answers no, ask the client to demonstrate how they administer the pet's insulin.

Did you see:

- > Improper administration or dose?
- > Incorrect frequency?
- > A pet that's dehydrated? (Dehydration slows absorption.)

If you see any of these problems, let your DVM know.

If you don't, it's time for the doctor to examine the patient.

Check out the flowchart at [dvm360.com/unstable](http://dvm360.com/unstable) for steps to get started. Got more questions about your diabetic patients? Join us at Fetch dvm360 conference and ask Plummer your questions in person.

# Underwater on a vet tech's pay



**M**oney management is all about choices. Where you live, the job you take, what you spend. But when it feels like the money's drifting out of the bank account much quicker than it flows in, it's hard to get a handle on where it all goes. We asked several veterinary professionals from different jobs and areas of the country to track their spending for one week. Our goal: to share what they've learned from a deep dive into the cost of living and the choices we make every day.

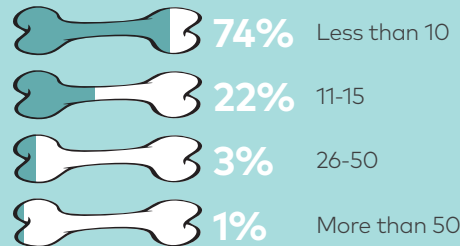
Check out the personal account of a technician's money journal that reviews a week in Phoenix on a \$24,816 salary at [dvm360.com/personalaccounts](http://dvm360.com/personalaccounts).

How am I living on this?

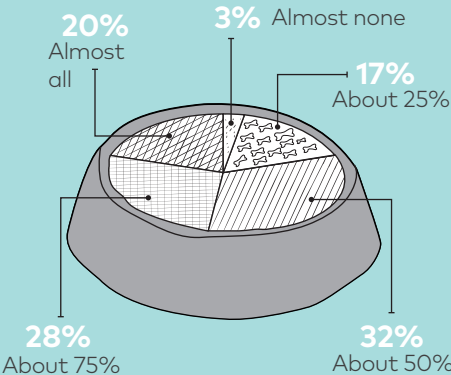
# The DEETS on TREATS

**D**ata from the 2017 dvm360 Clinical Updates: Pet Enrichment Survey serves up these nuggets about treats in the veterinary practice.

During an average wellness visit, how many treats does your team typically give a pet (assuming they accept treats and that treating is not contraindicated by any medical issues)?



For what percentage of patients do you think offering treats helps improve tolerance of veterinary exams or procedures?



Respondents' top tip to minimize pets' fear and anxiety during veterinary visits?

Treats! Be it Cheez Whiz or peanut butter, the tasty factor wins the hearts of more pets than any other trick.





## (Mini) Team Meeting in a Box: A radical guide to diagnostic **dental radiographs**

With this free team training your team will learn how to take better dental radiographs and explain to clients the importance of the dental preventive care, diagnostics and treatments you and your fantastic veterinary team provide every day. Find it at [dvm360.com/teammeeting](http://dvm360.com/teammeeting).

## Back Office Blunders: Prescription predicament

Enthusiasm is a great trait for veterinary team members... as long as they don't overwhelm pet owners. Visit [dvm360.com/backofficeblunders](http://dvm360.com/backofficeblunders) for a look at what can happen when you get too excited in the exam room. Watch and laugh (or cringe), then stick around for comments from Sarah Wooten, DVM, and Tasha McNerney, CVT, CVPP.



# CC the Clinic Cat



Find more Clinic Cat comics and fun stuff at  
[dvm360.com/cliniccat](http://dvm360.com/cliniccat)



## Mom's marketing hack

By Kathryn Primm, DVM

I've tried many different strategies to get the word out about my veterinary practice and attract new clients, but this is far and away the greatest return on my investment. But I can't take credit, because it came from my own mother, whose savvy creativity never ceases to amaze me.

So, my mom knows that my animal hospital wants to reach out to new residents in my area. She also knows that people like a personal touch, instead of a computer-generated advertisement. So, she combined what she knows about my business and people with what she knows about business transactions.

You see, real estate sales are a matter of public record. Anyone with an inquiring mind can find out who bought real estate, from whom and for how much. (My mother knows this because she's profoundly knowledgeable about things I never even thought to ask.) These lists are

published weekly in my area by a local website with information from the County Registrar's office: the address of the property, the names of buyer and seller, and the selling price. My mom takes a little time each week to scan through the lists for those properties in and around my ZIP code and writes them down. (Keep in mind that the lowest sale prices often indicate vacant lots and these should be eliminated from your list.)

Then she uses the postcards we made with SmartPractice.com. She transfers the list of names to

the postcards with our information on them and writes a timely, handwritten message on each one. (She knows these postcards are less likely to get trashed if they have a personal message.)

My mom estimates that she sends an average of 15 to 20 postcards per week. I see one or more of these cards come into the practice with a potential new client every month.

*Kathryn Primm, DVM, owns Applebrook Animal Hospital in Ooltewah, Tennessee, but has a growing career as a writer, a speaker and an online voice for veterinarians and pet owners alike.*



## 1 trick to get clients to love you

This is my favorite practice software marketing tip nowadays. Our veterinary assistant Kristen Heckman started it.

Here's as complicated as it needs to be, if you have any trouble directly saving to your software:

1. Take a pet profile picture.
2. Upload it to Facebook (but keep it private) from the smartphone, tablet or laptop—whatever you used to take it.
3. Save it back to your practice software in the patient's record.
4. Put it on everything the client gets.

Thanks to the photo's integration in our Improved Infinity software, the pic prints on medical records, take-home instructions and reminder postcards. Clients love it! We do too. I think pets get better medicine when you can see their cute faces—it's easier to remember them when you call to go over blood work or answer questions.

*Shawn Finch, DVM, is an associate at Gentle Doctor Animal Hospitals in the Omaha, Nebraska, area.*



## What vet techs say behind your back

Everyone loves on vet techs during National Veterinary Technician Week, but the rest of the year many of them don't get the recognition and respect they deserve. Check out veterinary technician and doctor confessions on the special abilities—and sad situation—of the talented credentialed technician at [dvm360.com/techconfessions](http://dvm360.com/techconfessions).



# 3 products

## to train up your team

### For a better you—Live training at Fetch, a dvm360 conference

Live CE at Fetch, a dvm360 conference for technicians, managers and receptionists, as well as veterinarians, can't be beat. Take advantage of flexible registration options to help best manage your precious time away from your practice. At Fetch you'll find inspiring and highly educational sessions, workshops and courses that are all about you and the work you do with a schedule built to maximize your opportunity to earn CE, with more than 450 hours of sessions over four days—all in an atmosphere that will relax and rejuvenate you. Choose from single- and multi-day options and register early for the biggest savings.

### For better clinical skills—VetReaLifeSim

Have no fear of blood draws with VetReaLifeSim. The simulator helps teach and assess clinical and communication skills in a variety of simulated clinical environments through lifelike skin and vein materials. It's designed to provide opportunities to practice drawing blood or starting an IV on a live or simulated animal, taking guesswork or nerves out of the equation. VetReaLifeSim comes in a variety of sizes to fit equine, bovine, ovine, feline and canine patients.

### For better communication—Team Meeting in a Box

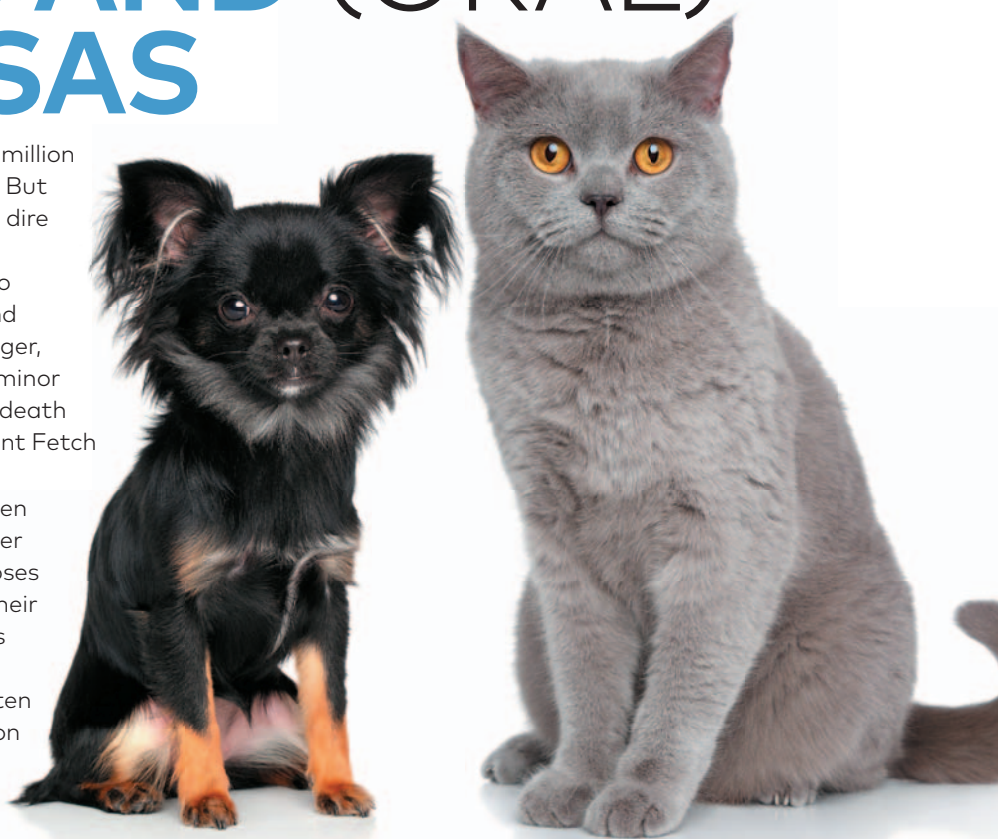
Whether you're the practice manager, a technician, a receptionist, a veterinarian or a team leader, you'll find all the tools you need to hold successful team training—from lesson plans and scripts to activities and client handouts to make each program easy to implement and market to pet owners. Topics range from clinical—diabetes management and stress reduction in dogs, to name a few—to personal improvement, such as mental health matters.



# DOSES AND (ORAL) MUCOSAS

We know, we know. You've heard a million times that cats are not small dogs. But maybe the differences are never so dire as when calculating a drug dosage. From shock and cardiac response to nutritional needs, CVC educator and VETgirl Co-Founder Garret Pachtinger, VMD, DACVECC, listed major and minor differences that could mean life or death within veterinary patients at a recent Fetch dvm360 conference.

One of the big differences between feline and canine patients, no matter the size, is the difference in drug doses and metabolism. Compared with their canine counterparts, feline patients metabolize and generally tolerate certain medications differently. Listen to three specific tips from his session at [dvm360.com/oralmucosas](http://dvm360.com/oralmucosas)



## Ask clients, 'How unique is your pet's name?'

Go ahead and ask pet-owning clients on Facebook or elsewhere this question. They loved it at my New Jersey veterinary hospital.

When someone comments with their pet's name and species, myself or a team member look it up in our client database and serve up its popularity—or uniqueness. We got a HUGE response: 67 comments at last count.

The best part? Half of these people aren't even our veterinary clients—yet. YET.

My only caveat: If you post this, make sure somebody on your staff has a day (or two) to respond to all the comments with numbers.

*Brent Dickinson is practice manager at Dickinson-McNeill Veterinary Clinic in Chesterfield, New Jersey.*

### Get paid for your great idea

Got a pearl to share?

Email it to us at [firstline@ubm.com](mailto:firstline@ubm.com).

We'll pay **\$50** for every tip we publish.



# SPREAD LOVE

Sometimes pet owners need more than medical help. Sometimes they need a reason to remember how much fun they can have with their loved ones again.

1

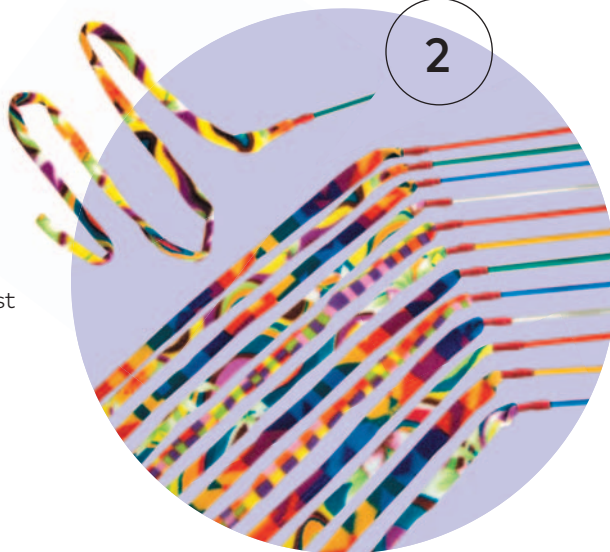


## 1. VET-APPROVED BOX

The popular BarkBox sends dogs new toys and treats every month in a subscription box. But what about a subscription box with items vetted by a veterinarian?

That's VetPet Box, which sends veterinarian-approved educational material along with toys, chews, wellness products, accessories and treats, starting from \$35/month for cats or small dogs (yes, they go up to giant dogs—don't fret, Irish wolfhound fans). They even have new boxes for puppies and kittens (pictured here).

2



## 2. AN OLD STANDARD IN CAT TOYS

Yes, there are new electronic laser pointers, motion-detecting cameras and cat feeders on the market. And they're cool. But, y'know, what if a cat owner just wants a simple chase toy? Cat Dancer Products has been making cat toys like this Cat Charmer Wand Toy since 1983. Go crazy.

3



## 3. A SQUEAKER YOU WON'T FEAR

Some dogs adore their squeak toys, and they squeak them all the time. All. The. Time. Even the most laid-back veterinary client might start losing their marbles.

So, there's Hear Doggy! toys, which come in lots of varieties, all tuned to an ultrasonic range in the 24 to 28 kHz frequency (humans can only hear from zero to 20 kHz).

Visit [dvm360.com/petproducts](http://dvm360.com/petproducts) for a closer look at these toys and others.





# When your patient's hips swing like Marilyn Monroe

Canine hip dysplasia and the secondary arthritis it causes can be a tricky treatment to navigate. Here's an in-depth look at what to do. **p2**



## SENIOR PET PAIN

November 2017  
[dvm360.com/toolkit](http://dvm360.com/toolkit)

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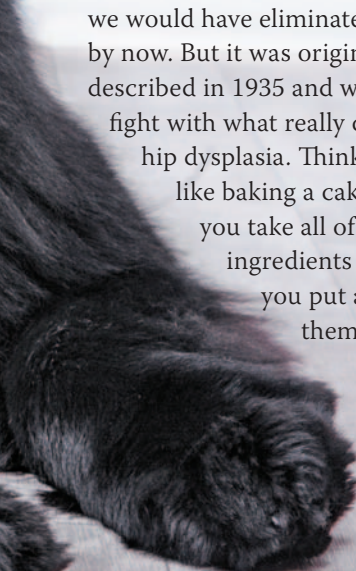


# When your patient's **hips swing** like Marilyn Monroe

Canine hip dysplasia and the secondary arthritis it causes can be a tricky treatment to navigate. Here's an in-depth look at what to do.

*By Matthew Brunke, DVM, CCRP,  
CVPP, CVA, and David Dycus,  
DVM, MS, CCRP, DACVS*





**H**ow many of us have seen a patient walk into the clinic with a noticeable hip sway, like a runway model? That's likely hip dysplasia—one of the most common orthopedic conditions in dogs. It leads to joint inflammation, which causes secondary osteoarthritis. We often hear with older dogs, "Oh the dog developed hip dysplasia." We perform a radiographic examination and they often have arthritic changes. As you know, the dog didn't just develop hip dysplasia. The dog had hip dysplasia and now has secondary arthritis because of it.

### **What went wrong?**

Hip dysplasia has a very complex inheritance—multiple genes combined with environmental influences lead to the development of what we perceive as hip dysplasia. If it were as simple as saying, "Take two dogs with bad hips, breed 'em together, you get bad hips. Take two dogs with good hips, breed 'em together, you get good hips," we would have eliminated it by now. But it was originally described in 1935 and we still

fight with what really causes hip dysplasia. Think of it like baking a cake: If you take all of the ingredients and you put all of them in

perfectly, your cake's gonna taste pretty good. If you flub one or two ingredients, you may not notice a big difference. But if you start making multiple mistakes in the ingredients along the way, your cake's not going to turn out very well. In this unfortunate mixture of genetics and environmental factors, the result is a bad hip.

What hip dysplasia really comes down to is laxity. What causes the laxity? Development can cause it, as can biomechanics of the hip, genetic influences, the amount of joint fluid produced, nutrition, pelvic muscle mass, weight and growth, and hormonal or environmental factors. Thus, hip dysplasia and the secondary arthritis it causes is the clinical manifestation of the above. And it's not all of these—it can be just two or three.

### **Digging into diagnosis**


It's time to get definitive about your diagnosis. Some key factors:

**Signalment.** Typically, large-breed, fast-growing dogs are affected. Young dogs (immature) can have clinical signs due to hip laxity, while older dogs (mature) may not have laxity but have secondary osteoarthritis—and those are the ones that we approach like our osteoarthritis (OA) patients.

### **Physical examination**

**findings.** Remember the previously mentioned dog walking down the hallway like a runway model with a nice hip sway? The severity of clinical signs depends on the severity of the disease. The lameness can be intermittent, progressive or severe. Make sure to





rule out all other possible causes like neurologic or cardiovascular issues or muscle atrophy. Here's the kicker: Any non-weight-bearing lameness, especially in a mature dog, is rarely caused by hip dysplasia but instead is commonly due to a ruptured cranial cruciate ligament. If an older dog has muscle atrophy, it can be hard to determine if the disuse is because of hip pain or neurogenic muscle atrophy from lack of intervention to the muscles that can be seen in dogs with lumbosacral disease. Another common finding in dogs with hip dysplasia and osteoarthritis is pain in the groin area, which we suspect is due to discomfort in the iliopsoas. We would argue that 100% of dogs with hip dysplasia and associated hip osteoarthritis have sensitivity in their iliopsoas, but not every single dog that has sensitivity in their iliopsoas has underlying hip dysplasia or hip osteoarthritis. Virtually any condition that alters the biomechanics of the hind limb can create secondary iliopsoas discomfort.

