Economic trends in veterinary medicine

More veterinarians—who want to work less—among trends presented by AVMA analysts during annual summit. By Kristi Reimer Fender

The statistics fly fast at the AVMA Economic Summit, hosted this year by Matthew Salois, PhD, and his team of analysts with the AVMA Veterinary Economics Division. It can be challenging—at least for, ahem, some non-economists in the audience—to absorb a line graph demonstrating one trend before it’s replaced by a bar chart stating something else entirely. And then there’s the line graph superimposed on a bar chart with two y axes and trend lines and standard deviations ... yikes!

The key, I have found, is to quash the inner voice asking, “But what does it all mean?” and just go with it (or, put another way, “try to keep up”). The economists themselves make few claims about the long-range impact of their findings—they do the research, and it’s up to the profession to figure out what to do with it.

Teach clients how to differentiate between an aggressive, anxious and relaxed dog by understanding these canine body language basics from Dr. Shana Gilbert-Gregory. By Erica Tricarico

Miscommunication between dogs and humans can negatively impact the human-animal bond. One way to combat this communication barrier is helping veterinary clients learn how to speak the same language as your patients.

It’s commonly believed among pet owners that when a dog wags its tail, or when it’s smiling, it’s happy. But as you know and Shana Gilbert-Gregory, VMD, MS, DAVCB, a behavioral medicine clinician at Mount Laurel Animal Hospital in Mount Laurel, New Jersey, explains to clients...
The chew dogs love.

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The scrubbing action of the chew works in parallel with the delmopinol to effectively remove plaque and calculus.
Striving for balance in a challenging profession

Season’s greetings! The American Veterinary Medical Association’s 2019 Economic State of the Veterinary Profession report, presented during the organization’s annual Economic Summit in October, highlighted some noteworthy industry trends (see our coverage starting on the cover of this issue of dvm360). One of the most telling findings was the notion that the veterinary profession has been experiencing “negative underemployment” in recent years. That is, there are more veterinarians who want to work fewer hours for less compensation than there are veterinarians who want to work more hours for higher compensation. There are a number of reasons for this shift, chief among them the desire among veterinary associates to achieve better work-life balance.

Working fewer hours will go a long way toward alleviating the often unrelenting pressure that accompanies work in a veterinary practice and has led to pervasive mental health issues throughout the profession. What’s more, a generational shift is under way in which many newer graduates want to work nontraditional hours and have different expectations about how to achieve balance. Meeting this desire to work fewer hours seems eminently possible, especially given the fact that the number of veterinarians in the U.S. is on the rise. The AVMA reported during the summit that in 2007 there were about 86,000 veterinarians in the U.S. Just over a decade later, that figure had increased by a whopping 32%, with slightly more than 113,000 licensed veterinarians in 2018.

We covered the veterinary shortage a lot this year, including in our Spotlight Series (visit dvm360.com/associateshortage). Perhaps it’s not a shortage after all, but a need to shift our employment paradigm. This profession has proven itself to be strong, resilient and ever more vital as people consider their pets truly to be family. Certainly there is a way to accommodate the desires of so many of the people who care for the animals we love so much.

As 2019 winds down, we hope you, your family and your veterinary practice are thriving. Here’s to 2020 being a fruitful year—no matter how many hours you work—with positive changes and continued gains for veterinary professionals throughout the country. Best wishes for a happy and healthy holiday season!

—Mike Hennessy Sr., Chairman
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Training, Education, and Management for Better Diabetic Pet Care

SUPPORTING PET OWNERS TO CONFIDENTLY PERFORM AT-HOME GLUCOSE MONITORING IS THE FIRST STEP

At the core of properly managing dog and cat diabetes is regular, at-home glucose monitoring by the pet owner. With the educational and training materials of T.E.A.M. AlphaTRAK from Zoetis (visit www.alphatrak.com), you and your staff will have the tools you need to easily give any pet owner the guidance and encouragement to confidently perform at-home glucose monitoring.

Equipped with the AlphaTRAK 2 meter, the most trusted and widely used pet glucose meter on the market, and with team support from you and your staff, you can help pet owners ensure their pets lead a more charmed life—even with diabetes.1,2

For more information, resources and support on how to help diabetic pets lead their best life, visit www.alphatrak.com.

1. ZMR: Trend Analysis of AlphaTRAK Unit Sales, 2012-2014

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New vet schools move forward in Ariz., N.Y, Texas

AVMA sends letters of reasonable assurance to University of Arizona and Long Island University giving provisional accreditation for students to start next fall. Plus, Texas Tech breaks ground.

Perhaps doing their part to ease what many see as a national veterinary associate shortage, two new veterinary schools—one public, one private—have taken a major step forward, and another has broken ground in the past few months. Here’s a roundup of the latest news on new veterinary colleges in the U.S.

**AVMA approves veterinary school in Arizona**

In the southwest, the University of Arizona College of Veterinary Medicine in Oro Valley, Arizona—four hours from Tucson—received a letter of reasonable assurance this month from the AVMA, opening the door for its first veterinary school students in fall 2020 to finish, with provisional accreditation, in 2023. Arizona’s school is a three-year, not a four-year, program at the public university, according to The Arizona Republic. This university has been working for years to open up the state’s second veterinary school: Midwestern opened a private one in 2014.

The university asked for state funding in 2013 and was turned down, then received a private grant in 2014. The AVMA Council on Accreditation then conducted a site visit in 2016 and subsequently rejected proposals for the school later that year and again in 2017.

**AVMA approves veterinary school in Long Island**

On the East Coast, Long Island University also received the AVMA’s letter of reasonable assurance this month, opening the door for veterinary school students to start there in fall 2020 for a four-year program.

Long Island’s program will be one of only four veterinary programs in the Northeast, according to a press release.

**Texas Tech vet school construction started**

Administrators and officials broke ground in September on a promised veterinary school to “address the imperative need for rural and large-animal veterinarians” at Texas Tech University in Amarillo, according to a press release.

