

# vetted<sup>TM</sup>

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## Content

Editor/News Channel Director | **Kristi Reimer**  
kristi.reimer@ubm.com  
Editor/Team Channel Director | **Portia Stewart**  
portia.stewart@ubm.com  
Editor/Business Channel Director | **Brendan Howard**  
913-871-3823 | brendan.howard@ubm.com  
Editor/Medicine Channel Director | **Mindy Valcarcel**  
mindy.valcarcel@ubm.com  
Content Manager | **Adrienne Wagner**  
Senior Content Specialist | **Jennifer Gaumnitz**  
Associate Content Specialists | **Katie James, Sarah Dowdy**  
Assistant Content Specialist | **Hannah Wagle**  
Clinical Content Manager | **Heather Lewellen, DVM**  
Technical Editor | **Jennifer Vossman, RVT**  
Digital Content Director | **Jessica Zemler**  
Digital Design Director | **Ryan Kramer**  
Digital Content Manager | **Alison Fulton**  
Multimedia Producer | **Troy Van Horn**

## Sales

Sales Director | **David Doherty**  
913-871-3870 | david.doherty@ubm.com  
Account Manager | **Angie Homann**  
913-871-3917 | angie.homann@ubm.com  
Account Manager | **Angela Paulovcin**  
440-891-2629 | angela.paulovcin@ubm.com  
Account Manager | **Terry Reilly**  
913-871-3871 | terry.reilly@ubm.com  
Account Manager | **Heather Townsend**  
913-871-3874 | heather.townsend@ubm.com  
Digital Data Analyst | **Jenny Shaffstall**  
913-871-3854 | jenny.shaffstall@ubm.com  
Sales Coordinator | **Anne Belcher**  
913-871-3876 | anne.belcher@ubm.com  
Books/Resource Guide Sales | **Maureen Cannon**  
440-891-2742 | maureen.cannon@ubm.com

## Marketing

Marketing Director | **Brenda Andresen**  
brenda.andresen@ubm.com  
Marketing Designer | **Andrew Brown**  
Marketing Copywriter | **Tim English**

## UBM Americas, Life Sciences Group

Vice President & Managing Director | **Becky Turner Chapman**  
913-871-3810 | becky.turnerchapman@ubm.com  
Vice President, Digital Product Management | **Mark Eisler**  
Group Content Director | **Marnette Falley**  
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**2** Pigeons as art

**4** Who you callin' Sweetie?

**6** Put a stamp on your practice

**12** Aww! Tiny wheelchairs (and other rehab products!)



**Canine atopic dermatitis: It's not magic!**

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**Get your fix on fracture repair**



# GMOs? Um, no.

We're living in a GMO world, people. Consider these talking points for clients who say, "Um, no GMO!"



**14**



**26**



**34** Hasta la vista, edema!

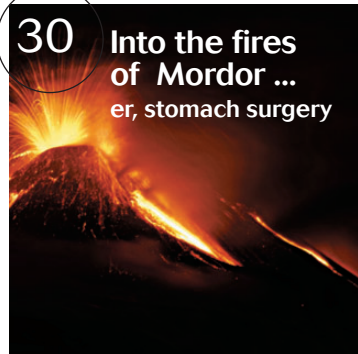
> A trio of chemo handouts

> Advice for a bad day

**44** Attention: Introverts unite!

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**Into the fires of Mordor ... er, stomach surgery**



# THE PICKS

(what we care about now)

## Night *flight*

Pigeons—although domesticated for thousands of years—are often considered a big-city nuisance. “Rats with wings,” anyone? But by combining nature and technology, one artist sees them as far more.

**T**hese birds of a feather flocked together to collaborate with artist Duke Riley, the public arts organization Creative Time and the Brooklyn Navy Yard to create a series of breathtaking performances marrying nature with technology called “Fly By Night.”

According to Creative Time, the Brooklyn Navy Yard—which was once home to the country’s largest naval fleet of pigeon carriers—was “the ideal setting for the exhibit that paid tribute to the beautiful, diverse and fascinating histories of pigeon flying and New York City.”

Pigeons were outfitted with innovative leg bands (historically used to carry messages) that were updated to contain tiny, remote-controlled LED lights. The flock was released each weekend May 7 through June 19 at dusk to illuminate the sky as the sun set over Manhattan.

Pigeons, which have been domesticated for

service and companionship for thousands of years, are a particular passion for artist Duke Riley. Many of the birds used in the exhibit came from his personal flock. During the creation of the Fly By Night project, Riley and Creative Time retained Alexandra Wilson, DVM, of the Center for Avian and Exotic Medicine in New York City. Dr. Wilson has established expertise in the medical and surgical care of birds, reptiles, amphibians, fish and small mammals.

“Fly By Night will have a transformative effect on avian welfare by helping us see that the life in the sky—from the under-appreciated pigeon to migratory marathoners—is one of nature’s superb art forms, one we can cherish everyday just by looking up,” according to Rita McMahon, director of the Wild Bird Fund.

For more information on the project—including select individual profiles of the pigeons themselves—check out at [creativetime.org/projects/flybynight](http://creativetime.org/projects/flybynight).



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

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

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Start of flight ...



The coop ...



Lone pigeon sets off ...



The landing.

## Who you callin' "sweetie"?

According to experts, "Younger people sometimes address older adults in a style of speech characterized by the use of simplified vocabulary (e.g., only using short words), endearing or diminutive terms (e.g., 'sweetie' or 'cutie') and exaggerated intonation (e.g., unusual stress on certain words, 'sing-song' pitch variation you'd use with babies or adorable pets)," but most older adults feel disrespected and infantilized when addressed with this "elderspeak." Find communication tips to connect with mature clients at [dvm360.com/notyoursweetie](http://dvm360.com/notyoursweetie).



## Stop looking for unicorns!

Dean Scott, DVM, says he thinks the perfect "10" employee is a myth—like Bigfoot, the Loch Ness Monster and, yes, unicorns. What you want in an employee is what he calls a "Complementary 10." Complementary 10s make you better by adding their strengths to yours and have strengths in areas you don't. Read about complementary 10s at [dvm360.com/unicorns](http://dvm360.com/unicorns).



## Forget "fun" visits

Mikkel Becker, CPDT, says a better approach is a Victory Visit—a carefully cultivated experience for pets. (Read more about Victory Visits at [dvm360.com/Victorious](http://dvm360.com/Victorious).) Here are some of the essential skills to practice while preparing for Fear Free Victory Visits.



### 1 Familiarity with the parking lot, lobby, exam room

- Focusing on the waiting room
- Showing tricks for team members
- Getting on the scale

### 2 Targeting equipment or learning to remain relaxed while being handled with such equipment use as:

- Stethoscope
- Otoscope
- Nail trimmers
- Cotton swab for mock temperature

### 3 Practicing these experiences to prepare for the exam

- Touched/handled by different person
- Spending time in the exam room, potentially on an exam table

### 4 Preparing for likely care

- Receiving ear/eye medication
- Taking pills

# MORE INSIGHT

helps you make the most of your  
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## Put your stamp on your practice through art

Paintings and other creative expression can bring pops of color and show off your veterinary hospital's style.

If your reception area or exam rooms could use some freshening up, an easy way to bring color—and personality—into those spaces is with custom artwork. Whether it be ultra-modern, eclectic or classic, paintings are a relatively inexpensive addition. You can even turn art into a community relations event: enlist adults and kids to make it (see [dvm360.com/smartcoloring](http://dvm360.com/smartcoloring) to get started), ask for photos, and more. Check out the photos on these pages for inspiration.



Want more veterinary hospital photos? Head to [dvm360.com/HDgalleries](http://dvm360.com/HDgalleries) to check out award-winning facilities, as well as pictures of boarding, reception, and treatment areas, along with much more.



Brightly colored canvases throughout CityVet in Raleigh, North Carolina, bring a home-like comforting atmosphere to the hospital.