**Radiography.** Radiographs are needed to help identify hip laxity (or lack of femoral head coverage by the acetabulum) in immature dogs and osteoarthritis in mature dogs. To prevent



creating a nondiagnostic image, sedated, orthogonal views of the pelvis are needed for proper evaluation. The two primary methods of radiographic screening for hip dysplasia are the Orthopedic Foundation for Animals (OFA) view and the PennHIP method. The OFA is a ventrodorsal pelvic view with the patient's legs extended. It can be used to evaluate for hip conformation and the presence of arthritis. To be OFA-certified, the dog must be 24 months of age. The PennHIP method can be used in dogs as young as 16 weeks. It involves obtaining three radiographs, which are used to determine the distraction index (DI), or amount of laxity present in the joints.

## **Treatment to get away from the sway**

Treatment for hip dysplasia can be broken into conservative and surgical management. Surgical management in the immature dog is for prevention or laxity improvement. This is completed utilizing the juvenile pubic symphysiodesis (JPS) or double or triple pelvic osteotomy (DPO/TPO) in immature dogs. A JPS can be considered in “at-risk” breeds or in lines of dogs

with previously documented hip dysplasia. For JPS to be effective it should be completed by 16 weeks of age, but absolutely not after 18 weeks of age. A DPO/TPO is considered in patients between 6 and 13 months of age (as long as there is no evidence of osteoarthritis). More definitive surgical options include a femoral head and neck osteotomy (FHNO/FHO) or a total hip replacement (THR/THA); these procedures are usually reserved for dogs that have failed conservative management. An FHO or THR can be considered in both immature and mature dogs. Ideally, a dog needs to be about 10 to 12 months of age before considering a THR. In addition, we do not recommend that immature dogs or dogs that could possibly undergo a THR at a later date undergo an FHO.

Conservative management can play a role in controlling clinical signs in both immature and mature dogs. To goal of conservative management in immature dogs is to control pain and maintain range of motion, along with maintenance of pelvic limb musculature. Conservative management of mature dogs is focused on osteoarthritis management as with any

joint. In both immature and mature dogs, NSAIDs, chondroprotectants, omega-3 fatty acids and formal rehabilitation management are very effective.

The overall goals of conservative management are:

- 1** Control pain.
- 2** Maintain comfortable range of motion (especially in extension).
- 3** Maintain muscle mass.

The cycle of conservative management should begin with controlling pain so that a patient can comfortably exercise. Including daily exercise will help with maintaining range of motion and muscle mass. In addition, daily exercise with diet will help control body weight, which in return leads to less stress on the joints and, thus, more comfort for daily exercise. During periods of worsening of clinical signs, additional multimodal management should take place and may include pharmaceuticals, joint injections, formal rehabilitation therapy and at-home exercise plans.

Regardless, early detection is key—in susceptible breeds, hip palpation should begin by 12 weeks of age. If a dog has a positive Ortolani sign, comes



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from a susceptible breed or has a history of hip dysplasia in the line it should undergo a PennHip evaluation. If a dog has a high DI, then a JPS can be considered at 16 to 18 weeks of age.

## **Rehabilitation: Back to a normal gait**

The goals of rehabilitation in orthopedic patients with hip dysplasia include maintaining or improving muscle mass, building muscle support around the lax or arthritic joint, reducing pain and encouraging weight loss.

Physical modalities can include thermotherapy (cold and warm packs). The benefits of cryotherapy are established and warm compresses can be used to relieve pain, cause vasodilation and also help to warm up stiff, tight tissues to begin other exercises.<sup>1</sup>

Therapy by light amplification by stimulated emission of radiation (y'know, LASER) has become very popular in recent years. There are different wavelengths, amplitudes, treatment times and other factors that must be considered. This process has also been called photobiomodulation and has been proposed to activate cytokines and other tissue factors, decrease pain and inflammation and

increase wound healing. Remember to always use goggles for both humans and patients to avoid damage to the eyes (doggles, anyone?).

Manual therapies are skilled hand movement techniques intended to improve tissue extensibility, increase range of motion, induce relaxation, mobilize or manipulate soft tissues and joints, modulate pain and reduce swelling and inflammation. These can include massage and joint mobilization. The basic principles of joint mobilization work from physiologic motions and accessory motions. Physiologic motions are normal active motions that are available at a joint (e.g. flexion, extension, abduction and internal rotation). Accessory motions are movements that can't be performed actively (e.g. distraction, compression, glides, spins and rolls).

Therapeutic exercises are the “meat and potatoes” of rehabilitation. These are designed to work a patient from a recumbent position back to normal (or as close as possible) activity following injury or insult. Exercises in this group can include Cavaletti rails, balance boards, balance disks or other core strengthening equipment. Once walking on a flat nonslip surface

is achieved, adding varying degrees of difficulty (uphill, through different traction, etc.) can be included. Sit-to-stand exercises and core strengthening with dancing exercises are also helpful. Daily leash walks are also essential to their exercise regimen. The key is to keep the patient moving and building.

## **Did we sway you?**

To sum it all up, hip dysplasia has a complex pathophysiology with the predominant feature being joint laxity. Many factors contribute to joint laxity. Clinical signs will vary depending on the stages of disease—but remember, an older dog that is acutely non-weight-bearing will often have a cruciate rupture, not be experiencing its first signs of hip dysplasia. A thorough physical examination with good-quality radiographs is needed. Early detection is key so if needed a JPS can be completed. If the patient is over 18 weeks of age, early identification will help you counsel the owners on the appropriate initial conservative management options and what to expect in the future.

## **Reference**

1. Millis D, Levine D. Aquatic therapy. In: *Canine rehabilitation and physical therapy*. 2nd ed. Philadelphia: Elsevier, 2014.

# How to manage acute on top of **chronic** **pain** in your older patients

A case scenario: Rufus, who is already combating long-term osteoarthritis (OA), is in the exam room because he was injured in an incident with a neighbor dog.

**H**e'll likely need some pain medication on top of what he might already be receiving for his OA. Oh. Eh. What to do?

We asked Michael Petty, DVM, CVPP, CVMA,



CCRT, CAAPM, what he does in situations like this, fresh from his presentation on this very topic. Dr.

Petty says older animals—the ones more likely to have chronic pain—can't quite handle medications as well as their younger brethren, so reduce the dose at first. Scan to watch the video to hear more from Dr. Petty.







### Key takeaway

When you're dealing with an older patient in chronic pain that comes in for acute pain due to injury or infection, start with MUCH lower doses—like **40-60%** lower than what you'd normally prescribe—for opioids, and gradually increase them as needed.



# 6 tips for managing senior cats

Managing your senior feline patients goes much deeper than nonslip mats. Consider these tips from Dr. Kelly St. Denis in order to better manage your senior cats.

*By Hannah Wagle, Assistant Content Specialist*

**B**ecause so much thought must go toward patient visits before, during and after they've left your clinic, some things may get glanced over when they shouldn't. This is especially crucial when it comes to senior patients, who need extra attention during their visits. Kelly St. Denis, DVM, DABVP, of Charing Cross Cat Clinic in Brantford, Ontario, knows this all too well and shared her tips with attendees at a recent Fetch dvm360 conference how to better manage your senior cats.

**1 and 2. Spend more time with your senior cats, and focus on their comfort**

It doesn't take much time

in their company to realize that senior cats don't handle stress well.

Remember that taking your time with feline senior patients is key. A 20-minute appointment isn't enough to get through all that could be wrong with a senior patient. Try 30-minute appointments to make your exam thorough.

Try letting patients out of their carriers and studying what they do. This gives you clues about what's going on with a senior feline patient.

### **3. Collect a full history at each visit**

Knowing the history of your senior patient is imperative. Make sure the client is thorough to ensure that you're up-to-date before starting your checkup.

Or get a brief history before your client brings



their patient into the clinic, with a list of questions ready to read off to make sure that you catch everything, each and every time.

#### **4. Play dumb when you're talking about medication**

When doling out medications your client will administer, you need to teach the client the medication dosage and frequency, as well as how to administer the medication.

If you're introducing the medication to the client for the first time, make sure that your client fully understands what, when and how often to administer the medication. Ask the client to repeat what you've explained back to you, and can check for any flaws in the planned routine.

#### **5. Talk about appetite and weight loss**

When asking about appetite and diet, mention water intake as well. Cats can easily get their required water intake from canned food, especially if their diet consists of 100% canned food. If the patient is drinking water while eating a canned diet, this could be a sign worth noting.

When discussing weight loss with clients, start by explaining the loss in terms

of percentage of previous body weight. To emphasize the loss further, compare the percentage loss to your own body weight for the client. Would it be normal for you, the veterinarian, to lose over 20 pounds without reason? No, and the same goes for the senior patient.

Next, check the body condition score (BCS). Free online charts, such as Purina's Body Condition System Sheet, are excellent tools to determine the weight and visible health of your senior patients. Muscle condition scoring should also be conducted for every patient at every visit.

#### **6. Check for signs of pain**

Prescribing antibiotics is almost second nature to veterinarians. But when it comes to pain in cats, prescribing analgesics doesn't always come to mind. If your senior pet is likely to be in pain, why wouldn't you choose to give pain medication? In the absence of obvious clinical signs, if the patient's disease or condition is likely to be painful, analgesics are indicated.

Start by using pain assessment charts to check for pain and get your team on the same page about the care

these senior cats need.

Here are tips and tricks you and your team can apply from checkup to checkup:

- If your senior patients seem painful, give pain medication beforehand and wait until they're ready to proceed with the checkup.

- Consider pain alternatives, such as acupuncture, massage and laser therapy. Keep in mind that pain medicine should still be administered as well.

- Teach clients to manage their senior pets' weight to help manage pain.

- Don't assume cognitive changes if a cat is not acting like itself. Rule out and treat medical causes first.

Once all other diseases are ruled out or under control, environmental enrichment and other aids may reduce signs of cognitive dysfunction.

Managing senior feline patients is hard for the veterinarian, the patient and the client. "I have the same woes of medicating my cats that my clients do," St. Denis says, talking about her two cats, which are both painful. "That's just the way it goes."

But getting to see even the smallest of improvements in painful patients can mean the world to everyone involved.

## Team handout:

# 7 clinic accommodations for feline 'oldsters'

Don't let your veterinary practice commit these feline faux pa(w)s with old, painful cats.

**H**ow many times have you described an older feline patient as being as pliable as a pad of butter? Ever?

For Robin Downing, DVM, MS, DAAPM, DACVSMR, CVPP, CCRP, butter-like cats are the norm thanks to a few tweaks to both her clinic and her approach. Use the QR code here to download a printable handout of her top adjustment advice for old cats (which will make feline youngsters purr too). (You can always check out [dvm360.com/seniorpaintoolkit](http://dvm360.com/seniorpaintoolkit) for more.)

Dr. Downing saved her most important tip for last: Use the least amount of restraint as possible—a recommendation that becomes more and more attainable with each accommodation from the handout you implement.



Scan this code to  
download the free  
client handouts or find  
more information at  
[dvm360.com/oldsters](http://dvm360.com/oldsters)







# Checking in on patients

Every dying pet deserves a plan. These tips illustrate the power you have in veterinary medicine to help pets live longer—with a better quality of life—for days, week or months on their path to a peaceful death.

*By Robin Downing, DVM, DAAPM, DACVSMR, CVPP, CCRP, CVA, MS*

In today's world of high tech and social media, clients are comfortable operating in the virtual world. It's now a practical option to remotely monitor dogs and cats approaching the end of their lives. While many canine patients enjoy car rides, as they age and become infirm, travel may become challenging for them. Entering and exiting the vehicle may become difficult enough that very large dogs may become impossible to transport. Small dogs who are losing their sight or hearing may feel disoriented if removed from their home environment. And cats are notorious for resenting car transport, unless they are conditioned to it early in their lives.

Rather than adding more fear, anxiety and stress to the lives of pets and pet owners, it makes sense to create strategies for remote monitoring.

One strategy is for a trusted veterinary team member to make regularly scheduled house calls to evaluate the pet in its natural environment. This person can be a veterinarian (if needed) or a well-trained and experienced veterinary nurse. These reassessments should include a hands-on pain assessment as well as a meaningful dialogue with the client about how the pet's doing. A veterinary nurse could take advantage of video streaming to interact in real time with the appropriate individual back at the practice to modify feeding,

pain medication dosing and other aspects of the care plan.

And remember, using video in real time can connect clients and pets directly to the practice. The pet owner can ask questions and answer important questions from the veterinarian. These FaceTime or Skype calls are an opportunity to review medications and feeding. Best of all, a veterinarian can see firsthand the pet's environment and movement through regular activities.

Your veterinary team is poised to offer comfort and care as the days fade and pets reach the sunset of their lives. So make a plan to offer these pets and their parents comfort and support until their last good day—and beyond.

# Data: Pet owners on pain

Whose job is preventive health? How often do young pet owners turn to nutrition to solve their pet's pain problems? Dive into the new data from The Pet Owner Paths research.

Older dog owners value pills over special diets when it comes to management of their pets' pain. Will a new view on the importance of nutrition in managing pets' medical conditions be a growing trend among America's veterinary clients?

## PAIN AND NUTRITION

Millennial dog owners concerned about pain issues are somewhat more likely than older dog owners to use nutritional and alternative therapies for their dogs.

### What do pet owners use to manage their dogs' pain?

	Dog owners	Older owners	Millennial owners
Oral pill or tablet	62%	68%	52%
Nutritional supplement	43%	45%	40%
Special food	23%	13%	38%
Alternative therapy (massage, acupuncture, physical therapy)	20%	13%	30%
Injection/shot	19%	9%	33%
Liquid medicine	17%	6%	34%
Other	3%	3%	2%

Source: The Pet Owner Paths research, sponsored by Merck, Unifenced and Kynetec

# Painful realities:

## Data on pain management protocols

Every pet deserves to be pain-free. So how do veterinarians and team members handle their pain management protocols? We've got the data that points to some (slightly?) painful realities.

**dvm360 asked:** For cat and dog spays and other routine surgeries in your practice, is pain management a mandatory part of the service or an option that pet owners can accept or decline?



If pain control is optional ...

**only 29%**  
of respondents say

**more than 75%** of their cat-owning clients opt for pain management for routine surgeries.

**only 36%**  
of respondents say

**more than 75%** of their dog-owning clients opt for pain management for routine surgeries.

The dvm360 2015 Feline Care Study was sent by email to subscribers of *dvm360* magazine, *Vetted* and *Firstline*. The survey generated 784 responses from veterinarians, creating a margin of error of about 3 percentage points (although sample sizes—and statistical reliability—on individual questions may be lower).



# The faces of chronic pain

The last thing you want is to allow a pet to experience or subsist in pain. Take a trip through this photo gallery to make sure your pain detector is set on high and ready to take action.

**W**ith so many options now at your disposal to take the pain away or prevent it in the first place in veterinary patients, paying more attention to where you or your clients might be missing it is a vital exercise. We worked with Robin Downing, DVM, MS, DAAPM, DACVSMR, CVPP, CCRP, on a photo gallery of pets in chronic pain to give you a visual guide to brush up your recognition.

To see more faces and read more stories, visit [dvm360.com/seniorpaintoolkit](http://dvm360.com/seniorpaintoolkit).

## THE GRIMACE OF A HERO

This dog, Roselle, is a life-saver. She was the guide dog of Michael Hingson, a man who was blind and caught in one of the twin towers during the 9/11 attack. Roselle led Hingson and others to safety through a smoke-filled staircase. You can read about it in *Thunder Dog*. Dr. Downing met Roselle and Hingson many years later when Hingson was a keynote speaker at a veterinary conference, and she noticed something about Roselle—she was in pain. In this photo that Dr. Downing took of Roselle at the event, note that that her ears are a little bit forward and she is grimacing. How can you tell? Dr. Downing says the edge of Roselle's mouth should align with the outer edge of the eye, and hers doesn't. She is



pursing her lips because she is preoccupied with pain from osteoarthritis. Dr. Downing talked with Hingson and his wife about Roselle's signs of pain and told them to have their veterinarian call her so she could help Roselle be comfortable as she was about to enter her retirement. Roselle's veterinarian did work with Dr. Downing, and Roselle retired in contentment. In fact, Dr. Downing saw Roselle at another conference a few years later and she looked completely different—relaxed and happy, as a hero should be.

## THE PAIN OF MALIGNANCY

Spooky's chronic pain is caused by a malignant tumor. Note his raised paw and panting—not a comfortable dog. To ease Spooky's distress, a catheter placed in his rear leg will deliver not only his chemotherapy but also intravenous pain medication to get him back to being comfortable.



## A TRUE TRANSFORMATIVE TALE

The owner of this dog had no idea that the reason her dog was wandering the house at night was because she could not get comfortable—her dog was in pain due to osteoarthritis. Dr. Downing and her crew used a pain management protocol to get this dog's pain score to 1 to 2 out of 10. The owners' response? Tears with the proclamation, "I had no idea. You've changed her life. She sleeps through the night now." Dr. Downing says this lack of knowledge about signs of pain in pets is extremely common.



## MISERY LOVES COMPANY

In this photo, Dr. Downing says Rascal is clutching his favorite toy, Tigger. His worried face reflects his overall discomfort. Rascal had severe osteoarthritis in his elbows and hips, as well as osteoarthritis in several areas along his spine. His mobility was severely limited, and he had lost interest in his activities of daily living. His family was worried that they should consider euthanasia. After Dr. Downing implemented a pain management program that included physical therapy, Rascal's pain was controlled, and he was able to relax with Tigger and enjoy a dog's life.



## THE FINE ART OF FEELING

This majestic Maine coon, Otis, was one of Dr. Downing's cats who had osteoarthritis. She palpated him on a regular basis, as pictured here, assessing for evidence of pain in his hindquarters. He lived until almost 19 years of age and eventually did need some pain medication later in his life, supplemented by chiropractic treatment and acupuncture.



# Handouts for handling pet pain and death

From the first signs of pain to helping children and surviving pets who have lost their best friend, here are veterinary client handouts to help explain many important questions throughout.