Texas Tech received state funding for the project in June after clashing publicly with officials at Texas A&M about the need for another Texas veterinary school.

“That school is expected to open in fall 2021 with an initial class of roughly 60 students, according to the release.”

---

**Congress passes PACT Act making severe animal cruelty a federal offense**

Crushing, burning, drowning, other acts now named felonies.

The U.S. Senate passed the Preventing Animal Cruelty and Torture (PACT) Act on Nov. 5 following the House’s vote Oct. 22, making some of the most egregious forms of animal cruelty a federal crime.

Although it is already illegal to promote animal fighting and distribute so-called “crush videos,” most animal cruelty laws are enacted at the state level, according to the Animal Legal Defense Fund (ALDF). The PACT Act creates a corresponding federal animal cruelty statute.

In “crush” videos, people torture, crush and kill small animals, such as puppies and hamsters, for the titillation of viewers, the ALDF notes. The Animal Crush Video Prohibition Act banned these torture videos in 2010, “but the PACT Act goes a step further and bans the underlying animal cruelty contained in them.”

AVMA President John Howe, DVM, says passage of the PACT Act is an important step toward improving animal welfare. “Thanks to the bipartisan work of lawmakers and animal welfare advocates, we’re one step closer to finally criminalizing the cruel and inhumane act of animal crushing,” he says in an AVMA release. “We’re looking forward to seeing President Trump sign this bill into law.”

Dr. Howe notes that the legislation provides key safeguards to ensure enforcement targets bad actors without incidentally ensnaring farmers and ranchers, hunters, researchers or other groups.

Robin Ganzert, PhD, president and CEO of American Humane, says her organization is also pleased to see Congress acting on animal abuse. “Those convicted would face felonies, fines and up to seven years in prison,” Ganzert says in a statement from American Humane. “We support this important and long-overdue legislation.”

The bill has been sent to the White House to be signed by President Trump.
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The 2019 AAFP Feline Zoonoses Guidelines and Surgery, the official publication of AAFP and the International Society of Feline Medicine. 

For the full guidelines cover visit aafp.com and in the November issue of the Journal of Feline Medicine and Surgery, and the American Association of Feline Practitioners (AAFP) this month released a client brochure titled “What can I catch from my cat?”

The brochure discusses how zoonotic organisms are spread, provides examples of potential cat-associated zoonoses and discusses how to decrease risk to a cat owner.

To lower risk of feline zoonoses, the brochure recommends that cat owners involve veterinarians and veterinary practices:

- Bringing sick cats to the veterinarian for diagnostic tests and treatments
- Bringing healthy cats to the veterinarian for annual physical checkups and wellness visits
- Administering the optimal internal parasite, flea and tick products recommended by the veterinarian to all cats
- Discussing human-related healthcare concerns with their pet’s veterinarian, who can help liaise with physicians

A panel of veterinarians and physicians worked together on the new guidelines, which build on the AAFP’s Feline Zoonosis Panel Report from 2003 and a panel report on feline bartonellosis in 2006. The recommendations of the panels are based on published data when available, and recommendations of other public health-affiliated groups were taken into consideration, according to a release from the organization.

Endorsing the new guidelines are the executive board of the World Small Animal Veterinary Association as well as the International Society of Feline Medicine. The document was also reviewed by the board of the Companion Animal Parasite Council.

FDA Approved:

ProZinc® (protemic zinc recombinant human insulin)

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

ProZinc® is a registered trademark of Boehringer Ingelheim Vetmedica, Inc.

When using this product:

- Administer by subcutaneous injection only.
- Use in Kittens:
- Always provide the Cat Owner Information Sheet with each prescription.

This is not free from adverse reactions. Owners should be advised of the potential for hypoglycemia, insulin antagonism/resistance, rapid insulin reactions, and anaphylactic reactions. Owners should be advised to report suspected adverse reactions, or to obtain a copy of the Material Safety Data Sheet (MSDS), call 1-866-439-2225.

Information for Cat Owners: Please refer to the Cat Owner Information Sheet for more information about ProZinc insulin. ProZinc insulin, like other insulin products, is not free from adverse reactions. Owners should be advised of the potential for hypoglycemia, and should be advised of the associated clinical signs. Potential adverse reactions include hypoglycemia, insulin antagonism/resistance, rapid insulin reactions, and anaphylactic reactions. Owners should be advised of the potential for hypoglycemia, and should be advised of the associated clinical signs. Potential adverse reactions include hypoglycemia, insulin antagonism/resistance, rapid insulin reactions, and anaphylactic reactions.

A total of 181 client-owned cats were enrolled in a 45-day field study, with 176 cats receiving ProZinc insulin for up to an additional 137 days. Adverse reactions were similar to those reported during the 45-day effectiveness study and were listed in order of decreasing frequency: vomiting, hypoglycemia, anorexia/poor appetite, diarrhea, lethargy, cystitis/hematuria, and weakness.

Fourteen cats died or were euthanized during the extended use study. In two cases, continued use of insulin despite anorexia and signs of hypoglycemia contributed to the deaths. In one case, the owner decided not to continue therapy after a presumed episode of hypoglycemia. The other died from concurrent medical conditions or worsening of the diabetes mellitus.

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Important Safety Information for Cats: For use in cats and dogs only. Animals presenting with severe ketoacidosis, anorexia, lethargy, and/or vomiting should be stabilized with short-acting insulin and appropriate supportive therapy until their condition is stabilized. As with all insulin products, careful patient monitoring for hypoglycemia and hyperglycemia is essential to attain and maintain adequate glycemic control and to prevent associated complications. Overdosage can result in profound hypoglycemia and death. Progestogen and glucocorticoid use should be avoided. PROZINC insulin is contraindicated in cats during episodes of hypoglycemia and in cats sensitive to protamine zinc recombinant human insulin or any other ingredients in the PROZINC product.

For more information, please see full prescribing information for cats on the left page.