Countryside Veterinary Center in Countryside, Illinois, uses bright colors to contrast the neutral tones in their reception area.





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

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

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

Please see Brief Summary on following page.

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**BRAVECTO®**  
(FLURALANER)

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Animal Health



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

**Caution:**

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

**Indications:**

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

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

**Contraindications:**

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

**Warnings:**

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

**Precautions:**

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

**Adverse Reactions:**

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

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

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

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

For technical assistance or to report a suspected adverse drug reaction, contact Merck Animal Health at 1-800-224-5318. Additional information can be found at [www.bravecto.com](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>.

**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.

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Summit, NJ 07901

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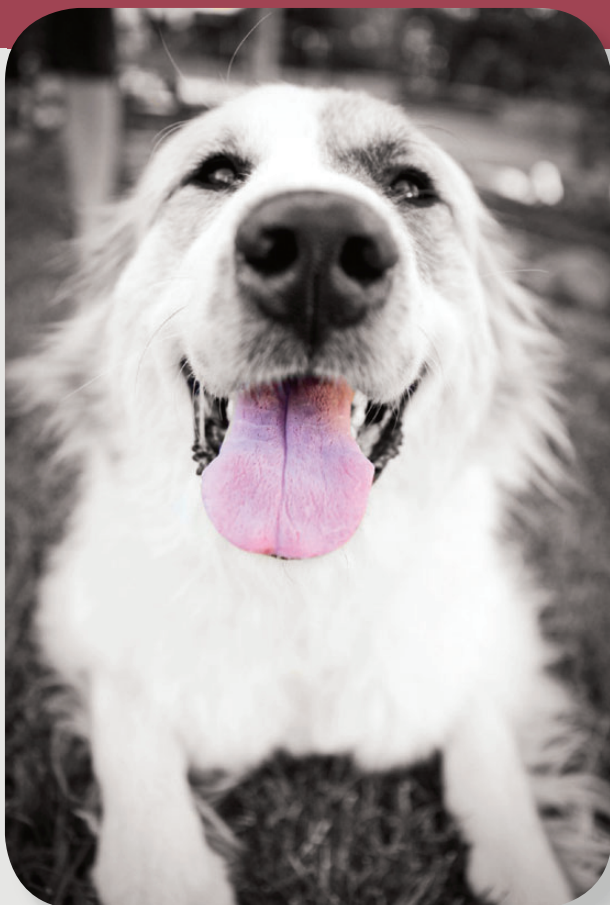
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141487 R2

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



# HOSPITAL DESIGN



Atwater Veterinary Center in Atwater, California, commissioned a local artist to photograph staff members' pets to bring a fun and personalized element to the space.



The owner of Finan Animal Hospital in Darien, Illinois, wanted to reflect her funky personal style, so she commissioned custom paintings that coordinate with the brightly colored walls throughout the hospital.

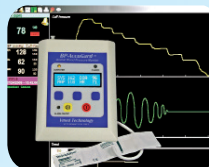


Bigger Road Veterinary Center for Pet Health and Enrichment in Springboro, Ohio, got kids involved in their artwork, inviting clients' kids to paint pictures of their pets at their annual Pet Fair.

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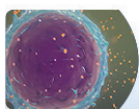
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# MONOCLONAL ANTIBODIES: A New Treatment Option For Canine Atopic Dermatitis

**Monoclonal antibody therapy is the fastest growing therapeutic area in human medicine. In recent years, research has focused on how these therapies can be translated to animal health. Specifically, Zoetis has invested in bringing an innovative biological therapy to the treatment of canine atopic dermatitis.**

While many therapeutic options are available for canine atopic dermatitis, there is room for improvement. Dog owners are seeking treatments that allow greater flexibility to suit their needs and lifestyles—and with few side effects. Treatment protocols may need to be customized for dogs suffering from an acute condition compared to dogs with seasonal allergies or those affected year-round. Special consideration may need to be given to dogs with atopic dermatitis that are under 12 months of age, those already on medications (such as NSAIDs) that limit additional therapies or those with co-existing diseases (such as neoplasia or serious infections) that may impact therapeutic options.



## **Harnessing the power of the immune system**

Monoclonal antibodies (mAbs) are developed in a laboratory from a single cell line and, when administered to patients, target and neutralize specific antigens. Unlike some biological therapies such as vaccines, mAbs mimic the activity of the animal's own naturally produced antibodies without provoking an immune response from the host.

## **Stopping the itch cycle before it starts**

To create an effective mAb therapy, you first have to determine the specific target(s) of most relevance to the disease process. Research over the past decade has shown that cytokines play an important role in the cycle of itch and inflammation in canine atopic dermatitis. Cytokines are proteins produced

by cells that act as messengers between cells to promote and drive allergic inflammation.

Research at Zoetis has focused on the pruritogenic cytokine interleukin (IL)-31. A key function of IL-31 is to stimulate the neuronal itch pathway by activating peripheral sensory nerves in areas of allergic dermatitis. Additionally, the most recent research would suggest that IL-31 may have effects on the immune functions and its possible role in other inflammatory diseases.<sup>1</sup>

A study has shown that IL-31 can be identified in the serum of dogs with atopic dermatitis, but not in healthy dogs; and when IL-31 is injected into laboratory dogs, pruritic behaviors are induced.<sup>2</sup>

Through this research, Zoetis has discovered and manufactured an anti-IL-31 monoclonal antibody that will target and neutralize only this cytokine to rapidly and effectively help reduce clinical signs of canine atopic dermatitis. Because of the exquisite specificity in the targeting of IL-31, other cellular functions and immune responses are not adversely affected.

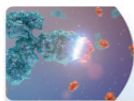
## **Introducing Canine Atopic Dermatitis Immunotherapeutic\***

A conditional license from the USDA was granted to Zoetis in August 2015 for Canine Atopic Dermatitis Immunotherapeutic\*, a new treatment for canine atopic dermatitis. Veterinary dermatologists across the United States have since been using this product—an injectable monoclonal antibody that aids in the reduction of clinical signs associated with atopic dermatitis in dogs.

**“This is a first-of-its-kind antibody therapy in veterinary medicine to help break the itch cycle and provide relief for dogs that suffer from atopic dermatitis. It also helps pet owners enjoy their pets and avoid daily medications for itch relief,”**

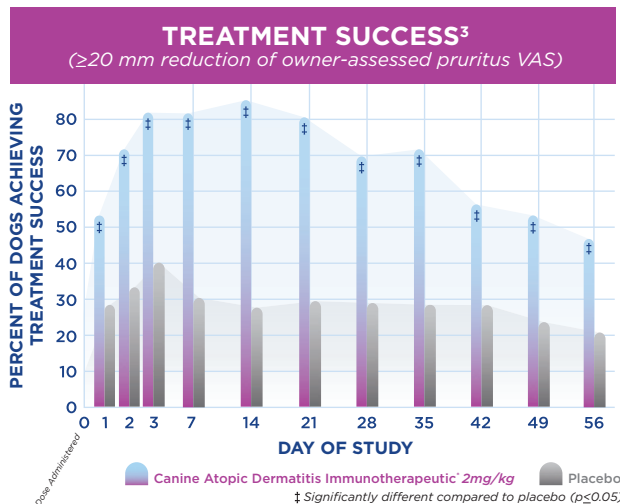
said Andrew Hiller, BVSc, MANZCVS, Dipl ACVD, Veterinary Specialty Operations and Medical Lead Allergy, Dermatology at Zoetis. This anti-IL-31 mAb was initially developed in the mouse. However, mouse

antibodies are recognized as “foreign” proteins by dogs and will be rapidly eliminated by the immune system, thus losing efficacy. This anti-IL-31 mAb has been engineered to mimic dog antibodies, a process referred to as “caninization.” As a result, the mAb is not seen as “foreign” and is accepted by the dog’s immune system, thus maintaining efficacy even when used repeatedly over the long term.