**E**uthanasia can often leave a veterinary professional at a loss for words. Finding the right thing to say at the right time and knowing which pet owner will react positively or negatively can make an already difficult process even tougher. We've found client-facing handouts for you to use, from the first signs of pain to after a euthanasia has taken place. Here's the rundown.

## Reality check: How old is your pet in human years?

We're sure your clients are probably still working from the old adage of one dog year equaling seven human years. You know it takes more than that simple math to get an accurate read on how "old" a pet really is, as well as the important difference between senior and geriatric

pets. Show your clients the real numbers using this age comparison chart.

## Lack of mobility may mean less time with your pet

Pets that have lost their mobility are some of the most heart-wrenching examples in euthanasia cases. No longer are they the playful cats and dogs they used to be. Get the leg up on mobility problems in senior pets by helping them get back to the things they used to do. Here are two great client handouts for mobility: One featuring great exercises for the four-legged workout, the other featuring five ways to improve your senior pet's health.

## Osteoarthritis in your senior cat: Do you know the signs?

Just like in humans, sometimes mobility exercises aren't enough to keep osteoarthritis at bay as a pet ages. Your client should know this, as well as the signs of the painful disease, so that you and the pet owner can alleviate any suffering and get that painful cat back to its spry self. Here's a helpful client handout listing the signs of osteoarthritis a cat might show.

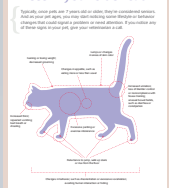
## Stress the importance of senior pet care to clients

Whether it's osteoarthritis or simply the hurdles that come with old age, your veterinary clients should be aware of the importance of senior care in their dog or cat. Encourage them to stay ahead of disease

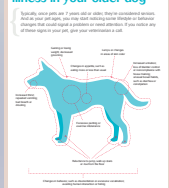




#### Watch for these signs of illness in your older cat



#### Watch for these signs of illness in your older dog



in older pets with wellness exams and preventive diagnostics, and give them a handout listing signs of illness in older dogs and cats.

When they're separated, the surviving pet may demonstrate a "distress reaction"—or as clients might say, "Lady's just not herself since Teddy passed. She's depressed." Here's a client handout explaining how a pet may react to losing their best friend, and what pet owners can do to help.



Scan the QR code here to find links to these handouts and more from [dvm360.com/seniorpaintoolkit](http://dvm360.com/seniorpaintoolkit).



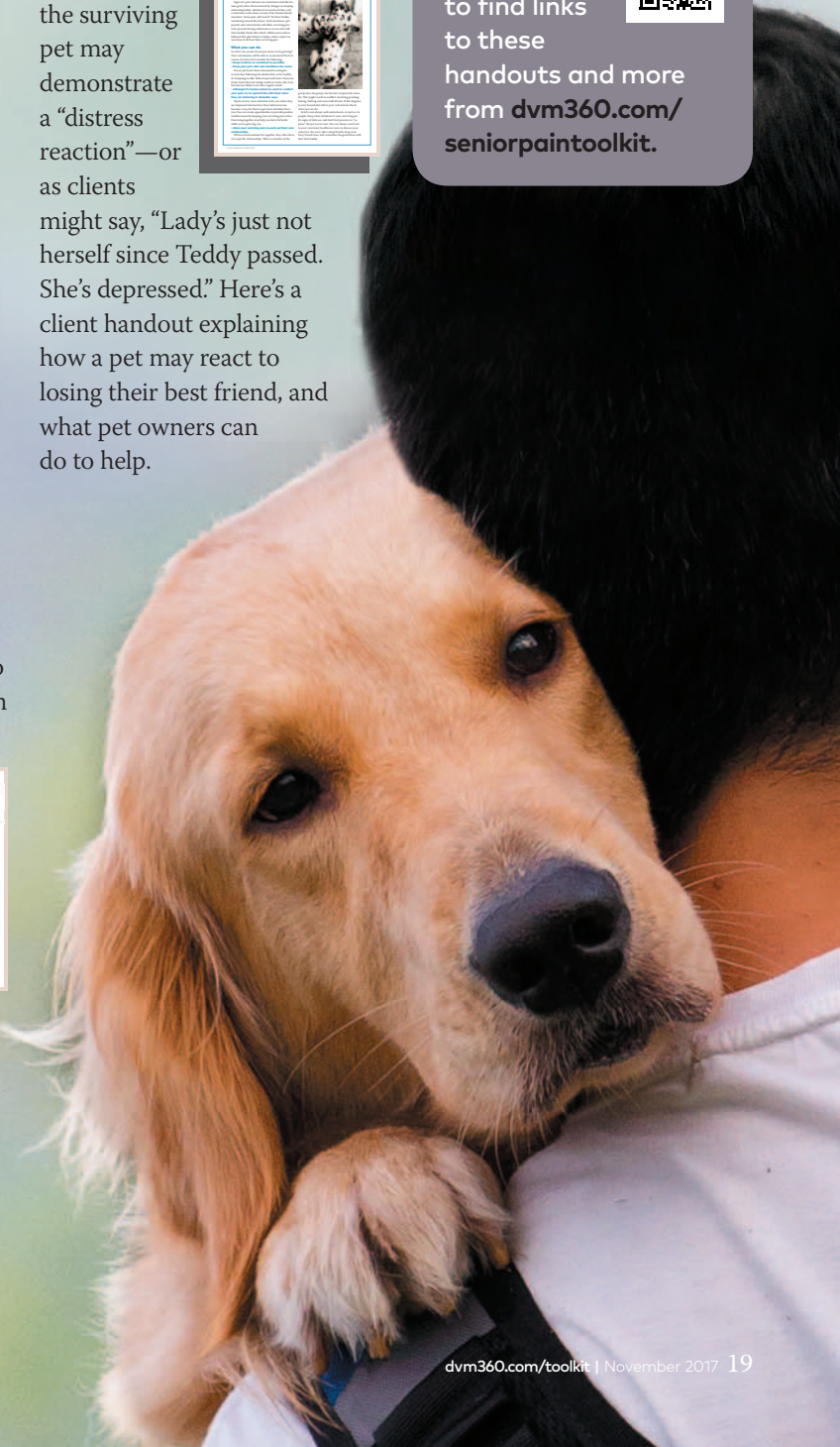
### Help kids say goodbye to their pets

Euthanasia offers a unique opportunity to help children understand the process of death—perhaps for the first time. Still, it's a tricky process to guide a child through, and when a parent asks you for advice, you might not know what to say. Here's an age-appropriate client handout full of advice to guide parents through the euthanasia discussion with their kids.



### Helping pets who have lost their best buddy

The loss of a pet can be hard on the entire family—including other pets that are highly attached to the deceased.



# 2 tools to manage patient pain

(Not what you think!)

That's your veterinary team and a good client questionnaire. Hear all about it from pain management expert Dr. Michael Petty.

Veterinary clients can get up in arms if they assume you're trying to make money off of pets' discomfort with pharmaceuticals, supplements, diagnostics and clinic visits. But you know the truth: You care about pain management because you care about the patient's well-being. You're not just padding the bill here, folks.

Michael Petty, DVM, CCVP, CCRT, gave a sobering perspective on pain in pets at a recent Fetch dvm360 session about the business of pain management: "Dogs and cats live in the moment—they think

that what's happening to them right now is forever. So I think it's more pressing for us to help these animals get out of pain since we can't explain to them, 'It'll be better in a couple of days.'"

In his presentation, Dr. Petty discussed two ways to better detect pain in practice.

## 1 Receptionists and technicians: The best pain scouts

Pain is apparent in your veterinary patients once you know what to look for. In this audio clip—hear it by scanning the QR code above—Dr. Petty explains the importance of



all team members being on the same page in

identifying and alleviating pain and the special role that receptionists and technicians play in that.

## 2 Client questionnaires: The proof is in the progress

A form with good questions for clients is vital to identifying pain in pets. Scan the QR code to hear

Dr. Petty explain why, what





Find all these tools in one place at  
[dvm360.com/seniorpaintoolkit](http://dvm360.com/seniorpaintoolkit).



question you should never ask a client and how to handle clients if they seem to be oblivious to their pets' pain.

Which form should you use? Dr. Petty says that if you use AAHA's client handouts for identifying pain in dogs and cats, interpret the "vocalization" section with care—dogs and cats don't vocalize when they're in chronic pain."

He recommends the Canine Brief Pain Inventory for dogs and the Feline Musculoskeletal

to hear how you can customize your own form from available resources.

An added value of those questionnaires is they can be used as tools for measurement on how the patient is improving and showing clients the effectiveness of your treatment. Listen as Dr. Petty explains by scanning the code at right.

If you show your clients you're making a difference, they'll keep coming back—and your patients will be happier and healthier for it.

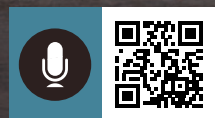
## Get your name in the pain game

Want to make pain management a specialty in your practice? Dr. Petty suggests starting with training in physical rehabilitation, acupuncture and myofascial trigger points. Myofascial trigger points? Yes. Dr. Petty says that if he were starting all over in pain management in practice, the first thing he would do is to take a course such as those offered by Rick Wall, DVM, CCRP, DAAPM, CMTPT.

"It's eye-opening in terms of diagnostics," says Dr. Petty.

Another possibility is certification through the International Veterinary Academy of Pain Management—available to both veterinarians and technicians in your practice.

Once you're revved up to alleviate pain in pets wherever it stands, Dr. Petty says you'll need referrals. We're not talking referrals from other veterinarians, but client referrals. When owners of a pet that has had chronic pain comes away from your practice with a now much more comfortable pet, ask them to talk about your practice with friends and family with pets facing similar problems.



Pain Index for cats. Use the QR code





# Tips for dog and cat owners: Recognizing signs of pain in pets

Sleeping more, eating less, not using the litter box. These behaviors might not signal pain to the owners of your veterinary patients—unless you clue them in first.



**J**anice Huntingford, DVM, DACVSMR, CVA, CVPP, CCRT, CAVCA, wants pet owners and veterinarians to work together to identify pain in dogs and cats. That way treatment can commence earlier—and pets can be comfortable more quickly. Watch the video to learn how Dr. Huntingford describes often-overlooked signs of pain to pet owners, and scan her tips below.

Pain management in pets should be a concern to both the veterinarian and the pet owner. The pet owner is likely the first to notice that their pet is in pain if they know what to look for. Signs of pain in dogs can include:

- > decreased appetite
- > limping
- > sleeping more
- > interacting less with family members
- > shaky legs
- > difficulty rising or lying down
- > difficulty jumping
- > difficulty going up and down stairs
- > general inability to do the things they like to do.



It can be tricky for owners to identify pain because cats are masters at hiding signs of weakness.

Cat owners should be encouraged to watch for:

- > decreased use of the litter box
- > not jumping up on counters or couches (when they used to do that)
- > not interacting with their family
- > decreased grooming
- > a negative reaction to touch, such as biting.

If pet owners do recognize these signs of pain, they should visit the veterinarian and say, "I've noticed these problems; do you think my animal is in pain?"

For their part, it's a good idea for veterinarians to use a tool such as the Canine Brief Pain Inventory during every single visit, which will help your clients realize a pet may be in pain.

If you can pinpoint that the animal is in pain, you can start appropriate pain management.

## Myofascial pain: Working out the knots

### What is the deal with this syndrome?

Overstimulated muscle fibers. We're not talking muscle-bound weightlifters here, but a recently officially recognized pain syndrome in pets and people. Although this type of pain doesn't show up on radiographs or other objective tests, it is a painful experience for your veterinary patients. Find out more from rehabilitation and pain management specialist Dr. Janice Huntingford.



# quellin.<sup>®</sup>

(carprofen)

## soft chewable tablets

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

### BRIEF SUMMARY:

Before using quellin soft chewable tablets, please consult the product insert, a summary of which follows:

**CAUTION:** Federal Law restricts this drug to use by or on the order of a licensed veterinarian.

**PRODUCT DESCRIPTION:** quellin (carprofen) is a non-steroidal anti-inflammatory drug (NSAID) of the propionic acid class that includes ibuprofen, naproxen, and ketoprofen.

**INDICATIONS:** quellin is indicated for the relief of pain and inflammation associated with osteoarthritis and for the control of postoperative pain associated with soft tissue and orthopedic surgeries in dogs.

**CONTRAINDICATIONS:** quellin should not be used in dogs exhibiting previous hypersensitivity to carprofen.

**WARNINGS:** Keep out of reach of children. Not for human use. Consult a physician in cases of accidental ingestion by humans. **For use in dogs only.** Do not use in cats. All dogs should undergo a thorough history and physical examination before initiation of NSAID therapy. Appropriate laboratory tests to establish hematological and serum biochemical baseline data prior to, and periodically during, administration of any NSAID should be considered.

**PRECAUTIONS:** As a class, NSAIDs may be associated with gastrointestinal, renal and hepatic toxicity. Effects may result from decreased prostaglandin production and inhibition of the enzyme cyclooxygenase which is responsible for the formation of prostaglandins from arachidonic acid. When NSAIDs inhibit prostaglandins that cause inflammation they may also inhibit those prostaglandins which maintain normal homeostatic function. These antiprostaglandin effects may result in clinically significant disease in patients with underlying or pre-existing disease more often than in healthy patients. Carprofen is an NSAID, and as with others in that class, adverse reactions may occur with its use. The most frequently reported effects have been gastrointestinal signs. Events involving suspected renal, hematologic, and neurologic, dermatologic, and hepatic effects have also been reported. Concomitant use of carprofen with other anti-inflammatory drugs, such as other NSAIDs or corticosteroids, should be avoided because of the potential increase of adverse reactions, including gastrointestinal ulcerations and/or perforations. Carprofen is not recommended for use in dogs with bleeding disorders, as safety has not been established in dogs with these disorders. The safe use of carprofen in animals less than 6 weeks of age, pregnant dogs, dogs used for breeding purposes, or in lactating bitches has not been established.

### ADVERSE REACTIONS:

During investigational studies for the caplet formulation with twice-daily administration of 1 mg/lb., no clinically significant adverse reactions were reported. Some clinical signs were observed during field studies which were similar for carprofen caplet and placebo treated dogs. Incidences were observed in both groups: vomiting (4%), diarrhea (4%), changes in appetite (3%), lethargy (1.4%), behavioral changes (1%), and constipation (0.3%).

For a copy of the Safety Data Sheet (SDS) or to report adverse reactions call Bayer Veterinary Services at 1-800-422-9874. For consumer questions call 1-800-255-6826.

ANADA 200-555 Approved by FDA

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# A Fear Free success story

**W**hen Taz, a 14-month-old beagle, exhibited behavior changes after being neutered, his owners and veterinary caregivers took action. Fetch dvm360 conference speaker Debbie Martin, CPDT-KA, KPA, CTP, LVT, VTS (behavior), says that following a consultation, Taz went through a multi-step training process that started in the home and ended in the exam room, with Taz easily accepting a physical exam and vaccines. That's an obvious medical win, but what's the pet owner's take on this?

"She just feels like she was able to get her dog back, and he trusts her more at home now too," Martin says. Watch the video at [dvm360.com/fearfreesuccess](http://dvm360.com/fearfreesuccess) to find out how they did it.



## More Fear Free and low-stress resources

Find a rundown of low-stress techniques at [dvm360.com/lowstresstechniques](http://dvm360.com/lowstresstechniques)

# Bored SICK

Create an enriching space  
for patients that puts  
healing top of mind.

*By Sherrie Yuschak, RVT, VTS (behavior), KPA-CTP*

dvm360  
**leadership**  
CHALLENGE  
pet enrichment

**y**our practice was probably designed with hygiene, client comfort and team efficiency in mind. But what about the patient's experience? Whether animals are visiting for a couple of hours or hospitalized for days, you can adapt your environment to create a peaceful, healing space that offers enrichment. Environmental enrichment is often





thought of as a tool to create stimulating environments for zoo animals. But enrichment reaches beyond stimulation to benefit the patient's health. A properly enriched environment supports biological and physiological balance to maximize the pet's well-being. Enriched environments promote the expression of species-typical behavior while providing the option for choice.

## Why is enrichment so important?

**1** Consider these reasons: The patient's experience has an immediate and potentially lasting effect on the animal's physical and emotional health. When the environment is in conflict with the patient's needs, patients may experience stress.

Stress has been well-documented to negatively impact health, and it confounds patient monitoring through tachycardia, hyperthermia, elevated glucose, leukocytosis and so on. Patients may also

experience delayed healing and lowered immunity due to increased glucocorticoids. And an animal's behavior changes under stress, which can create additional road blocks to your best efforts to offer high-quality care.

**2** When patients are stressed, scared or anxious, the effects can spread. For example, when pets react with aggression, team members who provide care may be injured. Team members may also feel frustrated or impatient or even experience compassion fatigue. Emotionally affected team members may demonstrate altered behavior, and their relationships with other team members may suffer. This negativity can flow into the client's visit experience and to additional patients, creating a balloon effect throughout the hospital.

**3** Practicing enrichment techniques encourages you to see animals as individuals that need your care. Some patients are better able to manage environments that lack enrichment. This can lead us to believe distressed patients are individually flawed, and we may not recognize the pet's experience. Genetics, overall physical and emotional health status and life experience help determine a patient's coping ability.

Every patient has an individual threshold, and exceeding that threshold causes distress.

Each pet enters your practice with a starting level of stress, and each sensory experience

(sight, sound, smell, taste and touch) either raises the stress level toward that threshold, maintains or decreases the stress level. Impressionable puppies and kittens and older patients with chronic health conditions may be the most vulnerable.

Every visit is an opportunity to shape the patient's learning history toward a positive, low-stress experience—and help patients achieve the lowest possible stress level from the time they arrive to when they leave your practice.

First, consider the sensory capability of the species you're working with. Your perception can be a helpful guide, but you'll also need to extrapolate. Dogs and cats have an enhanced sense of smell, and they can hear higher frequencies that shape their experience.

As a start, walk through the facility as if you were a patient. What do you hear? Strange voices, vocalizing animals? What if you were in a metal cage in the hospital ward? Does it echo? Is the metal floor cold? What do you see? What if you were a cat in a carrier with your limited view swaying? Can you smell the cleaning chemicals and anal gland excretion? What if you were a golden retriever? Is the floor slippery under your furry feet? This experiment can help identify areas that may be irritating or fear inducing for patients. Then you can make modifications to alter or mask the offensive stimuli.