References:

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When privilege is revealed and corrected, it feels like marginalization. Guess what: It’s not. Here’s what diversity and inclusion actually look like in veterinary medicine, according to the profession’s top expert. **By Adrienne Wagner**

It’s really hard to understand change.” Lisa Greenhill, MPA, EdD, senior director for institutional research and diversity at the Association of American Veterinary Medical Colleges (AAVMC), has devoted her career to developing and implementing initiatives focused on inclusion and diversity of underrepresented minorities in veterinary medicine.

And at a talk on diversity, inclusion and marginality in veterinary medicine at the Royal Canin Women’s Veterinary Leadership Forum in Washington, D.C., Greenhill gave real examples and actionable advice about why it’s important and what leadership can do to promote change in the whitest profession in America.

**What does inclusion look like?**
Here’s Greenhill’s breakdown of what inclusion really means in veterinary medicine:

**Recruitment.** Greenhill noted that actively recruiting minorities is a first step. She also addressed the continuing need for women to be promoted to leadership roles in the public and private sectors.

“This profession has relied on a critical mass of folks that came out of the birth canal going, ‘I wanna be a vet,’ but now we’re in an environment where the average age for girls who make that decision is 10 years old,” Greenhill said. Increasing the visibility of the value of women and minorities in STEM fields (science, technology, engineering, and mathematics) is urgently needed in veterinary medicine.

**Pay equity.** Making sure employers are engaged in pay equity—knowing whether they even check—is fundamental, Greenhill said. Increasing the visibility of the value of women and minorities in STEM fields requires active effort and resources.

**Leaves policies.** Asking questions about leave policies and whether they are implemented equitably is another component of inclusion. Greenhill noted that while some veterinary professionals may feel they are leaving on their own terms, in reality, they are cleaning up snot and caring for their children.

**Nondiscrimination policies.** Employers need to have clear nondiscrimination policies with meaningful consequences for violations, Greenhill said. She asked people in the room to raise their hand if they’d heard, “My dog doesn’t like black people.” Hands shot up.

Greenhill acknowledged the pervasive trope and noted that it points to the larger value in having policies and plans for veterinary professionals to navigate these conversations with pet owners.

**The bad, the good and where to go from here**
There is a persistent history of discrimination and marginalization across the veterinary profession, Greenhill said. Prior to the adoption of Title IX, there were minimal numbers of women in veterinary medicine; minorities make up just 8% of the veterinary profession.

“There’s a general unwillingness to acknowledge populations that are underserved due to the profession’s failure,” Greenhill said.

And yet, she pointed to the good: There are allies and champions, institutional advancements and changing motivations.

Increasing representation in veterinary schools by embracing new evaluation models in admissions is one way the AAVMC is driving change. Greenhill authored the diversity and inclusion language in the AAVMC accreditation standards.

She also pointed to emerging conferences, summits, news organizations and leadership training offerings. But she cautioned, “You cannot skill-build yourself out of discrimination.”

Driving change and taking a leadership position in that effort requires discomfort, Greenhill said. But leveraging power and privilege to advocate on behalf of others is a huge step for the profession.

“Require authenticity of yourself and require that of those around you,” Greenhill told the room of female leaders in the profession. “Lead with the heart.”
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The state of veterinary corporatization

Here are the details that veterinary hospital groups nationwide shared with us on number of hospitals and what they’re looking for in clinics to buy. By Brendan Howard

Back in 2017, veterinary consultant John Volk with Brakke Consulting let dvm360 use his research on who the big hospital chains and consolidators were at the time.

It will not surprise you to find out those same companies—with a few new players—are still growing in 2019. So we took another dive into the world of veterinary hospital consolidation by asking these players for information about the numbers of hospitals they own (note that these numbers are constantly changing and were current only at time of publication) and what they’re looking for in potential practices to acquire.

If you’re curious about this trend in veterinary medicine, your educational journey starts here. Visit dvm360.com/corporate2019 for more details.