### Fast, safe and long-lasting relief for canine patients

Once injected in the patient during an office visit, Canine Atopic Dermatitis Immunotherapeutic\* begins to reduce clinical signs of atopic dermatitis within one day. On average, patients will experience 30 days of relief of itch and the clinical signs of atopic dermatitis. Dogs may receive additional monthly treatments, as needed, for continued relief.



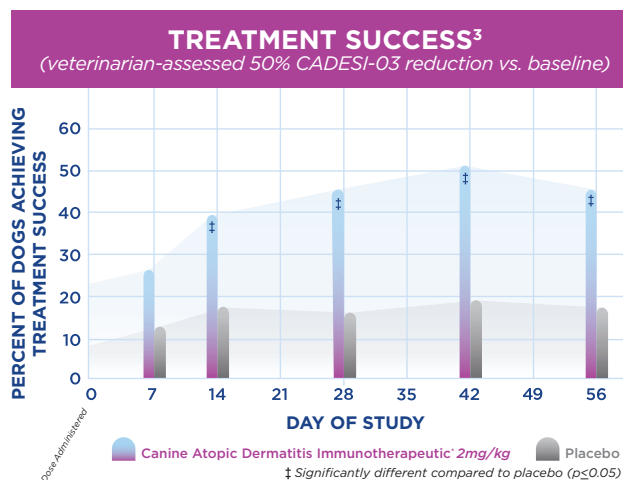
Along with itch relief, the mAb also leads to improvement in skin condition, giving the skin a chance to heal.

\*This product license is conditional. Efficacy and potency test studies are in progress.

<sup>1</sup>Cornelissen C, Lüscher-Firzlaff J, Baron JM, Lüscher B. Signaling by IL-31 and functional consequences. *Eur J Cell Biol*. 2012;91(6-7):552-566.

<sup>2</sup>Gonzales AJ, Fleck TJ, Humphrey WR, et al. IL-31-induced pruritus in dogs: a novel experimental model to evaluate anti-pruritic effects of canine therapeutics. *Vet Dermatol*. 2016;27(1):34-e10.

<sup>3</sup>Data on file, Study Report No. C863R-US-12-018, Zoetis Services LLC.



Canine Atopic Dermatitis Immunotherapeutic\* is safe for dogs of all ages. Since the mAb mimics the dog’s own antibodies, it is eliminated via normal protein degradation pathways that do not involve the kidneys or liver, thus avoiding potential side effects associated with traditional pharmacotherapy.

There are no known drug interactions or contraindications, thus the mAb can be administered with other common medications, including parasiticides, antibiotics, antifungals, corticosteroids, vaccines, allergen-specific immunotherapy, antihistamines and other antipruritics, such as oclacitinib and cyclosporine.

### Want to learn more?

Visit [canineantibodytherapy.com/vetted](http://canineantibodytherapy.com/vetted) for more information about how Canine Atopic Dermatitis Immunotherapeutic\* can help relieve the clinical signs of atopic dermatitis and improve the quality of life for dogs with atopic dermatitis as well as for their owners.

# Awww! Tiny wheelchairs!

This product roundup makes us feel so warm and fuzzy we can hardly stand it.



1



2



3

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## 1 FOR LEGS, NOT TEETH

Go Hero Go stifle braces (tagline "For legs, not teeth") borrow concepts from human knee braces and adapt them to a dog's unique way of walking. Dogs using a stifle brace are able to climb stairs paw over paw, can bear weight on the affected leg, walk with less pain and return to their regular, active lives.

## 2 CARTIN' AROUND

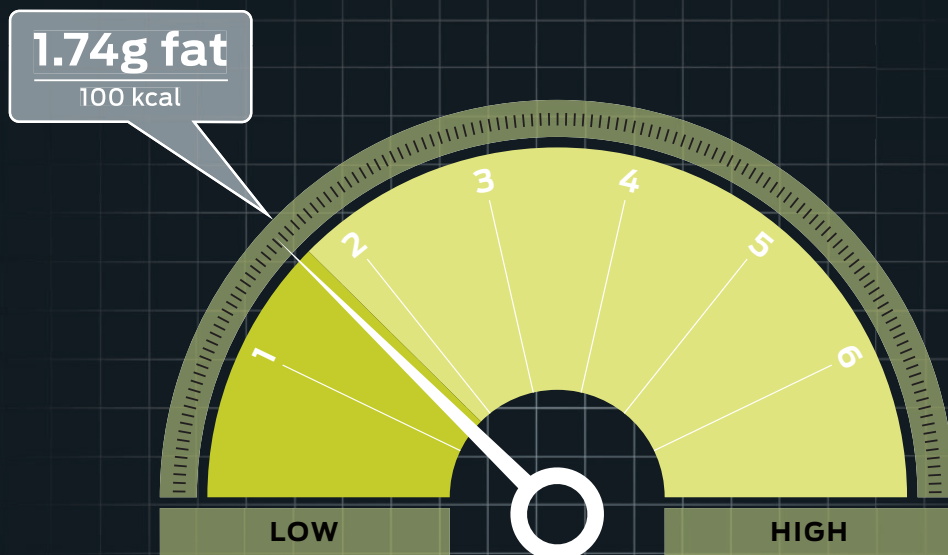
K9 Carts offer fully adjustable, convertible dog wheelchairs designed by professionals in pet mobility. The unique design built into every wheelchair allows each cart to convert between multiple support options. K9 Carts offers a complete product line of mobility and health care options for disabled pets.

## 3 FREE WHEELIN'

Eddie's Wheels designs and manufactures custom dog wheelchairs and wheelchairs for a variety of handicapped pets. As caregivers of disabled dogs for the past 20 years, Ed and Leslie Grinnell knew what they wanted for their pets: a wheelchair designed for on- and off-road play that would allow for their pets to enjoy a good quality of life while they healed.

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

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<sup>†</sup>Comparison based on values published in PPVD Product Guide 2015 (average nutrient content), Hill's Key 2016 (average nutrient contents), Royal Canin Product Guide 2016 (typical analysis)

\* Millward Brown Veterinary Tracker, Fall 2015



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# Um, no. **GMOs?**

We're living in a GMO world, people. Consider these talking points—fresh from the 2016 Nestle Purina Companion Animal Nutrition Summit—for clients who say, “Um, no GMOs!”

*By Heather Lewellen, DVM*

**H**ave you been asked about whether or not a pet food you recommend contains any genetically modified organisms (GMOs) yet? You will be. And the vast majority of pet foods contain at least one GMO if corn or soy is listed in their ingredient list. Wayne Parrott, PhD, with the University of Georgia's Department of Crop and Soil Sciences' Center for Applied Genetic Technologies, took us through a short journey into the past, the present and the future of GMOs at the 2016 Nestlé Purina Companion Animal Nutrition Summit.

## **Teenage mutant ninja carrots**

People take the food they buy in the grocery store for granted. They don't realize that it sometimes bears very little resemblance to its wild counterpart—if it even has a wild counterpart. For example, modern strawberries did not exist until the mid-1700s.

Before the discovery of DNA and technology to manipulate it, most plant and animal changes took place through selection and crossbreeding of spontaneous mutations that occasionally occurred. This “natural” form of genetic modification has been in practice for thousands of years and has changed everything from the size of our dogs and horses to the very existence of orange carrots. In fact, Parrott says, “It is impossible to change the way a crop looks without changing its DNA.”





## Soy: It's what's for dinner

The term GMO refers to an organism that was modified in a laboratory setting using recombinant DNA (rDNA) methods only. Such organisms are now ubiquitous throughout the food and feed supply, the most common in the United States being corn, canola and soybean crops. Despite this, their use has become a heated topic in the public. There have been an increasing number of claims of adverse effects on the health of people and animals of late. However, not a single one of these claims has been validated. Parrott says, "Instead, it has been possible to explain these reports as based on hearsay, shoddy experimentation, inadequate statistical analysis that invalidates the results, and even downright fabrication."