Now that you've identified your problem areas, let's explore some tips to offer enrichment for visiting and hospitalized pets.



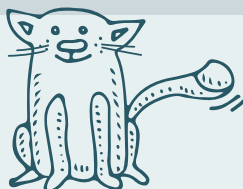




## Taste

Food is instinctively pleasant for animals. Use palatable food treats during all aspects of the visit to subconsciously influence the patient's emotional state (and behavior). Consider these tips:

- Warm food to enhance scent and improve the "mouth feel."
- Tune in to the patient's preferences. Some pets have very specific food preferences—especially cats—and they will benefit from familiarity. If a patient isn't eating, remove the food to prevent exacerbating any nausea.
- Avoid unnecessary changes of diet during hospitalization, and ask clients to bring the pet's favorite food.
- Make any necessary diet changes once the patient has returned home to prevent negative association of the new food with any hospital stress or nausea.
- Hide medication in food as a first option.
- Provide food stuffed toys as enrichment to distract and relieve boredom in hospitalized patients.
- Freeze canned food or moistened dry diet to provide a longer lasting experience.



## Sound

Barking, yowling, people's voices and veterinary equipment (think ultrasonic cleaner, dental scaler, centrifuge and so on) contribute to indoor sound pollution. Animals begin to show signs of stress when environmental sounds reach 85dB. Sharp, startling sounds can be most damaging. Take these steps to manage sound in your practice.

- Monitor and assess your patient areas using decibel meters, which are available as smartphone apps.
- Add sound dampening ceiling panels to the hospital ward or kennel to decrease the amplification of barking.
- Use white noise machines to supply a consistent background in exam rooms as masking enrichment.
- Play calming music designed for pets, which can provide enhancing enrichment.
- Avoid fast-paced loud music in patient areas. Team members who prefer this music can use in-ear headphones when appropriate.
- Silence alarms on patient monitors and infusion pumps when not attended (for example, overnight) to prevent incessant beeping.
- Consider using brooms instead of vacuums when patients are near. Many pets are afraid of vacuums.

## Sight

Cats and dogs may be fearful and socially conflicted at the sight of unfamiliar animals. Use creative enrichment with visual barriers to lower fear and stress. Consider these examples:

- Cardboard boxes or the bottom of a carrier can allow a hiding place during an exam or inside a cage.
- Towels can cover carriers and cage fronts.
- Partitions for the lobby or treatment room can include half walls, plants, shelving units, cardboard display boards and free standing pet gates covered with a towel.

Note: You can also modify lighting to enrich wellness. Dogs and cats are more sensitive to light stimuli than people. Consider low wattage bulbs or dimmers in exam rooms, and use spot lighting as needed.

## Touch

When an animal is fearful, this often activates the pet's escape response. Slippery surfaces hamper traction and panic can ensue. This can shift the patient into defensive aggression as an alternate coping mechanism.

- Provide nonslip abatementers for hospital floors, treatment tables, the scale and hospital cages to minimize stress. You can find many commercially available easily disinfected mat options to enrich smooth surfaces.
- Cold veterinary surfaces can also be aversive to patients. Think about how they seek furniture, blankets and beds at home. A towel or blanket provides cushion and warmth. Heated pet beds and pads can be especially enriching for cats and elderly patients.

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# Easy exam room enrichment steps

**P**rep the exam room for patient arrival. This includes soft lamp lighting (spot lighting from phone when needed), calming music, white noise, a thick mat for floor seating if preferred, a variety of treats, supplies for the exam and diagnostics at the ready.

Remember, when people enter and exit rooms, this is arousing to the pet and can increase stress. It's also a good idea to have a laptop on hand for scheduling rechecks. This minimizes the pet's time in the lobby.

Position the animal according to

the patient's preference for exams, diagnostics and treatment to minimize the pet's stress

Fear and stress activate flight, fight, freeze or fidget responses. It's important to maintain the perception of flight to minimize escalation to fight.

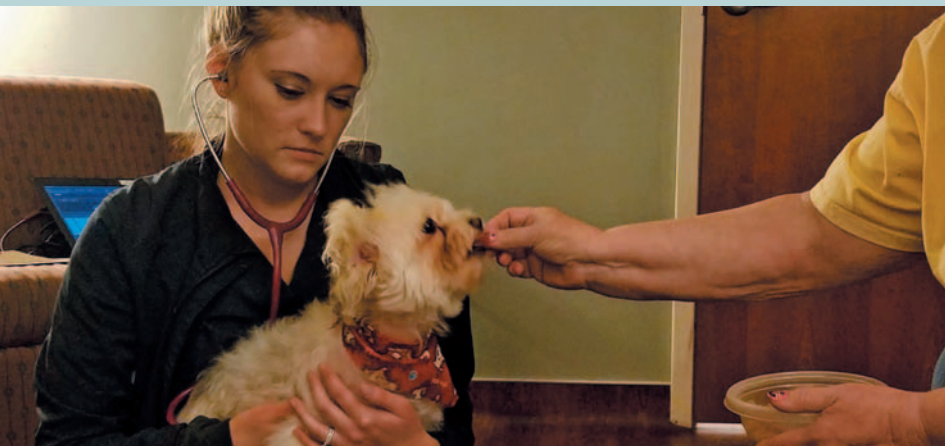
## **1 In the client's lap**

The veterinarian is on the same side of the dog as the client to maintain perception of a flight route and minimize the risk of fight. There's no physical restraint. The treats distract and create a positive association. The veterinarian could also approach the dog from behind.



## **2 In the technician's lap**

In this case, the team member uses gentle control to steady the pet, and the auscult and exam is subtly performed with petting on the floor to allow a flight option. The client feeds treats to distract and create a positive association.



## **3 Venipuncture on floor**

Thick non-slip matting enriches everyone's comfort. The dog chooses the position, and we remain in the room where the pet is already acclimated. Moving to a treatment room would be stimulating and stressful. Treats distract and create positive association. If needed, an assistant can provide gentle control and monitoring for movement.







## Enriched cat space

Cats tend to seek height and hiding when they feel stressed and afraid. Here's how to create a safe cage space for healing:

- > Use a towel sprayed with Feliway pheromones to create a partial visual barrier for the door. This allows eating and elimination in privacy.
- > Natural or low light is best.
- > The hide box allows a choice.
- > The fleece on top provides higher perch.
- > Fleece flooring provides warmth and sound dampening of a steel cage.
- > Small water bowls maximize space and a flat food dish to prevent whisker stimulation from small bowls.
- > The puzzle feeder with kibble inside offers engagement.



## Scale corner

Don't struggle to convince the dog to walk into a corner to step onto a scale. This removes the perception of flight. Instead, change the view and the route to allow easy weigh-ins. It's also a good idea to create a treat trail scale. Approach the scale so the dog walks into the open space. Place treats in a trail for the dog to follow onto the scale. The dog gets rewarded every step of the way!



## Time out cat

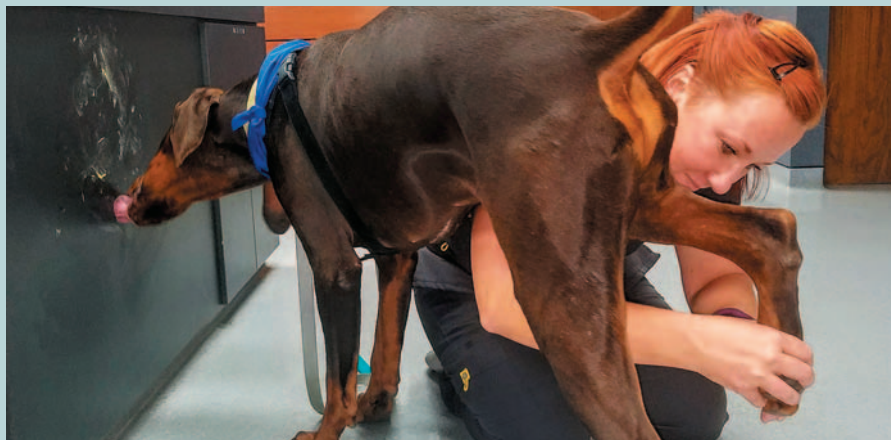
Cats who arrive expressing fear and stress should be allotted time for sympathetic nervous system deactivation before handling. Here's how to create this quiet space:

- > Choose a quiet room with low light to limit stimulation.
- > Use a Feliway pheromone towel covering to calm and allow hiding.
- > Place the carrier on the table to provide a sense of safety (height).
- > Use an option like the iCalm music player for sound masking as well as relaxation.
- > Place signage on door to inform team members and promote low-stress handling techniques to clients.



## Nail trim cheese wall

Use a vertical surface to smear creamy treats (such as cheese) for a hands-free delivery method during procedures. The dog is distracted, needs minimal restraint and associates a positive emotion with nail trimming. This method can also be used while a dog is wearing a basket muzzle. The bite risk is relieved so you can use minimal restraint.



## S

# Smell



Dogs, cats and other species have a vomeronasal organ that processes pheromones that people can't perceive. Pheromones affect emotional states and physiology. Consider these tips to fight the scary smells:

- Make sure to clean to remove pheromones that may be linked to fear or alarm from commonly used instruments such as stethoscopes. Similarly, use clean towels for each patient.

- Consider using commercially available synthetic pheromones that create a calming effect. Spray scrubs, towels and bedding simultaneously for both species, and use electric room diffusers in waiting, exam, treatment and ward areas.

- Avoid pungent odors from air fresheners and perfumes. Use odor neutralizers instead.

Allow cleaners to evaporate before placing patients into cages.

- Sparingly apply alcohol during venipuncture, and dry the excess when you're finished. Invite clients to provide an article from home for hospitalized patients to offer scent familiarity.

## S

# Social comfort

The human-animal bond promotes health in both species. Patients often seek contact with familiar people during times of stress. So allowing clients to remain with their pets when feasible can enrich the veterinary experience.

- Items from home, associated with familiarity, can also provide comfort.

- Scheduling patients with care providers they prefer provides consistency in social interaction.



## C

# Choice

It's not feasible to allow patients complete choice of care, but if you provide options you create the perception of choice.

- Examine and treat pets in the position and location they're most comfortable. Offer multiple food options in small amounts, use minimal physical restraint and arrange the hospital cage to provide hiding or visual enrichment variety.

- Don't forget to offer inexpensive disposable toys to encourage play.

- Upcycle materials around your practice for DIY enrichment. Pets can shred cardboard boxes to access food treats. Folded paper or toilet paper tubes and balls rolled from paper are safe options, as is food smeared on a paper plate for pets awaiting an exam.

- Kibble in a pill bottle makes a nice rattling toy.

- Hang syringe cases from your cage doors for cats to bat at while they're kenneled.

Find more tips at [dvm360.com/petenrichment](http://dvm360.com/petenrichment).

**Check it out:  
Here's what  
Firstline's  
sister  
publications  
are up to:**




Zoos, laboratories and other captive environments have been implementing enrichment strategies for years, and pets are captive animals too. *dvm360* explores the ethics of this movement—and veterinarians' role in ensuring the psychological health of their patients.



Cats have needs beyond food and shelter. And the better you and your veterinary clients understand these needs, the closer the kitties in your clinic will come to reaching their full potential. In this issue of *Vetted*, you'll find Meowslow's hierarchy of needs, advice on showcasing

playful pet products and exclusive data from the *dvm360* Clinical Updates: Pet Enrichment Survey.

To find all of this coverage, plus online-exclusive content, head over to [dvm360.com/petenrichment](http://dvm360.com/petenrichment).



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

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

PLEASE SEE FULL PRESCRIBING INFORMATION ON PAGE 20.

References: 1. Bravecto Chew for Dogs [prescribing information]. Madison, NJ: Merck Animal Health; 2014.

2. Burgio et al. *Parasites & Vectors* (2016) 9:626. 3. Taenzler et al. *Parasites & Vectors* (2014) 7:567.

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**BRAVECTO**®  
(FLURALANER)







Flavored chews for dogs.

#### Caution:

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

#### Description:

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

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

#### Indications:

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

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

#### Dosage and Administration:

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

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

Bravecto should be administered with food.

#### Dosage Schedule

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

\*Dogs over 123.0 lb should be administered the appropriate combination of chews

Treatment with Bravecto may begin at any time of the year and can continue year round without interruption.

#### Contraindications:

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

#### Warnings:

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

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

#### Precautions:

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

#### Adverse Reactions:

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

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

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

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

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

#### Clinical Pharmacology:

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

#### Mode of Action:

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

#### Effectiveness:

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

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

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

#### Animal Safety:

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

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

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

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

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

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

#### Storage Information:

Do not store above 86°F (30°C).

#### How Supplied:

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

NADA 141-426, Approved by FDA

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# Fear is worse than pain

As people, we can anticipate relief for the physical pain we feel. Animals don't have this luxury. Here's how to deal with pain coupled with fear, and how pet owners help you heal the hurt.

By Dani McVety, DVM

## Pain and fear: A dreaded combo

Think about the pain of a broken arm. Now think of the negative emotions that may come with it: anxiety about the impending surgery, recovery, loss of time with children and loved ones and so on. Those negative emotions will only amplify the physical pain I feel. As a person, though, I know that medical attention will help reduce or eliminate my pain.

Animals don't have this luxury.

In her book *Animals in Translation: Using the Mysteries of Autism to Decode Animal Behavior*, Temple Grandin, PhD, says, "The single worst thing you can do to an animal emotionally is to make it feel afraid ... fear is so bad for animals I think it's worse than pain." And this is one of the most important parts of the end-of-life process: not only addressing physical pain, but stress, anxiety and fear as well.

Consider the senior or geriatric patients you see. Many of our arthritic or immobile pets appear more agitated by their inability to stand up rather than the pain that standing up elicits. They may not understand why they can't ambulate, which in turn leads

to excessive panting, whining, crying and additional physical pain as they attempt to move. Many times, the mental battle is bigger than the physical battle with our patients.

## Relieve suffering by educating pet owners

These are concepts I discuss with families every day. Veterinary hospice care centers on addressing pain and any other mental stressors that may be present. Because of this, pet owners become our greatest source to identify new developments in the pet's condition early. They will usually feel their bond is so strong (and it often is!) that they can sense the discomfort. With a little retraining and education on how animals may react and perceive pain and anxiety, we can take a big leap forward to make the end-of-life period as pain-free and fear-free as possible.

We also need to teach pet owners about the differences between discomfort, pain and suffering. Euthanasia is

not just about ending suffering that's occurring at that moment, but rather about preventing it from occurring. And with a better understanding of mental and physical pain, clients feel better equipped to make that important decision with the guidance of their veterinarian.

*Dr. Dani McVety is owner of Lap of Love Veterinary Hospice and In-Home Euthanasia in Lutz, Florida.*





# Bored to death

Use these 10 quick and easy pet enrichment tips to help your clients put the “play” back in pets’ “playtime.”

*By Sarah J. Wooten, DVM*

It's a sad fact: Zoos do a better job with enrichment for captive wildlife than most pet owners do with our companion dogs and cats. Fetch dvm360 conference speaker Steve Dale, CABC, a nationally syndicated radio host, recommends taking a page from zoo medicine to educate pet owners about how to enrich their pets' lives. Start with these 10 tips.

## **Spread the love with the right resources.**

Every house should have the number-of-cats-plus-one ratio of these resources: scratching posts, elevated spots where the cats can go and litterboxes.

# 1



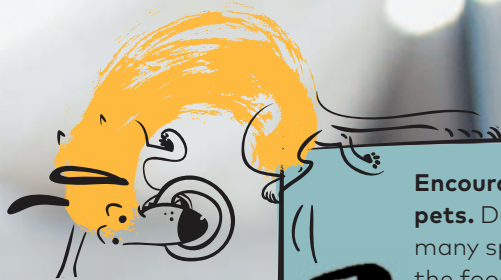
## **Share cheap DIY toy enrichment ideas.**

Toys don't need to be expensive. Here are a few suggestions you can offer to get pet parents started on the right paw:

- Get paper bags instead of plastic at the grocery store. Cut the bottoms out, tape them together and you have a cat tunnel.
- Before you recycle that Amazon Prime box, leave it out for a couple of days for your cat to hide in and bat around, or hide a tasty treat in the box and let your dog or cat figure out how to get the treat out of the box.

# 2





3

**Encourage pet owners to think outside the bowl when feeding pets.** Dale points to contrafreeloading, an observed behavior in many species. The premise: If given a choice, an animal prefers the food that requires effort.

Dale suggests that cats could benefit from something like Doc & Phoebe's Indoor Hunting Cat Feeder (previously sold as the NoBowl Feeding system), an indoor hunting feeder, where clients fill the feeder, hide it and cats hunt for it. You can accomplish the same concept with a toilet tube roll: fill it with kibble, twist the ends, cut a couple of holes in it and let the cat hunt.

4

**Explain to clients that cats need enrichment to prevent behavioral problems and obesity.** Clients are under the impression that cats don't need enrichment, especially in comparison to dogs. It helps if you mention that bored cats are stressed cats, and stressed cats pee on beds.

Clients are often more motivated to prevent inappropriate elimination than obesity. Kitten visits, adoption visits and wellness visits are a great time to start this conversation.



5

**Remind clients to only leave a few toys out at a time, and rotate toys every couple of days.** Pets get bored with the same old toys.

6

**Look for outdoor enrichment opportunities.** Clients who are interested in outdoor enrichment for housecats might be interested in building a catio. You can also recommend Cat Fence-In, a fence accessory that is designed to keep your cats inside your fence, and other cats out.

7

**Make enrichment a fun game for pet parents too.**

People enjoy the dopamine boost of playing just as much as cats and dogs do, so share a list of your favorite ways to up the "play" factor through enrichment with your clients.