<table>
<thead>
<tr>
<th>Company</th>
<th>Hospital count</th>
<th>What company looks for in a practice acquisition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banfield Pet Hospital (owned by Mars Inc.)</td>
<td>1,050</td>
<td>Quality, capacity of facility; location; practice's financial health</td>
</tr>
<tr>
<td>VCA Animal Hospitals (owned by Mars Inc.)</td>
<td>&gt;925</td>
<td>Excellent medicine; good growth; revenue exceeding $1.3 million</td>
</tr>
<tr>
<td>National Veterinary Associates (NVA)</td>
<td>&gt;700</td>
<td>Declined to answer or did not respond to questions by press time</td>
</tr>
<tr>
<td>VetCor</td>
<td>336</td>
<td>Healthy practices; positive cultures; strong community connections</td>
</tr>
<tr>
<td>Pathway Vet Alliance (Includes Eye Care for Animals and Thrive Affordable Vet Care)</td>
<td>&gt;275</td>
<td>More than one doctor; opportunity for growth; quality facility</td>
</tr>
<tr>
<td>PetVet Care Centers</td>
<td>&gt;200</td>
<td>Declined to answer or did not respond to questions by press time</td>
</tr>
<tr>
<td>Blue River PetCare</td>
<td>98</td>
<td>Declined to answer or did not respond to questions by press time</td>
</tr>
<tr>
<td>Southern Veterinary Partners (SVP)</td>
<td>90</td>
<td>Quality of patient care and customer service; availability of associates for recruitment; facility with space and capacity to grow</td>
</tr>
<tr>
<td>BluePearl Specialty and Emergency Pet Hospitals (owned by Mars Inc.)</td>
<td>75</td>
<td>Quality through a clinician-driven culture; strong hospital management; opportunity for further growth with location; ability to hire and current staff</td>
</tr>
<tr>
<td>Community Veterinary Partners</td>
<td>&gt;60</td>
<td>Declined to answer or did not respond to questions by press time</td>
</tr>
<tr>
<td>Veterinary Practice Partners (VPP)</td>
<td>56</td>
<td>Excitement from practice seller about co-ownership model; practice seller looking for help growing the practice; good fundamental existing business</td>
</tr>
<tr>
<td>Mission Veterinary Partners (MVP)</td>
<td>49</td>
<td>Revenue of $1.5 million or more, three or more FTE DVMs; modern facility</td>
</tr>
<tr>
<td>AmeriVet Veterinary Partners</td>
<td>46</td>
<td>Well-run, well-staffed and a certain level of EBITDA; prefers multidoctor or multilocation clinics</td>
</tr>
<tr>
<td>WellHaven Pet Health</td>
<td>46</td>
<td>Culture; quality of medicine; great team</td>
</tr>
<tr>
<td>Compassion-First Pet Hospitals</td>
<td>44</td>
<td>Team’s desire to improve medicine and seek better outcomes through education and learning; team’s belief in the company’s vision; team should share values of integrity, collaboration and empowerment</td>
</tr>
<tr>
<td>Lakefield Veterinary Group</td>
<td>44</td>
<td>Declined to answer or did not respond to questions by press time</td>
</tr>
<tr>
<td>PetWell Partners</td>
<td>43</td>
<td>Legacy of medicine practiced and reputation in the community; facility location, equipment and quality of the patient and client experience; financial performance (both historical and future)</td>
</tr>
<tr>
<td>Mixed Animal Veterinary Associates North America (MAVANA)</td>
<td>31</td>
<td>Positive growth-oriented practice culture; sound financial management; practices three or more veterinarians with annual revenue of at least $1.5 million</td>
</tr>
<tr>
<td>People, Pets &amp; Vets (PPV)</td>
<td>30</td>
<td>Strong culture; great people; desire for a true partnership</td>
</tr>
<tr>
<td>Ethis Veterinary Health</td>
<td>25</td>
<td>Emergency and/or specialty practice; alignment of vision and values with a growth orientation; thoughtful leadership and management</td>
</tr>
<tr>
<td>VitalPet</td>
<td>25</td>
<td>Declined to answer or did not respond to questions by press time</td>
</tr>
<tr>
<td>American Veterinary Group</td>
<td>20</td>
<td>Declined to answer or did not respond to questions by press time</td>
</tr>
<tr>
<td>Encore Vet Group</td>
<td>20</td>
<td>Strong medicine and culture; successful leadership and future potential leadership; forward thinking</td>
</tr>
<tr>
<td>Innovative Petcare</td>
<td>19</td>
<td>Good cultural fit; quality of team</td>
</tr>
<tr>
<td>O’Brien Veterinary Group</td>
<td>16</td>
<td>Revenue between $650,000 and $1.1 million; one to two doctors; practice owners who care about their legacy, staff, clients and patients but may not be finding the right buyer</td>
</tr>
<tr>
<td>VetnCare</td>
<td>8</td>
<td>Great community reputation; AAHA-like clinical standards; at least 1.5 FTE DVMs; practice owner excited to join the group; strong and positive team; reasonable financial performance</td>
</tr>
<tr>
<td>Heartland Veterinary Partners</td>
<td>Does not disclose</td>
<td>Cultural fit; profitability; growth potential</td>
</tr>
<tr>
<td>VetEvol</td>
<td>Does not disclose</td>
<td>Declined to answer questions by press time</td>
</tr>
<tr>
<td>Western Veterinary Partners</td>
<td>Does not disclose</td>
<td>Declined to answer or did not respond to questions by press time</td>
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IMPORTANT SAFETY INFORMATION: METACAM (meloxicam oral suspension) and PREVICOX (firocoxib) are for use in dogs only. METACAM (meloxicam) Solution for Injection is approved for use in dogs or cats. Repeated use of meloxicam in cats has been associated with acute renal failure and death. Do not administer additional injectable or oral meloxicam to cats. As a class, cyclooxygenase inhibitory NSAIDs like METACAM and PREVICOX may be associated with gastrointestinal, kidney, or liver side effects. Dogs should be evaluated for pre-existing conditions and currently prescribed medications prior to treatment with METACAM or PREVICOX, then monitored regularly while on therapy. Concurrent use with another NSAID, corticosteroid, or nephrotoxic medication should be avoided or monitored closely.

For more information on products mentioned in this ad, please see full prescribing information on page 14-15.
Cats bond just as strongly with their owners as dogs do, study finds

New research on feline attachment behavior shows that cats attach to their caregivers—your veterinary clients—just as much as babies and dogs do. By Maureen McKinney

Cats are often described as aloof, ambivalent and antisocial, but researchers at Oregon State University’s Human-Animal Interaction Lab beg to differ. Results of their new study, published in Current Biology, show that cats display distinct attachment behaviors toward their owners.

In their study summary, the authors contend that “despite fewer studies, research suggests we may be underestimating cats’ socio-cognitive abilities.”

Using behavioral criteria applied in canine attachment literature, investigators in the current study set out to determine whether pet cats display distinct attachment styles toward their human caregivers. In the study, 79 kittens (age 3 to 8 months) and 38 adult cats and their owners completed a secure base test, in which the cat and caregiver were placed alone in an unfamiliar room for two minutes, then the owner left the cat alone in the room for two minutes and, finally, the owner returned to the room.

Investigators observed the cats’ attachment level during this final stage—the owner’s return—and categorized it either as secure, in which the cat continued to explore the room while the owner returned, or insecure, with the cat demonstrating anxiety when the owner returned. This anxiety was manifested by avoiding the caregiver, acting ambivalent toward the caregiver, or a combination of two.