So what do you say to a client who believes these claims? Even though unintentional genetic changes can come along with intentional ones, the list of safety testing procedures that organisms must pass to reach the market is rigorous. For example:

> The composition of both the original organism and the resultant GMO are analyzed, and any

differences that are found are tested for safety.

- > If there are genes that are transferred that produce proteins in both the original and the GMO plant, those proteins must be tested for allergic safety in the new plant. If the proteins in the original plant do not cause a particular allergic reaction, the GMO version of the protein must not cause an allergic reaction either.
- > Any proteins that might be found in the original plant and the GMO are tested in short-term and long-term toxicology studies conducted on laboratory animals to make sure they have no toxic properties.
- > The appropriateness to serve as feed, called wholesomeness, is tested by feeding to rapidly growing young chickens.
- > Nutritional equivalence testing is performed to ensure that any nutritional value is not altered.

Parrott says that, in fact, the exorbitant cost of approval has prevented several genetically modified versions of locally relevant crops or traits from reaching the market. This is unfortunate because, frequently, genetically modified crops bring production benefits such as reduction of soil erosion or resistance to disease, insects, or drought.

You may also tell your clients who ask that genetically modified crops are the most studied foods and feeds in history, and more than nine billion food-producing animals have been raised each year on genetically modified feeds without any unfavorable trends on their productivity or health indicators.<sup>1</sup>



## The bottom line for the future of GMOs

"Whether genetically modified crops will continue to play an important role in agriculture really depends on the extent to which the public becomes confident of their safety and comfortable with their use," says Parrott.

### Reference

1. Van Eenennaam AL, Young AE. Prevalence and impacts of genetically engineered feedstuffs on livestock populations. *J Anim Sci* 2014;92:4255-4278.

# Shucking pet food marketing gimmicks

## Use science-based opinion to quell the fears about diets you recommend.

"I would never feed my fur baby that." Do pet owners balk at your pet food recommendations because they contain corn, soy or perhaps—gasp—genetically-modified corn and soy in their ingredient lists? How many calls has your front office staff fielded from clients standing in the pet food aisle trying to make a decision about what to buy? If you trust the companies producing the pet food you recommend, it's time to think about how to get pet owners on board too. Lisa Weeth, DVM, MRVCS, DACVN, has three communication tips to help ease what you see as client misconceptions about pet food.

### Who made it?

Dr. Weeth thinks the question of who actually manufactures the food matters—a lot. "Is it a pet food company that works with PhD-level nutritionists for diet formulations, sources their own ingredients, makes their own food and conducts their own quality control testing?" she asks. "Or is it a company with an idea about how to market dog or cat foods to tap into a growing \$23-billion-a-year market, but outsources everything?"

### What are they selling?

Don't be fooled by "corn- and soy-free." "All of the anti-corn and anti-soy rhetoric I see comes from pet food companies that don't use corn or soy in their formulation," Dr. Weeth says. "It's a marketing tactic to distinguish their products from the competition and sway consumers into purchasing certain—often more expensive—foods."

**How long's it been around?** Let pet owners know that certain ingredients are common in pet foods because they've been used successfully in commercial diets for more than 100 years for dogs and more than 40 years for cats. There can be exceptions, Dr. Weeth says, but "If the dog or cat is eating a complete and balanced commercial pet food, is otherwise healthy, maintains a health BCS, has good skin and coat quality, and produces normal stool, then I'd have no reason to change from whatever diet regardless of the ingredients."

It's important that cat food contain an animal protein in the first five ingredients, because cats have a higher protein requirement than dogs.

Protein should make up  
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**20 to 30%**

DATA SOURCE: DR. LISA WEETH

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## Treating canine atopic dermatitis:

# It's not magic

Much as you'd like to wave a wand and make your patients' itching disappear, it's not that simple. Fortunately, this overview of four therapeutic options and a step-by-step treatment strategy can help you provide relief. *By Darin Dell, DVM, DACVD*

**C**anine atopic dermatitis is like a trickster in a fairy tale—always causing chaos. But let's talk about a more practical kind of magic. After all, you don't need to be Harry Houdini to get pet owners to cheer for your successful treatment of their itchy pets. Here's how to take the intrigue out of canine atopic dermatitis—no secret key or sleight of hand required.

First off, remember that no single therapy is 100 percent effective at treating atopic dermatitis. Most patients need a core therapy and one or two supportive therapies. Let's start with the four core therapies that are safe for long-term use.

### 1 Immunotherapy

Immunotherapy, the gold standard of allergy therapy, is the only treatment that changes the immune system's response to allergies rather than suppressing it or dulling clinical signs. Immunotherapy can prevent new allergies from developing and is the only therapy that can potentially cure a patient. However, the cure rate is low, and most dogs require immunotherapy for life.<sup>1</sup>

**Onset of action:** Six to 12 months for significant benefit

**Side effects:** No major side effects (anaphylaxis can occur but is rare)

#### Treatment tips:

- > Both administration routes for immunotherapy—subcutaneous injections and sublingual drops—are effective. The best choice is the one the pet owner will comply with.
- > Because of the slow onset of action, many patients need an additional core therapy when beginning immunotherapy.
- > Dogs should receive immunotherapy for a year before you and the owner discuss whether it's worth continuing.



We're talking about a long-term relationship here!

In a recent CVC presentation, Dr. Darin Dell explained the importance of a supportive relationship with owners of atopic dogs and of asking what they can handle—you're in it for the long haul! Hear a clip by scanning the QR code or visiting [dvm360.com/atopymagic](http://dvm360.com/atopymagic).



Need some derm CE this year? Plan to attend CVC San Diego Dec. 8-11. Visit [dvm360.com/thevcv](http://dvm360.com/thevcv).

## 2 Oclacitinib

Oclacitinib (Apoquel—Zoetis) treats allergy signs by blocking IL-31—the cytokine linked to the feeling of itch—and suppressing IL-2, IL-4, IL-6 and IL-13.

**Onset of action:** One or two days, but some dogs improve within 30 minutes. A few of my patients have taken up to seven days to respond.

**Side effects:** Decreased hematopoiesis and immune suppression are potential side effects, especially at higher dosages and in dogs less than a year old. Published safety studies have thus far found few changes on hematologic tests at maintenance dosing, and vomiting and diarrhea are the most common side effects.<sup>2,3</sup> I've had a couple patients develop vomiting severe enough to stop the medication.

### Treatment tips:

- > Twice-a-day dosing is recommended for the first two weeks and once daily thereafter. I have had some patients whose skin worsened when the frequency was reduced to daily, but eventually these dogs got back to the desired level of relief with daily dosage.

## 3 Cyclosporine

Cyclosporine (Atopica—Elanco) treats allergy signs by suppressing IL-2, T helper cells, and T suppressor cells.<sup>4</sup>

**Onset of action:** Four to six weeks for full effect

**Side effects:** Mild vomiting and diarrhea are the most common. Hypertrichosis, gingival hyperplasia and immunosuppression are possible.

### Treatment tips:

- > To help prevent vomiting, owners can freeze capsules, give the medication with a small meal, divide the dose throughout the day, or start with a low dose and ramp up to the target dose over two weeks.
- > Since cyclosporine does not provide immediate relief, consider combining it with a corticosteroid during the first two or three weeks of treatment.<sup>5</sup>
- > Do not taper cyclosporine until the desired response has been reached. It's best to taper slowly by eliminating one dose a week until every-other-day dosage is achieved or clinical signs relapse. If a relapse occurs, have the client return to the previously effective dosing regimen. An inability to taper does not indicate treatment failure—some dogs require daily therapy long term.