# NexGard® (afoxolaner) Chewables

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

## Description:

NexGard® (afoxolaner) is available in four sizes of beef-flavored, soft chewables for oral administration to dogs and puppies according to their weight. Each chewable is formulated to provide a minimum afoxolaner dosage of 1.14 mg/lb (2.5 mg/kg). Afoxolaner has the chemical composition 1-Naphthalenecarboxamide, 4-[5-[3-chloro-5-(trifluoromethyl)-phenyl]-4,5-dihydro-5-(trifluoromethyl)-3-isoxazolyl]-N-[2-oxo-2-[2,2,2-trifluoroethyl]amino]ethyl.

## Indications:

NexGard kills adult fleas and is indicated for the treatment and prevention of flea infestations (*Ctenocephalides felis*), and the treatment and control of Black-legged tick (*Ixodes scapularis*), American Dog tick (*Dermacentor variabilis*), Lone Star tick (*Amblyomma americanum*), and Brown dog tick (*Rhipicephalus sanguineus*) infestations in dogs and puppies 8 weeks of age and older, weighing 4 pounds of body weight or greater, for one month.

## Dosage and Administration:

NexGard is given orally once a month, at the minimum dosage of 1.14 mg/lb (2.5 mg/kg).

## Dosing Schedule:

Body Weight	Afoxolaner Per Chewable (mg)	Chewables Administered
4.0 to 10.0 lbs.	11.3	One
10.1 to 24.0 lbs.	28.3	One
24.1 to 60.0 lbs.	68	One
60.1 to 121.0 lbs.	136	One
Over 121.0 lbs.	Administer the appropriate combination of chewables	

NexGard can be administered with or without food. Care should be taken that the dog consumes the complete dose, and treated animals should be observed for a few minutes to ensure that part of the dose is not lost or refused. If it is suspected that any of the dose has been lost or if vomiting occurs within two hours of administration, redose with another full dose. If a dose is missed, administer NexGard and resume a monthly dosing schedule.

## Flea Treatment and Prevention:

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

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

## Tick Treatment and Control:

Treatment with NexGard may begin at any time of the year (see **Effectiveness**).

## Contraindications:

There are no known contraindications for the use of NexGard.

## Warnings:

Not for use in humans. Keep this and all drugs out of the reach of children. In case of accidental ingestion, contact a physician immediately.

## Precautions:

The safe use of NexGard in breeding, pregnant or lactating dogs has not been evaluated. Use with caution in dogs with a history of seizures (see **Adverse Reactions**).

## Adverse Reactions:

In a well-controlled US field study, which included a total of 333 households and 615 treated dogs (415 administered afoxolaner, 200 administered active control), no serious adverse reactions were observed with NexGard. Over the 90-day study period, all observations of potential adverse reactions were recorded. The most frequent reactions reported at an incidence of > 1% within any of the three months of observations are presented in the following table. The most frequently reported adverse reaction was vomiting. The occurrence of vomiting was generally self-limiting and of short duration and tended to decrease with subsequent doses in both groups. Five treated dogs experienced anorexia during the study, and two of those dogs experienced anorexia with the first dose but not subsequent doses.

**Table 1: Dogs With Adverse Reactions.**

	Treatment Group			
	Afoxolaner		Oral active control	
	N <sup>1</sup>	% (n=415)	N <sup>2</sup>	% (n=200)
Vomiting (with and without blood)	17	4.1	25	12.5
Dry/Flaky Skin	13	3.1	2	1.0
Diarrhea (with and without blood)	13	3.1	7	3.5
Lethargy	7	1.7	4	2.0
Anorexia	5	1.2	9	4.5

<sup>1</sup>Number of dogs in the afoxolaner treatment group with the identified abnormality.

<sup>2</sup>Number of dogs in the control group with the identified abnormality.

In the US field study, one dog with a history of seizures experienced a seizure on the same day after receiving the first dose and on the same day after receiving the second dose of NexGard. This dog experienced a third seizure one week after receiving the third dose. The dog remained enrolled and completed the study. Another dog with a history of seizures had a seizure 19 days after the third dose of NexGard. The dog remained enrolled and completed the study. A third dog with a history of seizures received NexGard and experienced no seizures throughout the study.

To report suspected adverse events, for technical assistance or to obtain a copy of the MSDS, contact Merial at 1-888-637-4251 or [www.merial.com/NexGard](http://www.merial.com/NexGard). For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or online at <http://www.fda.gov/AnimalVeterinary/SafetyHealth>.

## Mode of Action:

Afoxolaner is a member of the isoxazolone family, shown to bind at a binding site to inhibit insect and acarine ligand-gated chloride channels, in particular those gated by the neurotransmitter gamma-aminobutyric acid (GABA), thereby blocking pre- and post-synaptic transfer of chloride ions across cell membranes. Prolonged afoxolaner-induced hyperexcitation results in uncontrolled activity of the central nervous system and death of insects and acarines. The selective toxicity of afoxolaner between insects and acarines and mammals may be inferred by the differential sensitivity of the insects and acarines' GABA receptors versus mammalian GABA receptors.

## Effectiveness:

In a well-controlled laboratory study, NexGard began to kill fleas four hours after initial administration and demonstrated >99% effectiveness at eight hours. In a separate well-controlled laboratory study, NexGard demonstrated 100% effectiveness against adult fleas 24 hours post-infestation for 35 days, and was > 93% effective at 12 hours post-infestation through Day 21, and on Day 35. On Day 28, NexGard was 81.1% effective 12 hours post-infestation. Dogs in both the treated and control groups that were infested with fleas on Day -1 generated flea eggs at 12- and 24-hours post-treatment (0-11 eggs and 1-17 eggs in the NexGard treated dogs, and 4-90 eggs and 0-118 eggs in the control dogs, at 12- and 24-hours, respectively). At subsequent evaluations post-infestation, fleas from dogs in the treated group were essentially unable to produce any eggs (0-1 eggs) while fleas from dogs in the control group continued to produce eggs (1-141 eggs).

In a 90-day US field study conducted in households with existing flea infestations of varying severity, the effectiveness of NexGard against fleas on the Day 30, 60 and 90 visits compared with baseline was 98.0%, 99.7%, and 99.9%, respectively. Collectively, the data from the three studies (two laboratory and one field) demonstrate that NexGard kills fleas before they can lay eggs, thus preventing subsequent flea infestations after the start of treatment of existing flea infestations.

In well-controlled laboratory studies, NexGard demonstrated >97% effectiveness against *Dermacentor variabilis*, >94% effectiveness against *Ixodes scapularis*, and >93% effectiveness against *Rhipicephalus sanguineus*, 48 hours post-infestation for 30 days. At 72 hours post-infestation, NexGard demonstrated >97% effectiveness against *Amblyomma americanum* for 30 days.

## Animal Safety:

In a margin of safety study, NexGard was administered orally to 8 to 9-week-old Beagle puppies at 1, 3, and 5 times the maximum exposure dose (6.3 mg/kg) for three treatments every 28 days, followed by three treatments every 14 days, for a total of six treatments. Dogs in the control group were sham-dosed. There were no clinically-relevant effects related to treatment on physical examination, body weight, food consumption, clinical pathology (hematology, clinical chemistry, or coagulation tests), gross pathology, histopathology or organ weights. Vomiting occurred throughout the study, with a similar incidence in the treated and control groups, including one dog in the 5x group that vomited four hours after treatment.

In a well-controlled field study, NexGard was used concomitantly with other medications, such as vaccines, anthelmintics, antibiotics (including topicals), steroids, NSAIDs, anesthetics, and antihistamines. No adverse reactions were observed from the concomitant use of NexGard with other medications.

## Storage Information:

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

## How Supplied:

NexGard is available in four sizes of beef-flavored soft chewables: 11.3, 28.3, 68 or 136 mg afoxolaner. Each chewable size is available in color-coded packages of 1, 3 or 6 beef-flavored chewables.

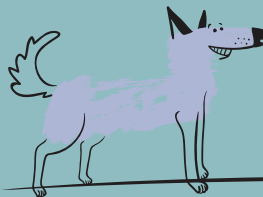
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Rev. 1/2015



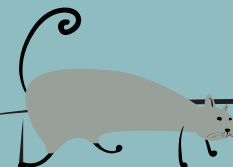
**Remind clients to walk that dog!** The most overlooked enrichment for dogs is a walk. Letting the dog out into the yard isn't the same as going for a walk. Dogs in yards get bored and can develop reactive behavioral problems. Everyone's encountered the dogs that rush the fence and give you a heart attack every time you walk by.

Remind clients to go for a walk, and if they're on a walk for the dog's benefit, give the dog some time to be a dog. Loose the chokehold on the leash and let them sniff.

8

**Teach your clients to feed out of enrichment toys.** Not only can you be more hands-on with nutrition, but you can demonstrate knowledge about behavior—something that's important to a lot of clients—and show that you care about more than just vaccines, heartworm tests and parasite control. You care about the pet's feelings, and that will translate to a great Yelp review.

9



**Stop using the term "fractious" to describe pet behavior.** Most of our patients aren't fractious. They're afraid they're going to die.

10

If we as veterinary professionals are intentional about the terms used to describe fearful pet behavior, we can raise clients' awareness of their pets' behavior. Once our clients are aware, they can modify the pet's behavior so veterinary visits are less stressful for everyone.

*Dr. Sarah Wooten divides her professional time between small animal practice in Greeley, Colorado; public speaking on associate issues, leadership and client communication; and writing. She enjoys camping with her family, skiing, SCUBA and participating in triathlons.*

## MAKE AN Rx FOR MORE PLAYTIME!

Investigate these products and others at  
[dvm360.com/petproducts](http://dvm360.com/petproducts).



SO  
GOOD.

SO  
DEAD.



Clients want to fight fleas  
and ticks – not their dogs.

Protect dogs with the beef-  
flavored chew they love.<sup>1</sup>



**NexGard**<sup>®</sup>  
(afoxolaner) Chewables

See brief summary on page 24.



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

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**IMPORTANT SAFETY INFORMATION:** NexGard<sup>®</sup> is for use in dogs only. The most frequently reported adverse reactions included pruritus, vomiting, dry/flaky skin, diarrhea, lethargy, and lack of appetite. The safe use of NexGard in pregnant, breeding, or lactating dogs has not been evaluated. Use with caution in dogs with a history of seizures. For more information, see full prescribing information or visit [www.NexGardForDogs.com](http://www.NexGardForDogs.com).





# WEIGH IN ON WEIGHT

**M**ore than half of the patients your practice sees are likely overweight, according to data from the Association for Pet Obesity Prevention. But about 95 percent of pet owners identify their pets as normal weight. It's no fun to have to be the one to break the bad news to clients. But how your team handles this conversation can make a big difference in how pet owners respond—and whether they take the next steps to make healthier feeding choices for their pets.

Try the Micro Team Meeting in a Box to take five—a five-minute education break at your next team meeting. It's free! You'll find a role-play activity, an educational video and client handouts to take the heaviness out of your next weight discussion. Check it out at [dvm360.com/teammeeting](http://dvm360.com/teammeeting).





# Learn on the **IBD** Handling patients with chronic enteropathies

When it comes to chronic gastrointestinal cases, it's time to throw out your outdated terms and diagnoses. **p2**



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December 2017  
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# Ixnay on the IBD

## An update on handling patients with chronic enteropathies

When it comes to chronic gastrointestinal cases, it's time to throw out your outdated terms and diagnoses.

*By Sarah Wooten, DVM*

**C**alling all chronic enteropathies! Wait, are you calling all your chronic gastrointestinal (GI) cases inflammatory bowel disease, or IBD, without

doing a histopath of the small intestine because the owner won't let you biopsy?

STOP IT. Fetch dvm360 conference speaker Craig Ruaux, BVSc (Hons), PhD, MACVSc, DACVIM-SA, says the term "inflammatory bowel disease" is outdated. Even in the cost-conscious world of private practice, there are new, more rational ways to approach your chronic enteropathy patients than, "Let's just pull out the pred and see what happens" that provide a better standard of care and won't break the bank.

### Add an "I" for idiopathic

When veterinary professionals discuss chronic enteropathies, the term IBD is thrown around quite a bit. But Dr. Ruaux thinks IBD is markedly overdiagnosed in chronic gastrointestinal cases and is being used as a catch-all term for any time the small intestine is inflamed. There are a lot of diseases outside of IBD that can cause small intestinal inflammation, he says, and the underlying pathology is very different from true IBD.

When it comes to IBD, idiopathic inflammatory bowel disease (IIBD) is a more accurate term, says Dr. Ruaux. IIBD is a diagnosis of exclusion. It implies you've done a complete workup, including a minimum database, a fecal flotation and GI panel, and acquisition of biopsy samples of the intestines.



**GI disease: Often painful for affected pets, challenging to diagnose, difficult to treat. When you're facing a case of pancreatitis or gastrointestinal dysfunction, have no worries. We've compiled the best articles, tips, tools and techniques on these gut-wrenching conditions from dvm360 right here. Find all this (and much more!) at [dvm360.com/GItoolkit](http://dvm360.com/GItoolkit).**



If not, your diagnosis is chronic enteropathy of unknown origin. Only diagnose something to the level with which you can describe it, Dr. Ruaux says.

### **Geez, those GI signs**

Chronic enteropathies, regardless of the underlying cause, often present in a very similar manner, Dr. Ruaux says. Signs may include weight loss, lethargy, vomiting, diarrhea and appetite alterations—in dogs, at least.

Cats love to break all the rules. They often present polyphagic with large, voluminous diarrhea. They may also have steatorrhea because chronically inflamed intestines lose the ability to absorb fat. Unabsorbed fat in the intestine stimulates diarrhea by osmotically drawing water into the lumen and by fostering

an environment for the bacterial toxins. Cats with chronic enteropathy with steatorrhea that look like they have exocrine pancreatic insufficiency almost never do, Dr. Ruaux advises.

### **The deets on diagnostics**

If this is the first time you are seeing a chronic enteropathy patient, Dr. Ruaux recommends starting with a complete blood count, serum chemistry profile, urinalysis, fecal

flotation and GI panel, if the owner will let you. If you give a simple explanation of why you need these tests, such as, “We need to rule out causes outside the GI tract that cause diarrhea,” or “Knowing serum cobalamin and folate concentrations will help us determine the extent of the disease and guide appropriate treatment decisions,” you are more likely to get a yes to go ahead with diagnostics. Just remember to keep communication simple!





**Need a reminder about why folate and cobalamin are important diagnostic markers? Here you go: Folate is only absorbed from the duodenum and is decreased in cases of chronic duodenal mucosal inflammation. Cobalamin is only absorbed from the distal small intestine and is a very specific marker for distal ileal mucosal disease. Low cobalamin and folate concentrations are indicative of severe diffuse disease, and this will limit the efficacy of oral therapy for IIBD. Supplement with cobalamin and folate before instituting therapy, Dr. Ruaux says.**

In cats, Dr. Ruaux recommends that the GI panel include trypsin-like immunoreactivity, cobalamin concentration, folate concentration, pancreatic lipase immunoreactivity, and a Spec feline pancreas-specific lipase test. It is useful to know if cats with chronic diarrhea also have chronic pancreatitis, as that will influence your treatment decisions. Dr. Ruaux notes that the canine pancreas-specific lipase test is less important in dogs with chronic enteropathy unless they present with vomiting.

As results of a GI panel can take up to five days, Dr. Ruaux recommends performing an abdominal ultrasonographic examination to inspect intestinal wall thickness while

you are waiting.

If an owner has financial constraints, Dr. Ruaux says forget the ultrasound and go straight to endoscopy or exploratory laparotomy and biopsy. While the ultrasonographic exam can tell you whether there is abnormal wall thickness, Dr. Ruaux finds abdominal ultrasonography has a low sensitivity and specificity for diagnosing GI disease, except in some cases of protein-losing enteropathy. Furthermore, doing an abdominal ultrasonographic examination does not change the diagnostic need for an intestinal biopsy, except in cases of very old or debilitated patients where anesthesia is a concern or patients with a

palpable abdominal mass.

When it comes to choosing biopsy via exploratory laparotomy versus endoscopy, Dr. Ruaux says it really only matters in cats with GI lymphoma. GI lymphoma is located in the ileum and you cannot reach the ileum with endoscopy unless you use a transcolonic approach. If you only sample from the proximal intestine, you may miss the disease.

## **Specifics on treating those nonspecifics**

If histopathologic examination of the intestinal biopsy samples reveals nonspecific inflammation, Dr. Ruaux rules out lymphosarcoma and lymphatic drainage diseases. Infectious disease, intestinal dysbiosis, food-responsive disease and IIBD all read as nonspecific inflammation. For nonspecific inflammation patients, Dr. Ruaux takes a five-step approach. These steps can still be followed if the client declines biopsy, as long as the client knows you are treating empirically.

## **STEP 1**

Prescribe fenbendazole at 50 mg/kg for five days to treat for occult giardiasis or other

intestinal parasitic infections.

Dr. Ruaux does not use metronidazole to treat giardiasis because he thinks that in order to successfully eliminate giardiasis, you must use doses that are toxic.

## STEP 2

Treat any cobalamin or folate deficiencies.

## STEP 3

Rule out a food-responsive enteropathy (FRE) by instituting a dietary modification trial.

Dr. Ruaux prefers using a novel protein diet over a hydrolyzed diet. If he can, he will also prescribe a low-fat diet because of fat's ability to cause osmotic diarrhea if it is unabsorbed from the lumen. More than 60% of cats with chronic enteropathy signs show improvement with diet modification, according to Dr. Ruaux, and don't need corticosteroids. Dogs with classical FRE tend to be younger, large-breed dogs and can respond well to diet modification therapy.

Even though he prefers diet trials to last four to six weeks, Dr. Ruaux says that if there

is no improvement after two weeks, it is likely the animal will not respond. If the patient isn't responding to a hydrolyzed diet, it is still possible to have an FRE that is reactive to the underlying protein source in the hydrolyzed diet, and a novel protein source must be chosen. At this point, if the owner is tired of the diarrhea, it is appropriate to continue the diet trial and also move to step 4.

## STEP 4

Rule out small intestinal bacterial overgrowth (SIBO) or antibiotic-responsive enteropathy with an antibiotic trial. Oh, and it's no longer called SIBO.

Dr. Ruaux says the more appropriate term is "intestinal dysbiosis." SIBO implies that the patient's intestine has too many organisms or an overgrowth of pathogenic organisms. But in patients with chronic enteropathy, they tend to have a change in the GI microbiome that is correlated with dysfunction. Time to join the cool kids and change up your terminology.