Of the 79 classifiable kittens (nine were considered unclassifiable), 64.3% were categorized as securely attached and 35.7% as insecurely attached. Similarly, 66.8% of the adult cats were classified as having a secure attachment and 34.2% an insecure attachment. These findings are

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**Brief Summary**

**Metacam®**

**(meloxicam oral suspension)**

**LAXATIVE USE:** Do not exceed 0.05 mL per drop (0.125 mg/mL) or 0.02 mL per drop (0.05 mg/mL) for non-steroidal anti-inflammatory drug for oral use in dogs only

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

**Warning:** Repeated use of meloxicam in cats has been associated with acute renal failure and death. Do not administer Veterinary Hospital in cases of overdose. See Contraindications, Warnings, and Precautions for detailed information.

**Description:** Meloxicam is a non-steroidal anti-inflammatory drug (NSAID) of the oxicam class. Each mL of METACAM Oral Suspension contains 0.1 mg/mL meloxicam. Meloxicam is metabolized primarily by the liver to three metabolites, two of which are active. Valeric acid (0.1 mg/mL) is a prodrug.

**Contraindications:** Do not use in cats with known hypersensitivity to meloxicam or in cats with a history of recent gastrointestinal tract perforation, GI ulceration, or GI bleeding.

**Warnings:** See Contraindications, Warnings, and Precautions for detailed information.

**Adverse Reactions:** In veterinary studies and post-approval adverse drug event reporting, the following adverse reactions have been reported associated with the administration of METACAM Oral Suspension. Owners should be advised to observe their cats for signs of potential drug toxicity. Owners should be advised to observe their cats for signs of potential drug toxicity. Owners should be advised to observe their cats for signs of potential drug toxicity.

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well in line with those in canine and human studies, the investigators noted—65% of human infants form secure attachments to their caregivers, and 58% of dogs form secure attachments.

The investigators retested about half of the kittens six weeks after training and socialization, and found that those abilities had no measurable effect on attachment level. This study’s findings demonstrate that, like dogs, the majority of cats view their owners as a source of comfort and security. Lead study investigator Kristyn Vitale, PhD, told dvm360 magazine that she was not surprised by the findings.

“We see in other species, such as dogs and human infants, that the majority of individuals are securely attached to their caregivers, so it is not shocking that the same is true in cats,” Dr. Vitale says. “And the findings are useful for both cat owners and veterinary professionals, she says.

“The formation of strong bonds between cats and humans can have a positive impact on cat behavior and welfare”, Dr. Vitale says. “The more we know about the cat-human bond, the more strategies we can propose to deal with feline behavioral issues in the home or address medical issues related to separation distress.”

Dogs found to have cardiovascular, overall health

A new study and meta-analysis published recently in an American Heart Association journal show that dogs may impart medical benefits to the people: longer life and better outcomes following cardiovascular incidents.

In the study, the risk of death was lower following hospitalization among Swedish dog owners who suffered a heart attack or stroke than for patients who did not own a dog. Specifically, among those who lived alone and suffered a heart attack or stroke, dogs owned were 33% and 27% less likely, respectively, to die during the study period. Dog owners who also lived with a spouse or child were 15% and 12% less likely, respectively, to die during the study period.

The lower risk of death could be explained by increased physical activity and decreased depression and loneliness, according to a release announcing the study.

“Previous studies have indicated that dog owners experience less social isolation and have more interaction with other people,” said Tove Fall, DVM, a professor at Uppsala University in Sweden. “Furthermore, keeping a dog is a good motivator for physical activity, which is an important factor in rehabilitation and mental health.”

CHEWABLE TABLETS

Brief Statement: Before using PREVICOX, please consult the product insert, a summary of which follows:

Caution: Federal law restricts this drug to use by or on the order of licensed veterinarians.

Indications: PREVICOX Chewable Tablets are indicated for the control of pain and inflammation associated with osteoarthritis and for the control of postoperative pain and inflammation associated with surgical procedures on the skin and subcutaneous tissues in dogs.

Warning: Not for use in horses. Keep this and all medications out of the reach of children. Consult a physician before using this drug in pregnant, lactating, or breeding females, or if you have any liver disease.

For oral use only. One dog may have more than one category.

A case may be represented in more than one category.

Oral use only. One dog may have more than one category.

A case may be represented in more than one category.

In a controlled field study evaluating orthopedic postoperative pain and inflammation, 226 dogs including vaccines, anthelmintics, and antibiotics.

Adverse Reactions:

- Adverse Reactions of PREVICOX Chewable Tablets in pregnant, lactating or breeding dogs has not been evaluated.

- Sensitivity to drug-associated adverse events varies with the individual patient. Dogs that have experienced adverse reactions to one NSAID may experience adverse reactions from another NSAID. Patients of greater risk for adverse events are those that are elderly, on chronic disease, on chronic disease, and on gastrointestinal disorders. Administration of a corticosteroid preparation for responsive dogs should be considered aptly and monitored. NSAIDs may exhibit the prepotencies that maintain normal renal function.

- Such prepotencies may result in a clinically significant dose in patients with underlying or pre-existing disease that has not been previously diagnosed. Since NSAIDs possess the potential to cause gastrointestinal hemorrhage and hyperperfusion, concurrent use of NSAIDs with other active inflammatory drugs, such as corticosteroids, should be avoided.

- The concurrent use of protein-bound drugs with PREVICOX Chewable Tablets has not been studied in dogs. Commonly used protein-bound drugs include corticosteroids, and potassium-blocking drugs. The influence of concurrent use of firocoxib, or any other NSAID with PREVICOX Chewable Tablets has not been evaluated. In cases where concurrent use of such drugs is necessary (e.g., corticosteroids and firocoxib), the concurrent use of a corticosteroid preparation for responsive dogs should be considered aptly and monitored.

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Economic trends
> Continued from cover

So in the spirit of that attitude, here are some interesting market trends presented during the summit, which took place Oct. 22-23 in Chicago, with just under 250 veterinarians and other industry professionals in attendance. We may not know yet what they all mean, but they are worth pondering nonetheless.

The number of U.S. veterinarians is increasing. In 2007 there were about 86,000 veterinarians in the United States, Salois noted during his opening remarks. In 2018 there were just over 113,000, a 32% increase in 11 years.