## Don't make this mistake in your atopy cases

Allergy season is upon us, so more pruritic dog and cat appointments may be popping up on your schedule. When it comes to atopic dermatitis, Melissa Hall, DVM, DACVD, from the Animal Dermatology Clinic in Tustin, California, says paramount is realizing that each case is unique, so plot out some time. Make room in your schedule to obtain a thorough patient history and then to provide thorough client education about treating the many factors that cause the itch. Hear more by scanning the QR code or visiting [dvm360.com/atopymistakes](http://dvm360.com/atopymistakes).



## 4 CADI

CADI (Zoetis) is a once-a-month injection of a monoclonal antibody that targets IL-31. It's available through most veterinary dermatologists and some general practitioners.

**Onset of action:** One or two days, but some dogs feel itch relief as soon as 30 minutes.

**Side effects:** None

### Treatment tips:

- > CADI is safe for puppies and dogs with other health problems.
- > CADI is beneficial for owners who can't give a pill or may forget to give it every day.
- > We don't know what clinical effect CADI will have on allergic otitis, recurrent pyoderma or allergy-related erythema since it only targets the cytokine linked to itch.

## A magical(ish) treatment strategy

Every allergy patient is different, so every treatment approach needs to be different, too. Nevertheless, your treatment strategy should be consistent. Here are the steps you'll want to consider.

**Step 1. Provide flea control.** Any allergy (flea, food, seasonal) can cause other allergies to get worse—it can kick start inflammation. So make fleas a non-issue by ensuring that these dogs receive appropriate flea control.

**Step 2. Eliminate infections.** Eliminating infections reduces pruritus and inflammation while also improving the patient's odor and appearance. Dogs with allergies may be slower to respond to antibiotics than those without, so check progress after three weeks of antibiotic therapy but treat until infections are gone.

**Step 3. Rebuild the epidermal barrier with ceramides.** When the epidermal barrier is intact, there's less allergen exposure, less risk of infection and less pruritus. You can find ceramides in shampoos, sprays, conditioners and spot-on products.

**Step 4. Choose a core treatment.** First and foremost, the best treatment is one the owner will administer correctly. Beyond that, consider the patient's underlying medical conditions, the severity of the allergy and the primary signs.

**Step 5. Add supportive therapy as needed.** These therapies include antibacterial and antipruritic shampoos, wipes and sprays, oral antihistamines, oral essential fatty acids and topical ceramides. Reevaluate supportive therapy after a month and then on an ongoing basis.

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Darin Dell, DVM, DACVD, is a specialist with Animal Dermatology Clinic in Indianapolis.

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# Get your fix on fracture repair



For the average general practitioner, performing complex fracture repairs lives in the realm of referrals. Whether you repair or refer, there are important rules and new techniques that David Dycus, DVM, MS, CCRP, DACVS (small animal), wants you to know.

*By Sarah Wooten, DVM*

**M**any patients that present for fracture repair are victims of vehicular trauma. It's imperative to check and stabilize vitals on these patients before working up any lameness, Dr. Dycus says. HBC patients can suffer from pulmonary contusions and arrhythmias secondary to traumatic myocarditis. Letting them recover a couple of days before attempting surgery usually resolves these life-threatening issues.

Dr. Dycus recommends thoracic and abdominal radiographs, with or without abdominal focused assessment with sonography for trauma (AFAST), and bloodwork. And don't forget proper analgesia as soon as possible with a pure mu agonist, such as morphine, hydromorphone, oxymorphone, methadone or fentanyl. Butorphanol is not adequate, Dr. Dycus says.



## → Why exactly is that patient not walking?

While a fracture may be evident on radiographs, it may not be the only reason your patient isn't walking. Perform thorough orthopedic and neurologic examinations, and advise the pet owner about the risk of temporary or permanent nerve damage.

Dr. Dycus says neuropraxia can cause temporary deficits, distal humeral fractures can cause radial nerve damage, and ilial fractures can damage the sciatic nerve, even to the point of shearing right through the nerve.

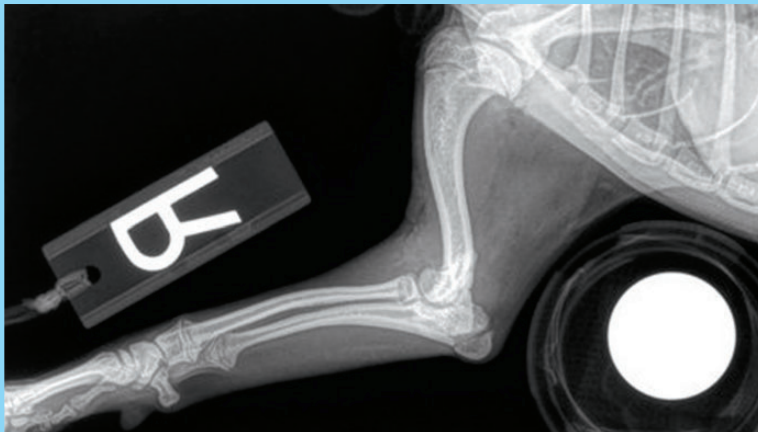
## → Open fracture? Cover that up ASAP!

No matter how dirty, infected or nasty that open fracture is or how clean you think your hospital is, the bacteria that rode in on that wound will be no match to superbugs that are lurking in your clinic. Dr. Dycus advises covering open fracture wounds with a sterile dressing as soon as possible to prevent implant infection, osteomyelitis and potential sequestrum formation.

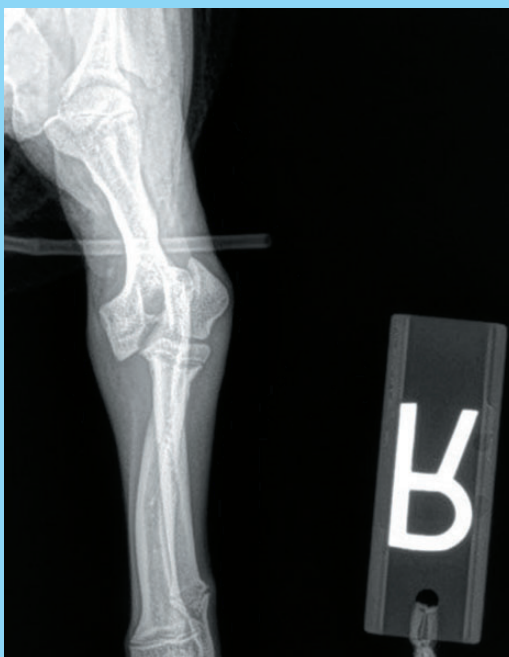
Dr. Dycus recommends flushing open fracture wounds with copious amounts of sterile saline solution, to the tune of 2 to 4 liters. He advises against using dilute povidone-iodine or chlorhexidine to avoid potential cytotoxicity—the success of your fracture repair will depend on healthy tissue. He also recommends the use of external skeletal fixators for open fractures in order to access the wounds daily for cleaning and inspection.

## → See both sides of the issue

If there is one thing Dr. Dycus wants you to remember, it is to take orthogonal radiographs. This includes at least two views—a lateral and a craniocaudal—of any fracture. Fracture classification depends on six factors: anatomic location, severity, configuration, whether or not a growth plate is involved, contamination and displacement. Dr. Dycus says you cannot determine displacement without orthogonal views. "For example, in Figure 1 and Figure 2, if you took just a lateral radiograph, the fracture is evident," says Dr. Dycus. "By taking orthogonal views, you can see there is a right Salter-Harris IV distal lateral humeral condylar fracture."



^ **Figure 1.**  
A lateral radiograph.  
All looks good!



< **Figure 2.**  
In a craniocaudal radiograph of the same limb as in Figure 1, a fracture is evident. External coaptation or internal fixation? Now THAT is the question. (Photos courtesy of Dr. David Dycus)

### CLIENT COMMUNICATION: HAVE A PROBLEM WITH COMMITMENT?

When surgical plans change, clients can feel like it's a bait and switch, even when we know it's not. When presenting a surgical plan, Dr. Dycus likes to have options. He knows that you really can't commit to one surgical fixation technique until you get in there. When presenting a surgical plan to clients, he says, "I will either do option A or option B. There may also be option C, but I don't know until I am in surgery. You need to trust me that I will fix the fracture the way I feel is best."