Dr. Ruaux continues the diet trial and adds in 20 to 25 mg/kg of tylosin twice daily for four to six weeks, as well as probiotics and prebiotics. For clients who

feed raw food or home-cooked food to their pets, a prebiotic such as fructooligosaccharide powder can be purchased from the health food store and should constitute 1% of the diet, which comes out to 1 g powder/100 g of food fed. For those clients who find this cost-prohibitive, explain that prebiotics are formulated into GI therapeutic diets.

What about metronidazole? Dr. Ruaux only uses metronidazole for patients with stress colitis or sepsis. He prefers that his patients receive tylosin over metronidazole for treatment of chronic enteropathy.

## STEP 5

No improvement? Break out the corticosteroids.

If you are 21 days into the trial and the pet is not responding, it's time for corticosteroids and a diagnosis of IIBD. Dr. Ruaux prescribes 1 to 2 mg/kg prednisone (or prednisolone for a cat) per day. Pharmacokinetically, there is no difference between once-a-day and twice-a-day administration. If the patient is a dog that is not responsive *and* there is evidence of a protein-losing enteropathy, then Dr. Ruaux will add in



chlorambucil to increase survival time.<sup>1</sup>

For intestinal dysbiosis, food-responsive enteropathy or true IIBD, client education is as important as diagnostics and therapy, Dr. Ruaux says. Stress to veterinary clients that you are managing the disease, not curing it, and it will take trial and error to both obtain a diagnosis and treat the problem, especially in patients that have more than one condition. Advise clients that the gut is chronically inflamed, and it takes time and testing to figure out the root cause or causes. Many clients have their own GI distress journeys, and I have found that they understand the diagnostics and treatments surprisingly well. Be hands-on with these patients in follow-ups—don't be afraid to schedule multiple rechecks. Most clients will appreciate your effort, and you will get better compliance in pursuing diagnostics and adherence to the diet trial and therapeutic recommendations.

## Reference

1. Dandrieux JR, Noble PJ, Scase TJ, et al. Comparison of a chlorambucil-prednisolone combination with an azathioprine-prednisolone combination for treatment of chronic enteropathy with concurrent protein-losing enteropathy in dogs: 27 cases (2007-2010). J Am Vet Med Assoc 2013;242(12):1705-1714.



## A veterinary nutritionist's advice on client-requested diet curiosities

These docs tackle nutrition issues from everyday practice.

If you have difficulty remembering what you had for breakfast yourself, let alone the brand of food you gave your pet, your clients are likely in the same boat. Since pets' diets are important exam room information, Rebecca Remillard, PhD, DVM, DACVN, of Veterinary Nutritional Consultations in Hollister, North Carolina, is here with a few tips to help your clients come up with the answer. Gastrointestinal problems? Struvite crystalluria? In this clip, Dr. Remillard addresses Dr. Sarah Wooten's experiences with clients feeding their dogs grain-free, high-protein diets.

Scan this code to watch now.



# 2 ideas for talking about feline constipation on Facebook

Do you feel stuck when it comes to educating clients about this common kitty issue? Here are a couple of ways to get conversation, ahem, flowing.

**L**ike religion and politics, pooping is one of those topics you're not supposed to bring up in polite conversation—unless, of course, you're in veterinary practice. Then, it's your duty to talk about doodie, and your practice's Facebook page can be

a great place to start the conversation.

We've tried to make this duty a little easier by coming up with some simple client education posts you can use on your practice's Facebook page. Your clients will be boweled over by your helpful tips!



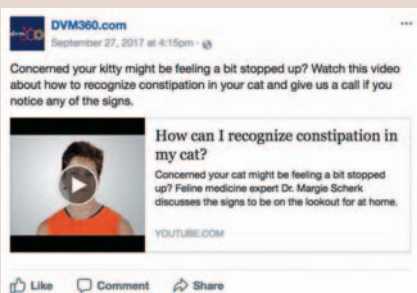
## POST #1

### Constipation education video



1. Type the following text into a new post on your practice's Facebook page:

*Concerned your kitty might be feeling a bit stopped up? Watch this video about how to recognize constipation in your cat and give us a call if you notice any of the signs. [https://www.youtube.com/watch?v=ON\\_1YE7fBkE](https://www.youtube.com/watch?v=ON_1YE7fBkE)*



2. Once the link preview pops up, you can delete the link text. It should look like the image above.

## POST #2

### Constipation causes



1. Go to [dvm360.com/kittyconstipation](http://dvm360.com/kittyconstipation) and drag and drop the image you find there (example below) onto your computer's desktop.

2. Post the image on your practice's Facebook page with the following text:

*If your cat hasn't left anything in the litterbox for one or two days, it may need help getting things moving again. Give us a call so we can get to the BOTTOM of it and help your kitty feel better.*





# Client videos: Defusing the tummy-twisting worry of GDV

**Save a life! Share these videos with your clients with dogs at risk for GDV.**

Have veterinary clients whose stomachs are in knots over their concern for gastric dilatation-volvulus (GDV) in their at-risk dogs? They want to do their utmost to ensure their dogs aren't affected by this life-threatening turn of events, so we worked with Jennifer Wardlaw, DVM, DACVS, to develop videos you can share directly with your clients once you raise the issue of GDV with them. Scan the QR code to go straight to the video pages (and then use the tips on the next page to embed the videos on your site).









**The first video** discusses what signs clients should be on the lookout for in their dogs that mean an emergency visit to the veterinarian is called for, now!



**The second video** discusses what steps clients can be taking to make sure this never ever happens to their precious pups in the first place. A prophylactic gastropexy is always an option, but there are some steps your clients can be taking themselves to prevent GDV.



**Follow  
these  
instructions  
to embed  
a YouTube  
video  
onto your  
veterinary  
practice's  
website.**

-  Press play on the video player. Then click the YouTube icon to view the video on YouTube.com.
-  Beneath the bottom right corner of the video player, click the Share button, and share via social media. To share on your practice website, select Embed. Customization options will appear below.
-  Click a standard video-player size or type in custom dimensions to fit your Web page.
-  Click inside the embed code box to select the text. Next, copy the text.
-  Open your Web page file, identify where you want the video to appear, and paste the embed text in your HTML code.
-  Save and upload your revised page to your website.

# What to tell clients about cats' chronic diarrhea

*By David C. Twedt, DVM, DACVM*

Cat owners need to know all hope is not lost.

**C**hronic diarrhea is certainly a frustration for cat owners, but at its worst, the condition may lead to the relinquishment of a pet—a loss for all involved. Fetch dvm360 conference speaker David Twedt, DVM, DACVM, believes that your clients need to hear the situation is not hopeless.

“The biggest thing to tell the client is that we can resolve it, but it may take awhile using dietary trials (and other methods) to come to a conclusion,” he says. Scan the code, left, to watch a video with more expert tips.







Scan this code to download free client handouts, like this one, on chronic intestinal disease in cats, or find more information at [dvm360.com/GItoolkit](http://dvm360.com/GItoolkit).

FROM YOUR VETERINARIAN



## CHRONIC INTESTINAL DISEASE *in cats*

Why you shouldn't ignore frequent vomiting and hairballs.

**C**ats vomit as the species that you might consider this to be normal. Therefore, it is often tolerated when it should be seen as a sign of possible disease. When it occurs more than twice a month, if the frequency is increasing, or if your cat is losing weight, a vet visit is warranted.

### Causes

There are many causes of vomiting. Sometimes it is a diet intolerance that can be diagnosed with a change in food or a formal food trial with a hypoallergenic diet. Cats that eat grass or other household plants will frequently vomit. Retching from loose grass may occur for no reason. However, sometimes it is due to a more serious disease that needs to be diagnosed and treated specifically.

### Diagnostic tests

There are many diagnostic tests that can be performed looking for a myriad of causes of vomiting. Some are blood tests, and some involve taking x-rays with or without barium. The most useful test for most cats is an ultrasonographic study of the stomach and small intestine.



### Inflammatory bowel disease

When the small bowel wall is significantly thickened, there is about a 50% chance it will be due to IBD. This disease is caused by a chronically irritated stomach and intestinal lining. It may be caused by an irritant in the diet, or it may be just an abnormal immune system overreacting to normal food or things in the food. However, the specific cause is not usually determined.

Inflammation interferes with digestion of food and absorption of nutrients. Therefore, cats with advanced disease are losing weight and often have an increase in their appetite as they attempt to make up for the weight loss.

Four months of the thick intestine is associated with vomiting.

Treatment includes immunosuppressive drugs (usually corticosteroids such as prednisone), antibiotics, and vitamins B<sub>12</sub>, potassium. Often, cats get an initial short course of corticosteroid drugs and antibiotics. IBD is not considered a curable disease, but proper treatment can control it and stop or slow the vomiting and weight loss. Overall, the prognosis is very good.

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## GI CASES CAN BE TOUGH. THE SOLUTION IS SIMPLE.

ROYAL CANIN® Feline GASTROINTESTINAL FIBER RESPONSE™ is our go-to solution for chronic feline constipation, obstipation and megacolon. ROYAL CANIN® GASTROINTESTINAL FIBER RESPONSE™ is highly palatable, enriched with nutrients like EPA and DHA, prebiotics and a precise blend of soluble and insoluble fibers to help manage digestive problems such as diarrhea and constipation and support lifelong digestive health.

The Solution is Simple. ROYAL CANIN® GASTROINTESTINAL FIBER RESPONSE™



# A PSYLLIUM-ENRICHED EXTRUDED DRY DIET FOR THE MANAGEMENT OF FELINE CONSTIPATION, OBSTIPATION AND MEGACOLON

**D Houston<sup>1</sup>, H Weese<sup>1</sup>, M Evason<sup>1</sup>, G Deswarte<sup>2</sup>, Y Soulard<sup>2</sup>, V Biourge<sup>2</sup>.**

<sup>1</sup>Medi-Cal Royal Canin, Guelph, ON, <sup>2</sup>Royal Canin Research Center, Aimargues, France.

The dietary management of constipation, obstipation and megacolon in cats is either based on a high fiber diet (total dietary fiber >20% on an as fed basis) or on highly digestible, low fiber diets supplemented with various soluble fiber sources including psyllium or canned pumpkin. The physical and chemical properties of dietary fiber vary considerably with high levels of insoluble fibers, such as cellulose, potentially exacerbating the clinical signs. The objective of this study was to assess the efficacy of a moderate fiber, psyllium-enriched, extruded dry feline diet in the management of recurrent feline constipation, obstipation and megacolon.

Fifty-one cats from clinics across Canada entered the study with a history of chronic constipation, obstipation or megacolon. Forty neutered cats (31 male and 9 female) have completed the trial. Cases had been on a variety of diets and treatments including lactulose (31/40; 77.5%) and cisapride (25/40; 63%). All of the cats underwent a complete clinical examination and could not have an impacted colon prior to introduction of the trial diet. The diet was a moderate fiber, psyllium enriched, dry extruded diet (protein 31%, fat 15%, total dietary fiber 11.2%, 3879 kcal ME/kg as fed). Fecal score and body weights were recorded at the beginning, mid-point and end of the study.

The mean age was  $8.38 \pm 4.3$  (range from 0.75 years-16.5 years). All cats showed improvement in fecal scores. Mean fecal score at the beginning of the trial was  $1.23 \pm 0.55$  (median 1) and mean fecal score at the end of the trial was  $2.6 \pm 0.55$  (median 3). Body weight remained stable. None of the cats presented with an episode of constipation over the study period. By the end of the trial, 14 cats were off lactulose and 11 were off cisapride; in addition, 4 and 3 of the remaining cats had a reduction in the dosage of lactulose and cisapride respectively. The psyllium-enriched extruded dry diet used in this clinical study proved to be very effective in the management of constipation, obstipation and even megacolon. Decreased need for medications, surgery and euthanasia was noted.

Source: Houston D, et al. A psyllium-enriched extruded dry diet for the management of feline constipation, obstipation and megacolon. 11th Annual AAVN Clinical Nutrition and Research Symposium, 2011.

Learn more at  
[www.royalcanin.com/vet/gi](http://www.royalcanin.com/vet/gi)

STAY CONNECTED





# Fecal testing: Don't be afraid to step in(to) it

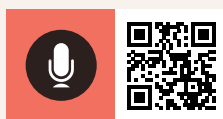
Technicians, get ready to digest the diagnostics that help you become key advisors in the workup of patients with gastrointestinal disease.

**D**uring his presentation on diagnostic test options for gastrointestinal (GI) disease in dogs as part of the technician program at a recent Fetch dvm360 conference, Scott Owens, DVM, MS, DACVIM, highlighted the technician's role in this common area of disease—the arena of vomiting, diarrhea and the like.

Dr. Owens walked the audience through the steps of determining what's going on in patients with GI issues. First and foremost is that "Please tell all!" patient history, which technicians are vital in gathering. Hear Dr. Owens explain some of the things to ask about,

including presenting complaints, an acute versus a chronic longevity, concurrent diseases, diet and current medications.

Listen to the audio here.

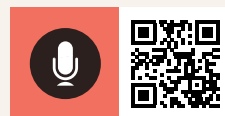


But let's get right to the poop. That fecal sample—so valuable. What can you do with it? Here's a quick overview.

## Float it

A fecal flotation is the cornerstone of examining a fecal sample, which can be done in-house or sent out to a laboratory. Dr. Owens says fecal flotation is especially important when the history reveals the dog has been in an environment where

parasites can be present. Hear what can make or break this fecal evaluation from Dr. Owens and what piece of equipment can do wonders for diagnosis, if you do it frequently:



## Test it—and quick!

Two common culprits, giardiasis and parvovirus, are easy to pinpoint with enzyme-linked immunosorbent assay (ELISA) tests that require stool samples.

## Culture it

Maybe .... Dr. Owens says fecal cultures can be tricky to interpret. When does he perform one? If the pet is eating a raw meat diet



and has evidently bloody stool, it may indicate a *Salmonella* species infection. It's also important to know if *Salmonella* or *Clostridium* species are running rampant if the pet is in a home with immunocompromised people.

### Analyze its DNA

The IDEXX Canine and Feline Diarrhea RealPCR panel just takes a swab of stool and can catch several viral, bacterial and parasitic causes. Since you can get a lot of positive results that may or may not be significant, Dr. Owens relies more on the findings of the physical examination and patient history. "But if I'm really struggling—if a dog has a strong indication of bacterial disease and has been in that environment—I'm going to use it," Dr. Owens says.

### Assess its protein content

If a protein-losing enteropathy is suspected, the fecal alpha-1 proteinase inhibitor test is a good go-to. It measures the amount of protein in the stool to show if the intestines are leaking this vital component, Dr. Owens says.

### Examine it for blood

Blood in the stool can be hard to detect visually, which is where the fecal occult blood sample comes in. Since high protein in a pet's diet can cause a false positive result, Dr. Owens says it's best to feed a vegetarian diet for a few days before testing. The key to this test? A negative result is more informative. "If it's negative, I'm really happy—there's no bleeding," he says. "If it's positive, I shrug my

shoulders and say, 'OK, it could be, it could not be that blood is present.'"

### Don't hesitate to step in


Fecal examinations are just a part of a workup in a patient with a GI issue. Blood testing, biopsy, endoscopy and ultrasonography are other routes to diagnosis.

"The role of the technician is really valuable in knowing and maybe even saying 'Hey, you know, are we at that point? Do we need to think about biopsies?'" Dr. Owens says. "Taking that role in the hospital to have that comfort to say to the doctor, 'What about this test?' or 'What about this test, I heard about this ...' is really important."

# A quick guide to gastric acid suppression in dogs and cats

How you can counteract the corrosive action of elevated gastric acid in your veterinary patients and when preventive use is indicated.

*By Mindy Valcarcel,  
Medicine Channel  
Director*



The same drugs you may reach for yourself to relieve the gastric effects of too much stress can be used in your veterinary patients. Here's some guidance on acid suppressant usage given by Katie Tolbert, DVM, PhD, DACVIM, an assistant professor at the University of Tennessee's College of Veterinary Medicine, during a recent Fetch dvm360 conference.

First, skip the antacids, which aren't as effective as decreasing gastric acid for a prolonged period. Instead go for acid suppressants. Two types are generally used in veterinary patients:



- > Proton-pump inhibitors (PPIs) such as omeprazole, pantoprazole and esomeprazole.
- > Histamine type-2 receptor antagonists (H2RAs) such as famotidine and ranitidine.

1

### Perioperative gastroesophageal reflux

Tolbert says this condition is common in dogs (10 to 55 percent), a little less so in cats (2 to 12 percent). One study showed that 30 percent of gastrointestinally healthy dogs undergoing orthopedic surgery had perioperative reflux.<sup>1</sup> In that study, the dogs benefitted from esomeprazole plus cisapride.

### Administration advice

- > PPIs are most effective when taken before a meal. Dr. Tolbert recommends giving them 30 minutes before breakfast.
- > H2RAs can be taken with or without food.
- > Patients may become tolerant of an H2RA's effects after several days of receiving the drug.
- > Don't combine PPIs and H2RAs if you're looking to reduce acid, says Dr. Tolbert. Even though they may take a day or two to reach full effect, PPIs are just as effective as H2RA on day 1. However, in cases of nocturnal acid reflux, you can use the two drug types together (PPIs in the morning and H2RAs in night).

2

### Kidney disease

Veterinarians often prescribe famotidine in patients with kidney disease, but Dr. Tolbert questions if they should be. Studies have shown no evidence of mucosal erosion or ulceration in patients with chronic kidney disease.<sup>2</sup> And these patients are already receiving plenty of drugs, so why add to the burden? On top of this, PPI administration in people has been associated with a higher risk of kidney disease.<sup>3</sup> Overall, further study is needed to define utility in patients with renal issues.

3

### Liver disease

Although liver disease is one of the most common factors predisposing dogs to GI ulcers, Tolbert says there are so many other factors involved in ulcer development that acid suppressors may not be efficacious in these patients. In fact, a recent study shows that dogs with portosystemic shunts had significantly lower serum gastrin than healthy dogs.<sup>4</sup> But Dr. Tolbert says the study did not look into whether or not these dogs had ulcers. Her best plan of action? Reserve PPI use for patients with evidence of GI bleeding such as melena, iron-deficiency anemia, and regenerative anemia in the absence of hemolysis. One important note: Avoid cimetidine, says Dr. Tolbert, as it is associated with acute liver injury in people and is not an effective acid suppressant in dogs.