Retirements will accelerate in the next five to 10 years. The profession is not just getting larger but older, Salois said. Veterinarians over 60 made up 21% of the profession in 2018, compared with 14% in 2007. Salois projects that the number of annual retirements will increase by about 100 every year—from about 2,000 in 2019 to around 2,600 from 2026 to 2028—until it starts to decline again.

Frederic Ouedraogo, PhD, assistant director of economics for the AVMA, noted in a separate presentation that one out of three DVMs in the U.S. is a baby boomer. “If half of them exit the workforce, we will lose about 20,000 of our experienced workers,” he said. “And more than 60% of those are practice owners.”

The percentage of associates in the profession is increasing while practice owners are on the decline. In 2013 there were about 29,400 associates and 26,400 practice owners, making up approximately 27% and 24% of the profession, respectively. Since then, the number of associates has climbed steadily—to about 33,200, or 29% of total veterinarians—while the number of practice owners has fallen—to about 24,100, or 21%.

The market for new graduates is robust. According to Bridgette Bain, PhD, associate director of analytics for AVMA, the past seven years have seen an increase in veterinary school graduates receiving offers of full-time employment (95% in 2019, up from about 60% in 2012), and higher starting salaries (about $85,000 in 2019, up from approximately $65,000 in 2012). However, Bain’s research indicates that what looks like a 30% increase is actually only about 15% when inflation is accounted for.

Some schools are graduating students with less debt. Veterinary graduates from the University of Pennsylvania went into the world with 32% less debt in 2019 than the class before them. Cornell graduates in 2019 carried 15% less debt than the class of 2018. In fact, 16 veterinary schools saw their students’ debt levels decrease from last year to this year. “What are these schools doing to decrease year-over-year debt levels, and what can other schools learn from them?” Bain asked.

The gender gap for starting salaries still exists—but it’s shrinking. Female veterinarians received starting salary offers of 3% less on average than male veterinarians in 2019, but that’s down from 9% in 2012 and 4% in 2018, Bain said.

The veterinary profession is experiencing “negative underemployment.” This means there are more veterinarians who say they want to work fewer hours (for less compensation) than veterinarians who want to work more hours for higher compensation, said Charlotte Hansen, MS, AVMA’s assistant director of statistical analysis. Her research shows that it would take approximately 4,500 more full-time-equivalent veterinarians than currently exist to fill all those hours veterinarians wish they weren’t working. This has been an increasing trend over the past couple of years, Hansen said.

The number of veterinary practices is increasing. There has been a 14% rise in the number of U.S. veterinary practices between 2005 and 2016, Ouedraogo noted. At the current rate of 1.2%, or 400 practices per year, there will be approximately 40,000 practices in the United States by 2030.

A true veterinary shortage might not exist. Before veterinary schools rush to admit more students to correct the so-called shortage of veterinarians, it’s wise to take a look at the market for veterinary services, Ouedraogo said. Low starting salaries, high student debt and wellbeing issues are potentially affecting the quantity of veterinarians providing services (the supply side of this equation), he said, while consumers’ willingness and ability to purchase services affects demand. The resulting disequilibrium needs further investigation.

“What we might be looking at is not a shortage but a mismatch in price, or veterinary salaries,” Ouedraogo said. “We could also be in a situation of market failure, where some sectors of the market are acting in anti-competitive ways. Let’s not jump into thinking we need more seats at veterinary schools; let’s think about the problem and the most appropriate solution.”

This is just a sampling of what was addressed during this year’s summit. Much of the research presented can be found in the 2019 Economic State of the Veterinary Profession report, available from the AVMA.

What about the economy at large?

Besides discussing the veterinary economy, Matthew Salois, PhD, gave an overview of the U.S. economy. He started with four economic indicators and their status in terms of cause for concern (red: major; yellow: moderate, and green: little cause for concern).

Here’s where things stand, according Salois’ reading of the signs:

1. Unemployment is near a 50-year low, and the rate is showing no signs of upticking, Salois said. Status: Green.

2. Yield curve is a measure of investor confidence that compares short-term and long-term interest rates, and it’s gone negative. This is cause for concern, but it may be less relevant than it used to be—it’s certainly not cause for panic, Salois said. Status: Yellow.

3. Manufacturing shows signs of slowing, but Salois notes that it no longer drives the American economy, and it’s being battered by other factors, not just the economy. Status: Yellow.

4. Consumer confidence is flat from last year, Salois said. However, it’s not declining so steeply (15% or more) that it’s in the danger zone. Status: Yellow.

Overall, Salois thinks cause for concern regarding the economy is somewhere between green and yellow.

Another hot question Salois addressed: When will the next recession hit? A poll of CEOs in September indicated that they didn’t expect a recession “anytime soon,” economists predict it will come at the end of 2021. Four factors could have an effect, Salois said: the trade war with China (which introduces lots of uncertainty), China’s economic performance (there are signs of slowing), Brexit (more uncertainty), and FAANG stocks (Facebook, Amazon, Apple, Netflix and Google), which point the way for the overall market. “There is no reason to panic, but there is every reason to prepare,” Salois concluded.

So what should your organization be doing in the meantime? Here are some of Salois’ suggestions:

1. Deleverage and manage cash flow. This is what Amazon did before the dotcom bust, which helped it stay alive, Salois said. The goal? “Don’t run out of money,” he said. Reduce your debt burden, increase liquidity, lower your interest rates (consider refinancing), and build a backlog of business (look for new clients).

2. Invest in technology. “Don’t just batten down the hatches and play it safe,” Salois urged. Now is the time to fund IT initiatives, because digital reduces cost and increases business agility.