Now that you know you have a fracture, the question is how do you fix it? Surgical repair will lead to earlier return to function and may better maintain joint motion, but when is it clearly indicated?

According to Dr. Dycus, correct application of external coaptation requires immobilization of the joint proximal and distal to the fracture, and it should only be used in fractures distal to the elbow and stifle.

Dr. Dycus says internal fixation is indicated for fractures that are subjected to compression, shearing, or tensile forces; that are comminuted or long oblique; or that cannot be reduced appropriately. Use the 50/50 rule to determine whether or not reduction is appropriate. The 50/50 rule, according to Dr. Dycus, states that fracture ends should have at least 50% contact to expect fracture healing, and 50% reduction (contact) is the absolute minimum for bone healing to be possible, not probable. If the

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6

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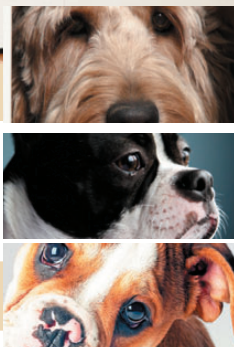
### THE INJURIES

- |  |                                |
|--|--------------------------------|
| 1 Medial patellar luxation (mostly smaller dogs) | 4 Hip dysplasia                |
| 2 Cruciate rupture (mostly larger breeds)        | 5 Arthritis                    |
| 3 Fracture                                       | 6 Intervertebral disk disorder |

#### A closer look at fractures:

#### Which breeds are prone to fractures

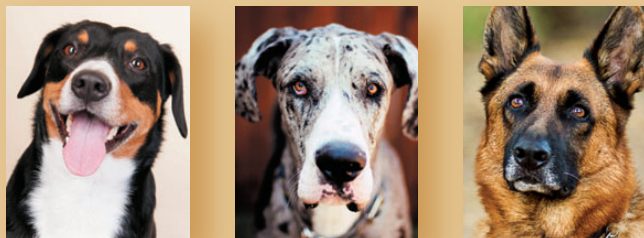
- 1 Goldendoodle, Labradoodle
- 2 Boston terrier, boxer, Cavalier King Charles spaniel, Chihuahua, Pomeranian
- 3 English bulldog, Havanese, shih tzu, Yorkshire terrier



### THE COST

In 2015, Trupanion paid almost **\$25 million** to treat conditions related to the musculoskeletal system.

Breeds that commonly claim for musculoskeletal injuries and illnesses include:



- 1 Bernese mountain dog
- 2 Great Dane
- 3 German shepherd

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fracture cannot be reduced at least 50%, then internal fixation is indicated.

#### → It doesn't have to be pretty

The first stage of secondary bone healing after trauma is hematoma formation. You may be tempted to remove the hematoma to get better visualization. Don't! This hematoma is a massive source of growth factors and cytokines that establish the blood supply needed for healing, says Dr. Dycus. Leave it there. Furthermore, leave bony fragments that have soft tissue attachments. The body will reabsorb fragments or incorporate them into the bony callus.

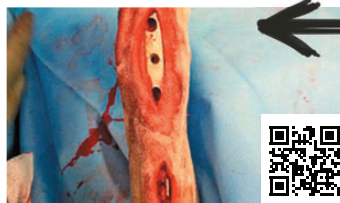
Dr. Dycus goes on to say that the historical technique of fracture repair was complete anatomic construction, very neat and clean with everything put back in its place, similar to the work of a carpenter. The downside to this technique is hematoma and blood flow disruption, which delays healing. Carpenter-type fracture repair is now indicated only for fractures that involve the articular surface.

The new thought process is less like a carpenter and more like an organic gardener. The idea is to be minimally

invasive, be friendly to tissues, and use indirect fracture reduction to preserve blood flow, says Dr. Dycus. Blood supply comes from the surrounding soft tissues, so be kind. Overall, joint alignment and function is the goal of fracture repair. Neatness doesn't count.

#### → Keep calm and mind the gap

One final note: If you are rechecking your fractures at four weeks following external coaptation or after surgery and notice that the fracture line seems to have widened slightly, don't panic! "Part of the healing process involves the fracture maintaining an interfragmentary strain of < 2%," says Dr. Dycus. "The interfragmentary strain is the deformation occurring at the fracture site relative to the size of the gap. By keeping the interfragmentary strain < 2% the body is able to allow bone to be laid down in the fracture gap." This process can cause apparent widening of the fracture line seen on radiographs and can give you the wrong impression that that fracture is getting worse! Understanding this phenomenon will help you interpret your radiographs and, more important, help you sleep at night. Whew!



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# A FRESH TAKE ON TOOTH EXTRACTIONS

The old “string around the tooth” trick won’t work with your patients. But these practical tips from a presentation on dental extractions from CVC by Matthew Lemmons, DVM, DAVDC, a veterinary dentist at MedVet Indianapolis, may take away some of your trepidation when excavating the oral cavity.

*By Meghan E. Burns, DVM*

## **An oral overview**

The indications for dental extraction are:

- Periodontal disease
- Fractured teeth
- Tooth resorption
- Treatment of malocclusion.

Although the oral epithelium is very forgiving compared with other tissues, Dr. Lemmons says to go into a dental extraction with the following goals in mind:

- Remove all dental tissue, including all of the tooth root.
- Cause as little trauma as possible.
- Be sure to be easy with soft tissue handling.

- Oppose soft tissue tension-free so it heals quickly.

## **What tools you need**

The proper instruments are important to gain access to various sites in the mouth to help ensure the best outcome. Dr. Lemmons recommends using sharp periosteal elevators to get in between the bone and gingiva, sharp scissors to trim flaps, and smaller needle drivers for suturing flaps closed in the smaller spaces of the mouth. A variety of dental luxators and elevators is needed, and these instruments should be kept sharp. Water-cooled, high-speed dental burs are necessary for removing alveolar bone and sectioning teeth.

## **Simple vs. surgical extraction**

Dental extractions are divided into two broad classes: simple and surgical.

Simple extractions do not involve opening up a flap or removing bone. With these types of extractions, you essentially loosen the tooth, elevate it out of the alveolus and close the gingiva. Simple extractions work well for the incisors (except for the maxillary third incisors), first premolars and mandibular third molars, Dr. Lemmons says.

With surgical extractions, you need to create a flap. Dr. Lemmons often uses an envelope flap for extraction of two-rooted premolars and molars, which involves pulling the gingiva away from the tooth. For extraction of canine teeth and maxillary fourth premolars, a three-cornered flap can be used (Figures 1 and 2, page 28).

To create flaps, there are a few incisions you need to be aware of, says Dr. Lemmons. The gingival releasing incision detaches the attached gingiva from the tooth (Figure 3). To make this incision, direct a No. 15 blade to the bone and push the blade 1 or 2 mm deep while directing the blade to the tooth, being sure not to skewer the flap.

“The periosteal-releasing incision is key to any oral surgery,” says Dr. Lemmons. For this incision, put the

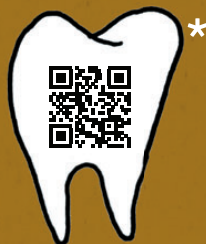


## Do I have to use dental radiography?

If you aren't using dental radiography, are you starting to be on legally shaky ground? We asked the AVMA PLIT, and they said just 3 to 4 percent of professional liability claims annually are dental-related claims, but that the defense of any liability case is often more difficult without diagnostics. Veterinary dentist Dr. Heidi Lobprise thinks the consequences of not using this now-considered gold standard for veterinary dental care could be foreboding. Hear about it at [dvm360.com/dentalgold](http://dvm360.com/dentalgold).