### Prophylactic pointers

One big question: Should acid suppressants be given to patients considered at risk for gastrointestinal ulcers that might need transient therapy? Let's look at several scenarios:

4

### Pancreatitis:

The effects of PPIs in people have been mixed—some studies have shown that PPIs may cause pancreatitis while others say they help reduce inflammation associated with it—so there is no definitive answer here. If a patient isn't having persistent vomiting, there's no need to administer a gastric acid suppressant, says Dr. Tolbert.

Find references for this article at [dvm360.com/GItoolkit](http://dvm360.com/GItoolkit).

# Canine pancreatitis: Insight from an internist

By Jennifer L. Garcia, DVM, DACVIM

**W**e all know how difficult the diagnosis and treatment of canine pancreatitis can be. In his presentation at the 2014 American College of Veterinary Internal Medicine Forum, “Canine pancreatitis: No such thing as a typical case,” Michael Willard, DVM, MS, DACVIM, shared his experience in the management of these cases.

## Diagnostic insight

While the history and physical examination are critical components of patient assessment, their utility in these cases has more to do with looking for and ruling out diseases that can mimic pancreatitis. Data collected from the minimum databases (complete blood count, serum chemistry profile and urinalysis) will also help. Dr. Willard pointed out that, unlike before, we have come to know that amylase and lipase activities are not reliable markers of pancreatitis. Hyperlipidemia is not a common finding, but if it is noted in a patient with an acute onset of vomiting and diarrhea, pancreatitis should be high on the differential diagnosis list.

According to Dr. Willard, trypsin-like immunoreactivity (TLI) is not a very sensitive indicator of pancreatic inflammation but may be

supportive if it is elevated. The canine pancreatic lipase immunoreactivity (cPLI) assay, on the other hand, is very sensitive (85% to 90%), but its specificity is questionable. Even a small, perhaps not clinically significant focus of inflammation in the pancreas can cause a positive result, he noted. The best use of cPLI is in ruling out pancreatitis if the results are negative.

Abdominal radiography is indicated in these cases to look for other problems as well; classic signs of pancreatitis (e.g. loss of detail in the right cranial quadrant, dilated duodenum) are not always present. Abdominal ultrasonography is the most useful imaging modality we have for diagnosing pancreatitis, but it is not perfect. Dr. Willard pointed out that he has seen some cases in which sonographic changes lag behind clinical signs, so serial ultrasonographic examinations may be needed.

Findings may change even within a few hours.

Pancreatic abscesses may occur and are typically sterile, so they can often be treated medically with ultrasound-guided drainage. Septic abscesses may be more common in cats, Dr. Willard noted. In his experience, pancreatic masses are more often inflammatory in nature than cancerous masses and may not require surgical removal unless insulinoma is suspected. A biopsy will be needed for a definitive diagnosis.

One of the biggest challenges with this disease is pets with severe clinical signs and whether they have severe sterile pancreatitis versus septic peritonitis. These conditions may look similar in that they both can have abdominal effusion, and bacteria may not always be seen even in cases of septic peritonitis. The abdominal fluid in both cases may be variably inflammatory.

## Treatment tips

In terms of management, Dr. Willard offered the following:

- > Offer low-fat food as soon as possible. You may consider this step even if there is some low-grade vomiting as long as feeding does not make the patient worse. Be sure to start slow.
- > Begin fluid therapy. We tend to underestimate a patient's need for fluids, so err on the side of more in the absence of cardiac or renal disease. Hydration status may be difficult to assess in obese (no skin tent) or nauseated dogs (moist mucous membranes due to nausea).
- > Since there are no robust studies, it is controversial whether fresh frozen plasma provides any benefit. It can be used if you suspect disseminated intravascular coagulopathy.
- > Consider administering colloids. You can consider hetastarch if the albumin concentration is  $< 2$  mg/dl (will provide more oncotic support than plasma).
- > Total or partial parenteral nutrition is rarely needed.
- > Administer analgesics. Consider butorphanol for very mild cases, methadone for moderate cases, and

hydromorphone or fentanyl for severe cases.

- > Only use antiemetics if vomiting or nausea are severe; otherwise, they may mask

consider sample collection (e.g. peritoneal fluid, aspirated abscess material) before antibiotic administration.

- > Since their use in pancreatitis is controversial, reserve corticosteroids for patients that are not responding to therapy and then consider a physiologic dose.



improvement.

Dr. Willard recommended maropitant as a first-line drug.

- > Consider proton pump inhibitors for dyspepsia—pantoprazole or omeprazole.
- > Administer antibiotics only for severe cases or those with suspected systemic inflammatory response syndrome. If possible,



# Prep clients for long-term care

Be clear with clients about their pet's chronic disease management from the start.

In his first few years out of veterinary school, Jeremy Keen, DVM, saw a lot of pets with chronic disease (many of whom were on long-term medications). But few actually returned to the clinic for recheck appointments or follow-up care. The reason? Clients weren't fully educated about the disease, didn't know how it needed to be treated, and didn't understand how long they'd be invested—both emotionally and financially—in the disease management process, Dr. Keen says.

Seeing a need for more client education, Dr. Keen came up with the idea to create client handouts that would detail the tests needed to confirm a diagnosis and monitor progress

once treatment was underway. The handouts needed to give pet owners an understanding of the financial responsibility and time commitment they would face managing the disease as well as improve efficiency in the veterinary clinic and make everyone's job easier.

## How it works

Everyone in Dr. Keen's clinic now plays a part in the client education experience when a chronic disease is diagnosed. Once an initial diagnosis is made and the doctor briefly explains the disease and next steps to the client, a technician takes over and gives the client the appropriate handouts—which include the cost of additional tests and

treatment—to review at home. A receptionist then schedules a follow-up call in a few days to discuss any questions.

Since incorporating the handouts and this tiered approach to client education, Dr. Keen and his staff have seen the benefits of a much more efficient workflow process—not to mention a boost in client compliance. “We’ve seen client compliance increase exponentially,” he says. “When clients are fully educated about a condition and understand it, they are willing to pursue the long-term treatments.”

Head over to **dvm360.com/chronicdisease** to download a handout on canine hyperadrenocorticism you can edit for use in your practice.

FROM YOUR VETERINARIAN



# Will my pet BE IN PAIN?

Anything that is painful for you will likely also be painful for your pet.

While we are different species, we all process and feel pain similarly. As advances in medical medicine have improved our therapies, our animal family members are also enjoying the benefits of advances in medical veterinary medicine. Many of our beloved pets are undergoing effective surgical procedures to treat a variety of chronic conditions. From a basic cranial ligament to a complex orthopedic surgery.

Pain management has become an important specialty area in veterinary medicine just as it is in human medicine. You want the best for your family members and that includes top of the line treatments for pain management.

**Noninvasive therapy available for your canine:**

It was once thought that animals did not experience pain in the same way people do. But research has proven that

if a procedure is thought to be painful to us, it will also be painful to our furry friends as well. Even though they may go to great lengths to hide it from us, the proper pain management must be offered to all patients. In addition to pain medications, handouts in more clinics are now offering complementary treatments like physical rehabilitation, acupuncture and laser therapy to treat pet pain.

**Other pain relief tips:**

- Ask the veterinary team about the treatment steps they will take to manage your pet's pain.
- Ask to your veterinary team about common signs of unmanageable pain in animals, such as reluctance to get up or down stairs, being slow to rise after sleeping and loss of interest in playing, eating or drinking.
- Request a pain consultation for your pet. Your vet can offer tailored pain management guidance for patients at risk for chronic pain such as osteoarthritis.
- Ask about rehabilitation options and other steps to manage any chronic pain your pet experiences.

Pain management is an important aspect of any surgical or medical procedure. Together with your veterinary team, you can make your pet as comfortable as possible in the postoperative period or into their senior years.



## Client handout: Managing pets' pain

Pets need your help to get the care they need to live happy, healthy and comfortable lives. And an important step to meet that goal is to manage their pain. Use this client handout from Tasha McNerney, BS, CVT, CVPP, VTS (anesthesia and analgesia), to start a pain management conversation with pet owners.



Scan the QR code or head over to **dvm360.com/Gitoolkit** to download this free handout to share with your veterinary team.

# Should DVMs? sell pet food?



If your answers to the two questions in this article are "yes," then **ABSOLUTELY** your veterinary hospital needs to sell pet food to pet owners, according to Ernie Ward, DVM.

**Y**ou know what Ernie Ward, DVM—a Fetch dvm360 conference speaker and founder of the Association for Pet Obesity Prevention—is going to say: Nutrition for patients is important for every veterinary practice ... and every patient.

What does that mean? For some practices, it means picking foods to recommend and selling them. But it's not about the sale, Dr. Ward says.

"Do you sell wellness? Do you encourage preventive medicine?" Dr. Ward asks. If the answer to that is "yes," then you sell pet food.

It's about advocating for quality of life, he says.

And you know full well some pet diets out there aren't great, so Dr. Ward is urging all DVMs to learn what's good, what's bad, and recommend the right thing.

What does that look like? Aim for two protocols to make sure nutrition is a part of your care:

- > Sell pet foods you've researched and recommend
- > Ask every pet owner what they feed their pet—and how often and how much.

"We have to start these conversations," Dr. Ward says. "It's essential."

**Watch Dr. Ward's impassioned plea by scanning the code below.**



# GI CASES CAN BE TOUGH. THE SOLUTION IS SIMPLE.

ROYAL CANIN® GASTROINTESTINAL LOW FAT™ is our go-to nutritional solution for canine GI issues. GASTROINTESTINAL LOW FAT™ is highly palatable, low in fat, with highly digestible proteins, prebiotics and omega-3 fatty acids. This helps support gut health.

The Solution is Simple.  
Reach for ROYAL CANIN®  
GASTROINTESTINAL LOW FAT™



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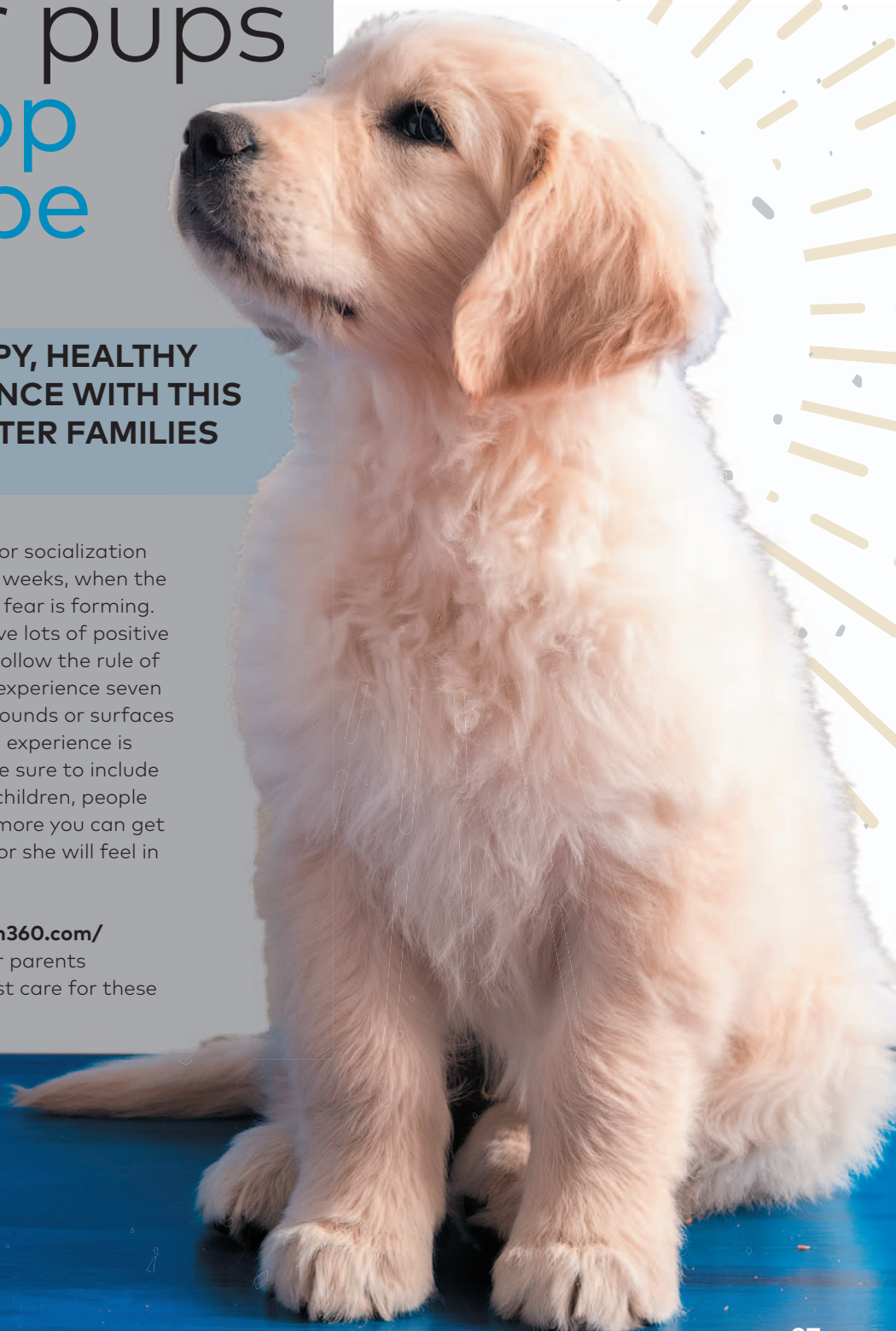
# Keep foster pups intiptop shape

By Amanda Dykstra, DVM

**PROMOTE A HAPPY, HEALTHY  
FOSTER EXPERIENCE WITH THIS  
ADVICE FOR FOSTER FAMILIES  
AND SHELTERS.**

The most critical time period for socialization in puppies is from ages 7 to 14 weeks, when the part of their brain that senses fear is forming. Your foster puppy needs to have lots of positive experiences during this time. Follow the rule of seven: Try to have your puppy experience seven new textures, tastes, people, sounds or surfaces every day, and make sure each experience is filled with treats and praise. Be sure to include all sorts of people: tall, short, children, people in wheelchairs and so on. The more you can get your puppy out, the braver he or she will feel in the face of new experiences.

Use the foster handout at **dvm360.com/fosterpup** as a guide for foster parents and shelters to provide the best care for these new arrivals.

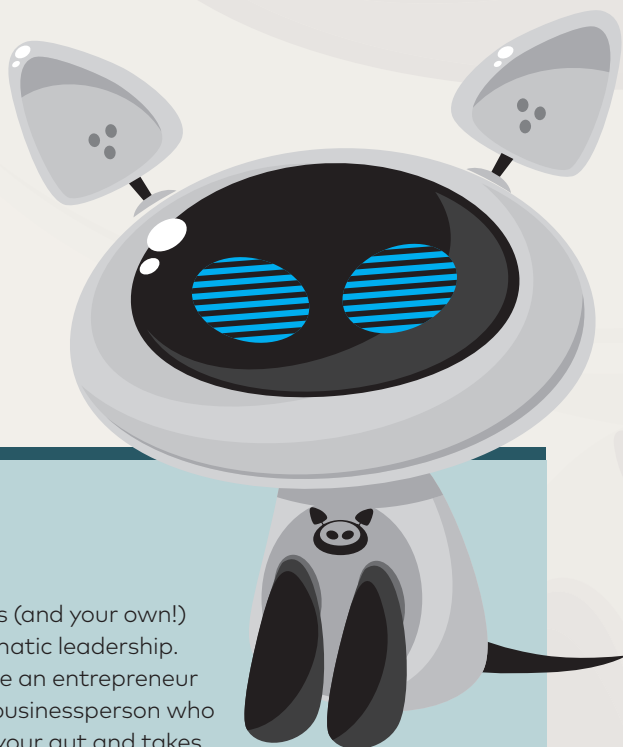


# 4 futures for veterinary practice managers

In the year 2020 ... what manager will you be? They might look similar, but your flavor of practice manager personality and approach to big change today could make a big difference.

*By Bash Halow, LVT, CVPM*

**y**our future—even your distant future—won't include those things from Star Trek that make gourmet dinners appear out of molecules from the air. And pets won't get up on two legs and drive themselves to your veterinary practice (even with Google's self-driving cars). But your future as a veterinary practice manager could very well wind up as one of these four short case studies. You can tell I think some of these options are better than others (hint hint, nudge nudge). Pick a future "you" you'll love from this snippet from one of my recent practice management sessions at Fetch dvm360 conference ...



## In the year 2020 ... you're an independent high flyer!

Your practice goes its own way, and you keep it growing and financially healthy.

Your clients have less money, but you put together payment strategies for them that put great care within reach.

Your clients might pay more than they would at the corporate practice down the road, and they may wait longer to see you, if necessary, and ignore the online ads of your corporate competitors because you matter when it matters most: face-to-face, in the lobby, in the exam room, in the community and on social media.

You're known in the community through your presence online, through your involvement in neighborhood activities, and through your practice

owner's (and your own!) charismatic leadership.

You're an entrepreneur and a businessperson who trusts your gut and takes risks.

You're a part of a loose union of similar independent practices that share management strategies and pricing information, broker buying deals and collaborate on exit strategies.

You treat your team members like family while inspiring them to reach stratospheric levels of client service and patient care.

You're happy. Your team members are happy too.

## In the year 2020 ... you'll be part of a global machine!

You may be one practice in a baker's dozen, or part of a larger company of 50 or more.

Your salary is sustainable, so the new owners keep you.

You may be asked to focus more on payroll and inventory costs and take more aggressive measures to reduce both.

You have more access to HR and legal advice, marketing materials, and the support of other managers of your caliber and experience level.

You may have chances to shine in management roles beyond a single practice.



## In the year 2020 ... you'll fade into the sunset!

You wait for the future to happen, playing constant catch-up instead of proactively planning.