3. Pivot the (management) mindset. It’s time to decentralize decision-making, Salois said. Delegate responsibility to colleagues, and remember that local information is more important than global. Avoid layoffs if you can and take the opportunity to snag top talent. As an individual investor, it pays to watch indicators carefully. “Read market news every day, but don’t overreact to positive or negative news,” Salois said. Adjust your investment to balance risk and return, pay off debt and accumulate healthy savings. And if you need credit, apply now, Salois said.
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Cats fed experimental diet are found to provoke fewer symptoms in allergic people

Purina Institute symposium highlights research on humans designed to quantify clinical response to potential new allergen-neutralizing product. By Kristi Reimer Fendel

In a recent symposium put on by the Purina Institute, veterinary researchers, specialists and other cat enthusiasts gathered in Boulder, Colorado, to hear the latest feline health and nutrition findings from this animal nutrition powerhouse. The event, titled “The Science of Cats,” included updates on the development of Purina’s forthcoming diet product designed to reduce symptoms in people with cat allergies.

Here’s an overview of how the diet works (for more details, visit dvm360.com/feld1). A dry cat kibble is coated with an egg product containing a chicken antibody. That antibody binds to Fel d 1, a protein found in cat saliva and sebaceous glands that’s responsible for most allergy symptoms in people. With Fel d 1 bound in this way, it can’t lock on to the surface of human mast cells, triggering the degranulation that leads to allergic symptoms.

Purina researchers have demonstrated that their diet reduces levels of Fel d 1 in the environment. Sounds great—but does the product actually make a difference for people who are allergic? (Many of these folks, by the way, have been told to get rid of their cat but would rather suffer sniffles, congestion and itchy eyes than relinquish their feline family members.) That was the next step in the process.

To conduct a study to find out, human allergist H. James Wedner, MD, of Washington University School of Medicine in St. Louis, collaborated with molecular immunologist Ebenezer Satyaraj, PhD, and others from Purina to set up a series of environmental chambers (see image above). These chambers, according to Dr. Wedner’s symposium proceedings, were loaded with blankets used by cats fed either the anti-Fel d 1 experimental diet or a control diet. Researchers used those blankets to expose allergy patients for three hours—or until their symptoms became intolerable,” Dr. Satyaraj told the audience. Eight cats were enrolled in the trial—four cats ate the control diet and four cats ate the test diet for eight weeks. During the last four weeks, blankets used by the cats were collected and loaded into the exposure chambers.

In the human phase of the trial, researchers first exposed all participants to blankets known to have high levels of Fel d 1, a process known as “priming.” Then, each participant was exposed to the blankets from either the control or test diet cats in double-blind random fashion. The primary outcome variable was the change in total nasal symptom score or total ocular symptom score.

The results showed that the amount of Fel d 1 in the chambers was significantly reduced in the test diet cat blankets when compared with the control diet blankets. When it came to symptom scores, there was a statistically significant difference in the nasal symptom score between the exposure to high-dose Fel d 1 (the initial exposure) and blankets from the treated cats, but there was no significant difference between the high-dose exposure and the control cat blankets.

“This proof of concept study demonstrated that cat allergy sufferers who have a high-level exposure to cat allergens (largely Fel d 1) in their home will have a significant improvement in their upper airways symptoms by feeding cats a diet containing anti-Fel d 1 IgY,” Dr. Wedner’s proceedings state. “It provided a new and exciting method for decreasing allergy symptoms due to cat allergy.” dvm360
Slow and steady packs a punch.

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Speaking their language  
> Continued from cover

regularly—that’s not always the case.

In fact, an aggressive dog might wag its tail and bite at the same time, and when a dog gives a lot of “kisses,” pet owners might not know it’s actually anxious. Teaching dog owners how to distinguish between relaxed, anxious and aggressive dogs in the moment will help to prevent a traumatic escalation of negative behavior at home and in the veterinary hospital.

“Dogs talk all the time. They’re trying to talk to us the same way we talk to each other,” said Dr. Gilbert-Gregory in her session at the 30th Atlantic Coast Veterinary Conference (ACVC). “The problem is we don’t understand them. They’re not capable of learning our language, so we have to learn theirs.”

When it comes to understanding canine body language, it’s important to pay attention to what different parts of the dog’s body are saying, said Dr. Gilbert-Gregory. Body postures, movement and facial gestures can be used to relay this information.

What does a relaxed dog look like?
> **Posture.** Carries its weight evenly and may do a “play bow” or wiggle.
> **Tail position.** Relaxed and neutral position, and may be wagging.
> **Ears.** In neutral position.
> **Mouth.** May be open with tongue hanging out, or may be closed with lips relaxed over teeth.
> **Eyes.** Should be soft, with normal pupil size.
> **Appetite.** A dog is relaxed when it readily eats: “I use ability to eat as a big indicator of behavior state,” said Dr. Gilbert-Gregory. “If they aren’t eating, they’re not comfortable.”

What does an anxious dog look like?
> **Body movement and fur.** Piloerection (raised hair on the shoulders and back). Dog might roll over and lift a forelimb.
> **Expression.** Might have submissive smile, which looks like a very wide smile.
> **Ears.** Pinned back.
> **Mouth.** Panting, lip licking and yawning.
> **Eyes.** Whale eye (white portion of eye showing at corner or rim), pupil dilation or averted gaze. It’s important that dog owners understand what whale eye says for dogs. “The dog is saying, ‘I am not a threat, and I’m not sure if I’m going to need to move away from you to disengage from this situation,’” said Dr. Gilbert-Gregory. “It’s a stress signal.”

An aggressive dog can be scary for pet owners and the veterinary team. If you see these signs, take a step back, Dr. Gilbert-Gregory said:
> **Posture.** Muscles tense, weight shifts back and low to the ground. May also roll over to expose belly or raise up one paw.
> **Hair.** Piloerection is a red flag.
> **Tail.** May have tail tucked or low to the ground. May be wagging tail either slowly or rapidly.
> **Mouth.** Pulled back, with possible growling, snarling, excessive panting, lip licking chewing or yawning. “When you walk into an exam room and the dog is yawning or lip licking in response to your arrival or approach, they’re likely politely telling you to back up and disengage,” said Dr. Gilbert-Gregory.