## Those tenacious mandibular canine tooth extractions!

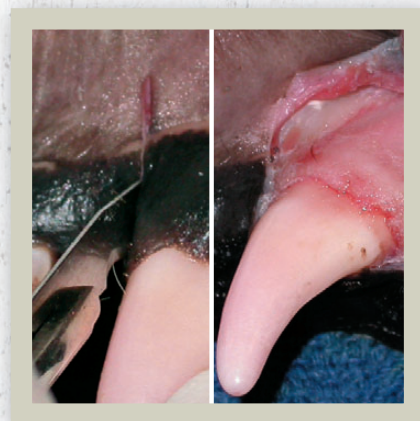
Watch this video for Dr. Lemmons' advice on removing these particularly tricky teeth.



\*Not a dog's tooth.  
(But you knew that.)

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>>> **Figures 1 and 2.** The development of a three-cornered flap.



>>> **Figure 3.** A periosteal-releasing incision.

scissors between the periosteum on one side and mucosa on the other and then undermine and dissect. Be sure to cut only the periosteum, leaving mucosa intact.

### Precautions and complications

Dr. Lemmons is adamant that multirrooted teeth must be sectioned every time. You never remove a tooth whole. For canine and carnassial teeth, he says to remove buccal bone to create a window to get the tooth out.

#### Complications of tooth extraction include:

- > Fractured roots
- > Dehiscence, which can lead to an oronasal fistula
- > Iatrogenic trauma such as jaw fracture and orbital penetration
- > Malocclusion.

To ensure rough edges of bone are smoothed down, Dr. Lemmons uses a diamond bur. And he always recommends obtaining radiographs before and after each tooth extraction for surgical planning and to ensure the whole root and tooth are out.

### A few tooth extraction particulars

Dr. Lemmons has practical tips for four major teeth that are commonly extracted.

> **Maxillary canine.** When extracting the maxillary canine, Dr. Lemmons always creates a mucoperiosteal flap, which closes the extraction site to prevent an oronasal fistula. In cases of single extractions, Dr. Lemmons uses a simple interrupted pattern with 4-0 polyglycaprone 25 (Monocryl—Ethicon) suture for dogs and 5-0 polyglycaprone 25 suture for cats.

> **Maxillary fourth premolar.** Dr. Lemmons uses one vertical incision instead of two and says to release horizontally off the first molar to maintain gingiva all the way around the first molar. He prefers to maintain a collar gingiva around teeth adjacent to extractions.

> **Mandibular canine.** Dr. Lemmons uses two vertical releases with the mandibular canine. He always identifies the middle mental foramen to prevent cutting it, and he recommends always closing the labial frenulum first. If you are removing this tooth in a dog with heavy jowls such as a boxer, pit bull or bulldog, Dr. Lemmons recommends putting in a horizontal mattress suture to relieve some tension on the flap.

> **Mandibular first molar.** Dr. Lemmons uses an approach similar to the maxillary fourth premolar. He recommends removing adequate bone to get the root out, as the bone is thicker in this area than with the fourth premolar.

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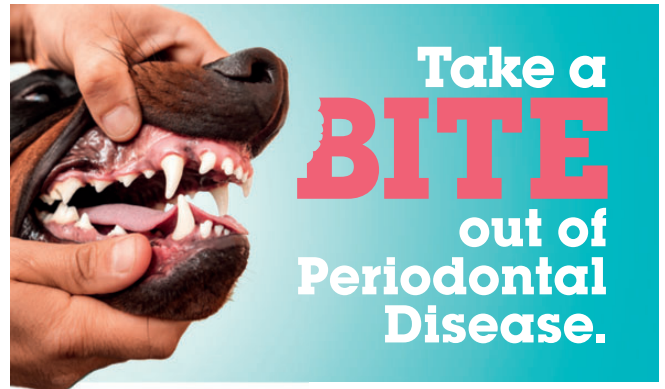
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## Stomach surgery:

# Into the fires of Mordor

*A vet's tale, by Hilal Dogan, BVSc*

**I**n veterinary school, it seemed to me that entering the abdominal cavity of an animal for a surgical emergency was like Frodo and Samwise trying to enter Mount Doom. You just don't know whether they are going to come back out alive. The Essential Gastrointestinal Surgeries in Dogs clinical techniques course at the CVC was exactly what I needed to conquer my fears! I learned how to perform an incisional gastropexy, a gastrotomy, an enterotomy and an end-to-end anastomosis. I even put in an esophagostomy tube, which always just looked like a Gandalf-worthy magic trick to me until I was able to practice it on my own. Matthew Keats, DVM, DACVS, simplified instructions for each procedure. Here are some tips and tricks I picked up that might help you the next time you venture into the GI system.





## General principles to remember throughout your journey

- > Always reference your surgical and anatomy textbooks or your reference of choice and plan ahead! You can't find your way without a road map.
- > Always go in the order of clean to dirty, change your gloves and instruments, and don't forget: the solution to pollution is dilution (local lavage and suction is the best way). It's never wrong to change gloves multiple times during surgery.
- > If you don't have radiopaque sponges, then never place a sponge inside the patient.
- > Keep fluids warm in an incubator. Do not use a microwave since it heats unevenly and can cause severe burns.
- > Keep tissues moist to protect them and make handling less traumatic. Dry tissue makes it harder to close the skin as it is prone to drying and sticking to the subcutaneous fat. All tissues should be kept moist and may need periodic remoistening. Having an assistant keep tissues moist is best.
- > Grab delicate tissues with your needle, not the forceps.
- > Grab the subcutaneous tissue rather than the skin. Additional trauma to the skin causes more inflammation and, thus, chance of infection.
- > Use instruments instead of fingers whenever possible; it will cause less trauma.
- > Nausea is common with gastrointestinal disease or surgeries, so antiemetics preoperatively and postoperatively are a good idea, when not contraindicated.

## Remember Halsted's principles of surgical technique:

- Minimize tissue trauma.
- Practice precise hemostasis.
- Preserve the blood supply.
- Use aseptic technique.
- Minimize tension on the tissue.
- Use accurate tissue apposition.
- Obliterate dead space.

## The Lonely Mountain

Surgery is my lonely mountain. Before I can explain how I scaled it, I have to share the factors that held me back from thinking I was capable of surgery. I think most people who are afraid of surgery have some sort of insecurity and lack of confidence that affects their ability to perform. Perhaps they didn't have any great successors before them, maybe they're the first from their tiny little Hobbiton to ever venture beyond. For me it was my shaky hands compared to everyone else's non-shaky hands. Read my story at [dvm360.com/lonely](http://dvm360.com/lonely).



## One does not simply enter the belly of the beast

- > Remember the stomach is a friendly organ to operate on. It's mobile and has excellent healing abilities.
- > Avoid the pyloric area during surgery if you can since the blood supply to the pancreas and the common bile duct is nearby.
- > Get Balfour retractors. It will make your life so much easier since they are self-retaining. You don't have to use the locking ones, but always be familiar with all your instruments (parts and pieces too, in case you are missing a piece).
- > Put moistened laparotomy sponges down first to contact the serosa and then dry ones on top and adjacent to bowel to be opened as needed to absorb contamination. Isolate the stomach with laparotomy sponges.
- > Use stay sutures or atraumatic forceps at the end of the proposed incision.
- > Stomach incisions are generally made on the ventral surface between the greater and lesser curvatures.

Read more tips, including specifics on gastrotomies and how to surgically handle GDVs, at [dvm360.com/Mtdoom](http://dvm360.com/Mtdoom).