You coast along until business as usual doesn't work and hundreds of thousands of dollars of practice value slip through your and the practice owner's fingers.

## In the year 2020 ... you'll fly to new horizons!

You're pressured to retire or you wind up costing too much for a penny-pinched practice owner to afford.

Your practice owner loves you but just can't afford your experience, knowledge base and education.

You fight for a position with a larger private or corporate-owned practice, but competition for the salary that comes along with such a job is stiff, not only from within the ranks of other veterinary practice managers (and CVPMs), but among young, talented MBA graduates scouring the job scene for work.



### Future in the Borg—err, corporate medicine

They're not evil, people. Working for a bigger company—a more-than-one-or-two-practice chain—has its pros and cons. Use the algorithm at [dvm360.com/choosepath](http://dvm360.com/choosepath) to figure out whether corporate employment is right for you. Read the benefits and drawbacks of working for a bigger company at [dvm360.com/corprocon](http://dvm360.com/corprocon).

*Bash Halow, CVPM, LVT, is a partner with Halow Tassava Consulting, a frequent speaker at the Fetch veterinary conferences and a regular contributor to [dvm360.com](http://dvm360.com) and Firstline magazine*





# See Spot suffering

Hey, technicians: Kara Burns, MS, MED, LVT, says you (yes, you!) can help more pets suffering from osteoarthritis (OA) live without pain and suffering.

By Sarah Wooten, DVM

## WHAT'S THE NO. 1 RISK FACTOR FOR OA DEVELOPMENT?

**O**besity. That means that every fat pet that walks in the front door of your practice either has OA or will have OA soon.

Because so many of our companion animals are fat (58 percent of cats and 54 percent of dogs are overweight or obese, according to the Association for Pet Obesity Prevention), the average person has a hard time knowing what a healthy weight looks like. With this in mind, give your patients—every pet, every time—a

body condition score (BCS), says Burns. Pets that have a BCS of 3 out of 5 or 4.5 to 5 out of 9 have the lowest risk of development of OA.

Do you use diagnosis codes in your practice software? Go ahead and pull up all the pets that are overweight or obese. I dare you. Got a decent sized list going? These clients are excellent candidates for a one-time email newsletter blast that details the risks and signs of OA, reviews treatment options and directs your clients to

make an appointment to have their pet assessed.

Are your clients still not convinced? Tell them about Purina's Life Span Study. Dogs that maintained a lean body weight lived longer (lean Labrador retrievers in the study lived two years longer) and needed NSAIDs much later in life than their thicker counterparts.

Find a complete list to become an OA advocate in your clinic at [dvm360.com/spotOA](http://dvm360.com/spotOA).





# Pest control tips for pet owners

Offer your clients pet-friendly advice to safely manage a range of pests, from fleas and mosquitoes to rodents and other creepy-crawlies.

By Charlotte Flint, DVM

## PULL UP THE WELCOME MAT

Start by counseling pet owners to make their homes less hospitable to unwanted guests.

For example:

- Identify and remove sources of food that could call to insects or mice.
- Fill holes, cracks and other openings in the home where pests can enter.
- Eliminate areas of standing water around your home that encourage mosquito breeding.
- Stress that frequent housecleaning, including vacuuming and washing bedding, are important, especially when it comes to flea infestations in the home.

Are you ready to educate pet owners on safer pest control? Offer up this handout with six tips to reduce your patients' exposure to potentially toxic pest control options at [dvm360.com/pestcontrol](http://dvm360.com/pestcontrol).)

*Charlotte Flint, DVM, is the senior consulting veterinarian, clinical toxicology, for Pet Poison Helpline.*

FROM YOUR VETERINARIAN

dvm360

## 6 pest control tips for pet owners

Get rid of the creepy-crawlies without harming your precious pet.

**O**h no! You hear the scurry of little mouse feet or see a trail of ants marching across your kitchen floor. Here are some tips for ridding your home of these unwanted guests while keeping your pets safe.

### 1. Pull up the welcome mat

Start by making your home less hospitable to unwanted guests. Identify and remove sources of food that could call to insects or mice. Fill holes, cracks and other openings in your home where pests can enter. Eliminate areas of standing water around your home that encourage mosquito breeding. Frequent housecleaning, including vacuuming and washing bedding, are important, especially when it comes to flea infestations in the home.

### 2. If prevention fails, pick your poison

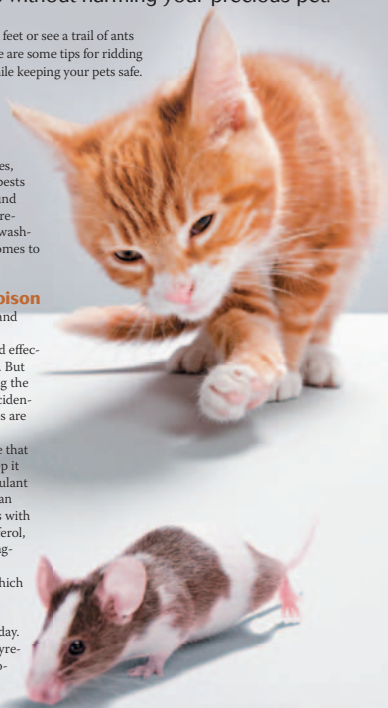
It's important to choose pesticides thoughtfully and ensure safe placement if you have pets.

For rodents, snap mousetraps can be a safe and effective choice when there are also pets in the home. But keep traps out of reach of pets and consider using the enclosed type of trap so a curious pet doesn't accidentally snap their nose or paw in the trap. Live traps are another option for rodent control.

If you choose to use rodent poisons, select one that has an antidote, always use bait stations, and keep it in areas that pets can't access. With the anticoagulant class of rodenticides, vitamin K1 can be used as an antidote—this is a safer option than rodenticides with the active ingredients bromethalin or cholecalciferol, which do not have an antidote and can cause long-lasting harm when consumed by pets. Look for ingredients like bromadiolone or difethialone, which are anticoagulant rodenticide ingredients with a wider margin of safety.

There are lots of insecticides on the market today. Low concentration borates, low concentration pyrethroids, fipronil, neonicotinoids such as imidacloprid, and hydramethylnon are some safer insecticide choices if you have pets. Always follow

IMAGE SOURCE: GETTY IMAGES



# BP and capnography: perfect harmony

By Sarah J. Wooten, DVM



**W**hen asked about her favorite anesthesia monitoring parameters, Fetch dvm360 conference speaker Tasha McNerney, BS, CVT, CVPP, VTS (anesthesia and analgesia), says blood pressure (BP) and capnography are the most valuable tools in her anesthesia monitoring arsenal. Wondering what these tools can do for you? Read on. (Psst, you can catch a repeat of this moment in anesthetic history at Fetch dvm360 conference in San Diego.)

## You down with ol' BP?

When it comes to BP, what should you be looking for? When do you alert

the doctor? McNerney stresses the importance of developing a protocol for your clinic so that everybody knows what to expect and the technicians know what to do—such as starting a fluid bolus or dobutamine if the pressure is too low. This not only empowers the technician, but it frees up brain space for the veterinarian. At McNerney's clinic, they aim for a systolic BP > 90 mm Hg, a diastolic > 40 mm Hg, and a mean arterial pressure (MAP) > 65 mm Hg for all patients, regardless of who is performing the anesthesia. Most textbooks will say MAP > 60 mm Hg, but McNerney says if you are trending three measurements in a row

with a MAP < 60 mm Hg, then blood flow to vital organs could be compromised. To avoid that, keep MAP > 65 mm Hg.

Want to take your anesthesia monitoring skills to the next level? Consider learning how to perform invasive BP monitoring. This requires some training but it's considered the gold standard, and McNerney highly recommends it for cardiovascularly compromised patients. Learning this technique can increase your value to your clinic and increase the safety of your patients. By the way, McNerney works in private practice and performs invasive BP monitoring—so if she can do it, you can do it!

## Aye aye, cap(nography)!

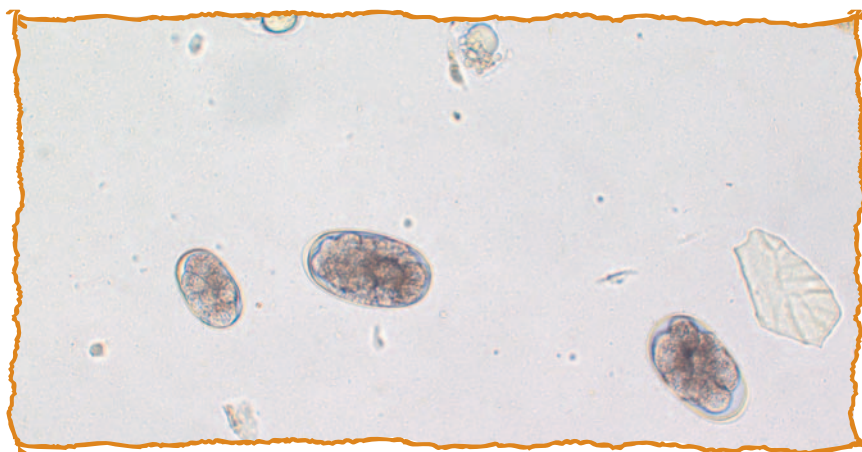
End-tidal carbon dioxide (CO<sup>2</sup>) is one of McNerney's favorite monitoring parameters. Capnography tells you how your patient is ventilating and indirectly gives you information on cardiac output and volume status. End-tidal CO<sup>2</sup> can tell you very early if there's a problem within your breathing circuit. For example, is there a problem in the tubing or machine? The capnograph can tell you before you detect it, even if you have done a leak test! All sorts of mechanical dysfunctions, such as sticky valves or closed pop-off valves, can cause an elevated baseline and alert you to problems in your system.

## Pro tips for capnography

- > Capnography is very helpful with cardiopulmonary resuscitation (CPR). CO<sup>2</sup> levels below 20 mm Hg will show you that you have ineffective chest compressions and you either need to tag out for another person or switch your position.
- > An abnormal plateau that trails down is due to a leak somewhere. McNerney finds that this is often caused by a leak around the cuff after a pet has been anesthetized for a while due to relaxation and depth of anesthesia.
- > Cardiogenic oscillations are due to vibrations in deep-chested dogs and are an artifact. Don't treat.



# Persistent evidence of **parasites** on a fecal flotation test



This beagle mix has been treated multiple times for similar findings. Can you figure out what's going on?

By Richard Gerhold,  
DVM, MS, PhD

**Which parasites are shown in the image above?**

- A *Trichuris vulpis*
- B *Toxocara canis*
- C *Dipylidium caninum*
- D *Ancylostoma caninum*

**Answer:** D—Eggs of *Ancylostoma caninum* (hookworm eggs)

**This dog was previously treated three separate times with fenbendazole or pyrantel pamoate after veterinary teams found similar eggs on the fecal floatation test. What is the most likely reason for the continued detection of these eggs despite treatment?**

- A Ingestion of arthropod intermediate host leading to reinfection
- B Anthelmintic resistance, which is commonly reported for this parasite
- C Larval leak that occurs after treatment

**Answer:** C—Larval leak occurring after treatment

Larval leak is the most common cause for recurrent hookworm infections that do not clean up after treatment. Infections in dogs with canine hookworm larvae due to *Ancylostoma* or *Uncinaria* species often lead to a subset of larvae arresting in the somatic musculature of the host. Upon treatment and killing of the adult hookworms in the lumen of the host's intestines, some larvae will be activated and within a few weeks develop into adults in the small intestines of the dog. This phenomenon is repeated following subsequent treatments.

Although hookworms can use paratenic (i.e. transport) hosts generally consisting of small mammals, there is no arthropod intermediate host associated with transmission.

Anthelmintic resistance of canine hookworms is virtually nonexistent, but drug resistance is often incorrectly blamed for the larval leak mechanism. Prevention of infection via limiting predation, minimizing environmental contamination, and using monthly preventives should be emphasized to clients.

*Dr. Richard Gerhold works in the Department of Biomedical and Diagnostic Sciences in the College of Veterinary Medicine at the University of Tennessee.*



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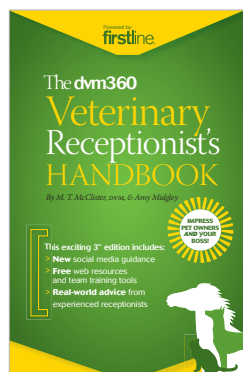
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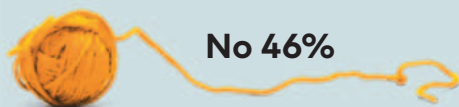
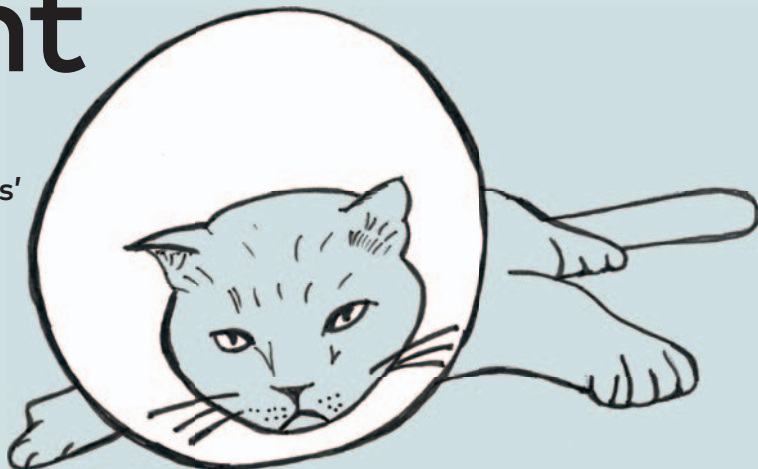




# Batting around enrichment

Data from the 2017 dvm360 Clinical Updates: Pet Enrichment Survey shows what teams are doing to enrich patients' experience when they visit the hospital.

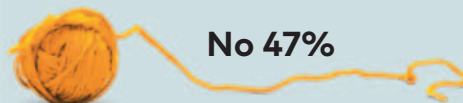
We asked: Do you use environmental enrichment (when appropriate) in your practice for visiting patients?



Some of respondents' top answers for how they enrich the visiting pet's experience:

- 1 Offer treats for dogs
- 2 Adapt exam rooms to make them friendlier for pets
- 3 Use pheromones
- 4 Create hiding spaces

And nearly the same percentage of respondents said they offer enrichment for hospitalized patients:



These are the top strategies respondents reported using for hospitalized pets:



Source: The dvm360 Clinical Updates: Pet Enrichment Survey was sent in September 2017 to subscribers of dvm360, Vetted and Firstline. The survey garnered 864 responses with a margin of error of 3%.



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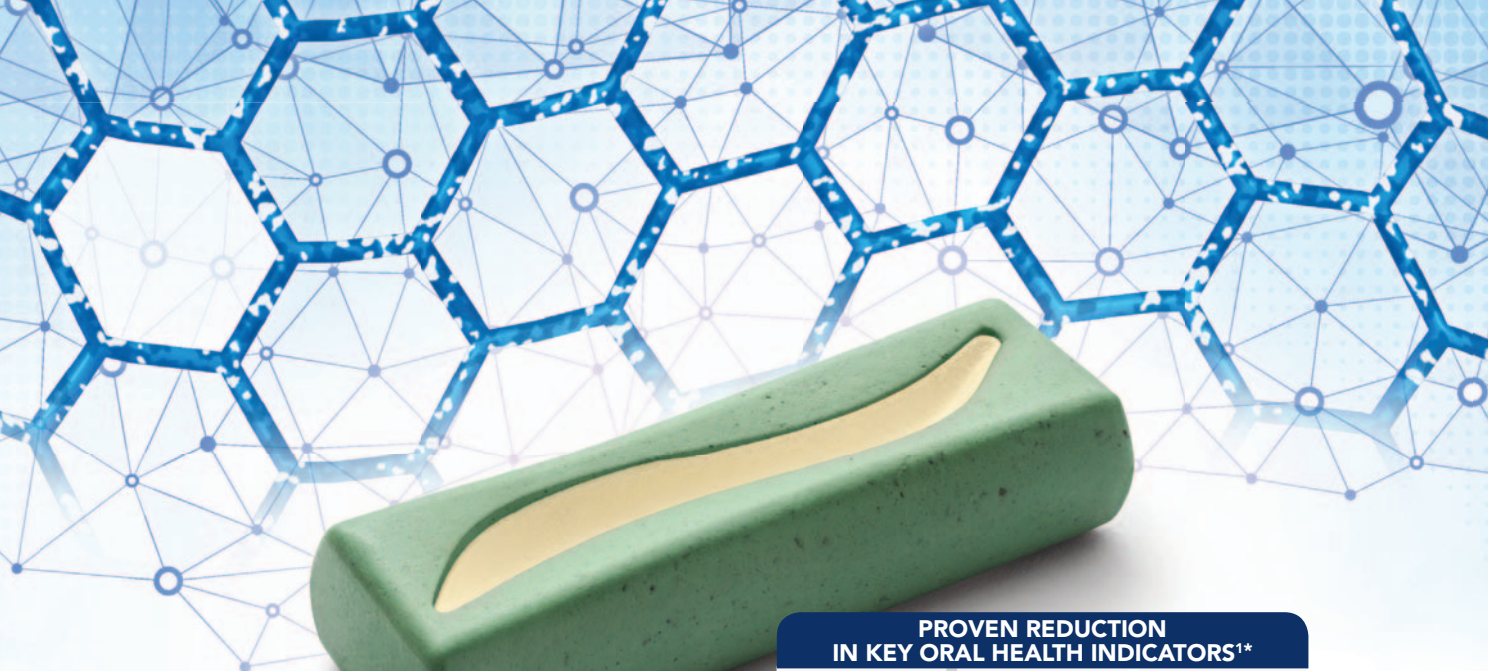
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**References:** 1. Data on file. 2. Steinberg D, Beeman D, Bowen W. The effect of delmopinol on glucosyltransferase adsorbed on to saliva-coated hydroxyapatite. *Archs Oral Biol.* 1992;37:33-38. 3. Vassilakos N, Arnebrant T, Rundegren J. In vitro interactions of delmopinol hydrochloride with salivary films adsorbed at solid/liquid interfaces. *Caries Res.* 1993;27:176-182.



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