## there and back again

*Hilal Dogan, BVSc, is an associate veterinarian at At Home Animal Hospital in Maui, Hawaii. She started the Veterinary Confessionals Project as a senior veterinary student at Massey University in New Zealand. While stomach surgery is her Mount Doom, she also goes there and back again in her dreams. "I have extremely vivid and bizarre dreams... and I remember almost all of them. Most nights I'm excited to go to sleep so I can go on these awesome adventures. Other times I wake up in the morning slightly dumbfounded."*

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# The eye is watching: Keep communication flowing with pet monitors


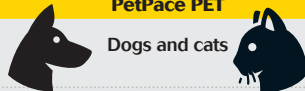













By Sarah Dowdy

While there are many, many smart pet monitors on the market, Voyce Pro and PetPace are the only ones to include a veterinary component—so that's why they're the only two to earn a spot on this comparison chart.

These two manufacturers say the collars allow veterinary staff to remotely monitor a pet's key vital signs and wellness indicators in its home environment or while in the hospital—objective data that can be used to facilitate early diagnosis and evaluate treatment efficacy. They can also send notifications when the signs being measured deviate from a range predetermined for the individual pet.

Both Voyce Pro and PetPace can be especially useful in monitoring senior pets and pets with chronic medical conditions, such as osteoarthritis and heart disease. PetPace is also designed to assist with pre- and postoperative monitoring and in hospitalized patients when minimal handling is a must.

While the following chart is by no means comprehensive, it should serve as an overview and starting point for further research.

	Voyce Pro	PetPace PET
Species monitored	Dogs 	Dogs and cats 
Signs tracked 	Resting heart rate (RHR) Resting respiratory rate (RRR) Distance traveled Intensity of activity Calories burned Resting period Longest period of uninterrupted rest	Temperature Pulse Respiration Activity Body postures Heart rate variability Calories burned
Equipment	Collar monitor	Collar monitor and receiver
Technology 	<b>Ultra-wideband radar:</b> Uses low-power radio frequency signals. The signals pick up on motion from the internal carotid artery to measure RHR and uses neck muscle motion to measure RRR.  <b>Tri-axial accelerometer:</b> Data is used in algorithms to determine distance traveled, calories burned and intensity of activity.	Based on multiple passive technology platforms, including acoustics, temperature sensors and accelerometers.
How often data syncs 	Every four hours *Possible to force sync sooner	Every 30 minutes *Can upgrade for faster syncing (two minutes)
Data access 	<b>Owner:</b> Has access to data via online Wellness Management Center  <b>Veterinarian:</b> Has access to same data, as well as a separate Veterinary Dashboard that provides more details and shows all patients in one view	Mobile app (iOS and Android) *Can get web app with upgrade to PET+ or EXPERT 
Alerts 	Email, Veterinary Dashboard *alerts are for veterinary team only 	Email, SMS, push notifications and automatic phone call
Accuracy 	<b>RHR</b> = 85% accurate (compared with Holter monitor) <b>RRR</b> = 87% (matches accuracy levels of veterinarian or veterinary technician) *As presented at 2016 ACVIM Forum	92% accurate
Safety 	Non-invasive collar has been approved by the FCC, and the FDA has declared ultra-wideband radar to be safe.	Non-invasive Passive sensors (no emissions) Approved by FCC and TUV
Sizes 	12-inch neck to 32-inch neck *Smaller sizes coming soon	Fits dogs and cats over 8 pounds
Monitor weight	Less than 6 ounces	1.5 ounces
Water resistance	IP67 rating: Protected from dust and able to withstand up to 1 meter for 30 minutes. Safe for bathing and swimming. 	IP67 rating: Protected from dust and able to withstand up to 1 meter for 30 minutes. Safe for bathing and swimming.
Battery length	Up to 1 week between recharges	4-6 weeks between recharges
Cost 	Owner pays \$100 deposit for collar (refunded upon return).	Owner pays \$150 for collar.
Membership fees 	Owner pays \$90 for first 90 days before switching to month-to-month plan at \$20/month. *additional options available	Owner pays \$14.95/month. Can upgrade to PET+ (faster sampling and syncing and advanced web features) for \$19.95/month.
Warranty	If defective, Voyce Pro will exchange for free. If ruined by owner, \$100 deposit will be forfeited.	30-day money-back guarantee and full 1-year warranty

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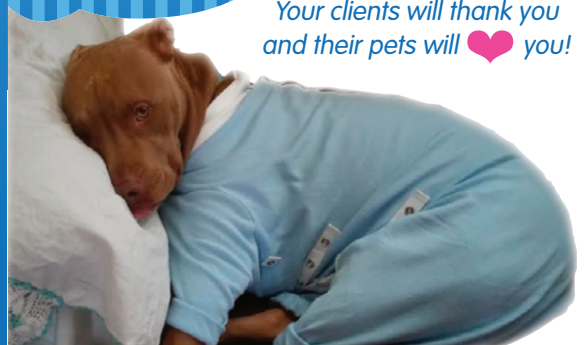
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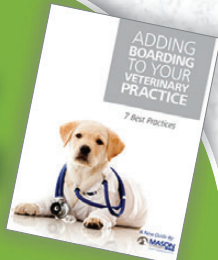
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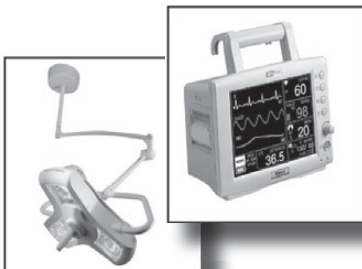
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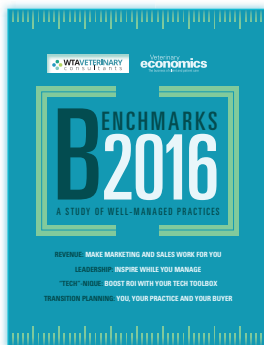
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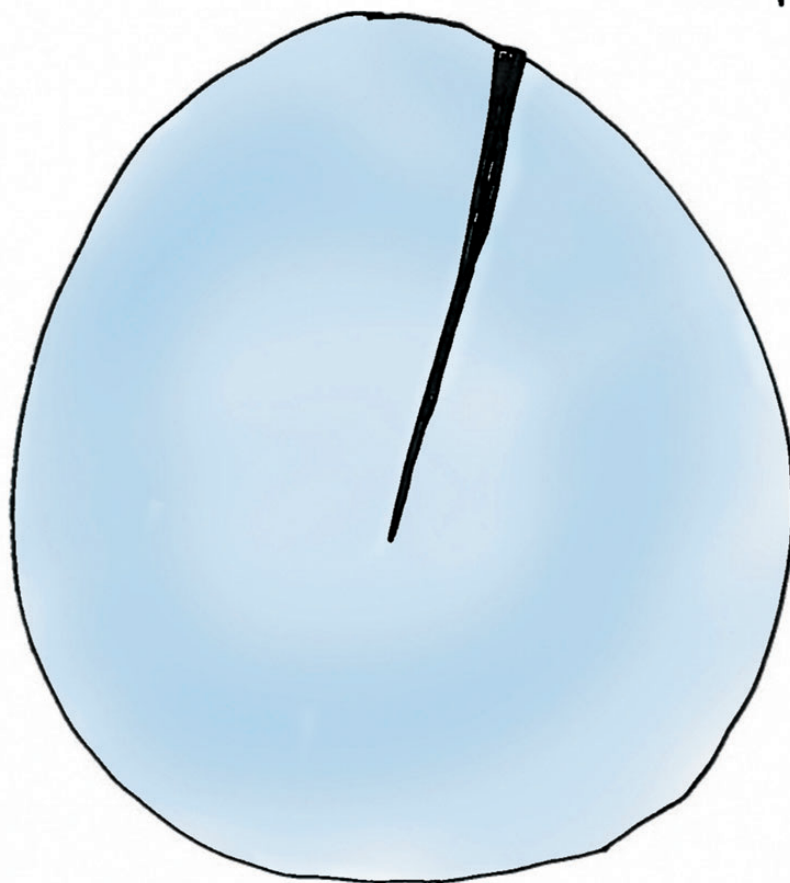


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