Making sure your clients as well as your veterinary team understand these canine body language basics can not only prevent traumatic and bond-breaking situations between a pet and owner but strengthen the bond between veterinary professionals and their patients. *dvm160*
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How cannabidiol is changing the pet treat industry

CBD has crossed over to the pet market in a big way, and revenue is expected to grow to $6.7 billion by the end of the year. By Erica Tricarico

From grain-free to organic, pet treat ingredients continually evolve to meet the growing demands of pet owners. This is a trend veterinarians need to follow to stay in touch with clients, even if only to answer the occasional question.

“Pet treats have come a long way in the past 20 years,” says David Sprinkle, research director for market research firm Packaged Facts, in a recent issue of the trade journal Pet Food Processing. Pet store aisles now mirror snack aisles at supermarkets, with many products positioned as being “better for your pet.” Limited-ingredient products, grain-free options and superfood ingredients are all in high demand, with innovative new product entries hitting the market on a regular basis,” he says.

The increased desire by pet owners to feed their pets “natural” and nutrient-dense treats might explain why the U.S. pet treat market is expected to grow to $6.7 billion in revenue by the end of 2019.

Based on a 2019 Packaged Facts survey, 39% of dog owners and 34% of cat owners like the idea of CBD for pets.

One driver of this pet treat growth is, of course, cannabidiol (CBD). Many pet owners are embracing the idea of using CBD to help improve their pet’s overall health and treat a variety of health conditions such as anxiety, digestive issues, chronic pain, mobility issues, inflammation or skin irritation.

Based on a 2019 survey, Packaged Facts reported that 39% of dog owners and 34% of cat owners like the idea of CBD for pets, 29% of both dog and cat owners are interested in purchasing CBD pet supplements, and 11% of dog owners and 8% of cat owners have already given CBD or hemp treats to their pets.

“CBD supplements are in high demand in human markets, credited with treating conditions ranging from anxiety to asthma. The use of CBD has crossed over into the pet market, with usage spiking after the passage of the most recent Farm Bill in December 2018, which took a significant step toward separating hemp and hemp-derived CBD from marijuana-based products,” Sprinkle told Pet Food Processing.

Although the FDA has approved one cannabis-derived and three cannabis-related drugs for use in humans (with a prescription), it has not approved hemp-derived substances for use in animals. Currently, no CBD products can be marketed legally for animal consumption. As a result, animal and pet food companies interested in using hemp or CBD in their products have been advised to proceed with caution.

Grain-free pet food sales declining after FDA alerts

Ongoing concerns in the veterinary industry about dilated cardiomyopathy linked to grain-free pet food have resulted in steadily declining sales for some manufacturers.

You may not be surprised to learn that many manufacturers of grain-free pet foods are losing sales.

To date, the FDA has issued three alerts and updates (July 2018, February 2019 and June 2019) regarding a potential connection between certain grain-free pet foods and cases of dilated cardiomyopathy (DCM). In its most recent update, the organization named 16 dog food brands that have been implicated in at least 10 cases of DCM through April 2019 (dozens of other foods have been implicated as well, each with fewer than 10 reported cases).

According to consumer data giant Nielsen, those 16 companies have been losing sales since the initial FDA alert was released.

During a presentation in October at the Petfood R&D Showcase 2019 at Kansas State University—as reported on PetfoodIndustry.com—Natasha Davis, a strategic client partner at Nielsen, said that through September 2018 (just after the first FDA alert), grain-free pet food sales in general had been on the rise, with 9.6% year-over-year growth. Fast forward a year to September 2019, and overall grain-free pet food sales were flat or experiencing a slight decline of –0.3%.

Contrast those figures with grain-in pet food sales, which showed a –6.9% year-over-year decrease as of September 2018. Although sales were still on the decline as of September 2019, the decrease was smaller at –2.7%.

In addition, Davis said, Nielsen data show that overall sales for the 16 brands named by the FDA have decreased. Between the second and third FDA alerts, overall pet food sales in aggregate among these manufacturers dropped from about 5% to 1.2%. After the third alert, their total pet food sales dropped by 9.7% and sales of grain-free dry dog food in the pet specialty market fell 11%.

What is ‘grain-free’ anyway?

The FDA defines “grain-free” pet foods as foods that do not contain corn, soy, wheat, rice, barley or other grains. Of the more than 500 reports of DCM cases brought to the FDA’s attention, the vast majority of pets were eating a dry diet; 91% of the diets were listed as grain-free, and 93% of those grain-free diets contained peas and/or lentils.

It remains unknown how these ingredients are linked to cases of DCM. The FDA has said it will continue to provide updates as the investigation proceeds.
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An attorney disagrees with a recent article on cannabidiol legality. The author responds.

The 2018 Farm Bill explicitly removed hemp and its derivatives—which includes CBD—with less than 0.3% tetrahydrocannabinol (THC) from the Controlled Substances Act. This change became effective Dec. 20, 2018, which is when the 2018 Farm Bill was enacted. Dr. Boothe’s statement that “the USDA anticipates that these protocols [for approving an industrial hemp crop] will be in place by the end of 2019 and until that time, all CBD falls under the current DEA Controlled Substances Act and thus is considered a Schedule 1 substance” is contrary to the current law.

Dr. Boothe’s statement that there are no legal hemp CBD products is also inconsistent with current law. The USDA legal opinion, issued May 28, 2019, said that hemp with less than 0.3% THC is legal as long as it’s (1) from a grower with a USDA-issued license to grow hemp, (2) produced under a USDA-approved state plan or (3) produced under a program authorized under the 2014 Farm Bill industrial hemp pilot program. Although there are no USDA-issued licenses or approved state plans yet, hemp and its derivatives are legal as long as they have less than 0.3% THC and are not a food or a drug.

At the state level, many states do not consider hemp CBD a controlled substance—not the other way around, as Dr. Boothe says. Also, several states have laws that explicitly allow the commercial sale of hemp products.

Finally, Dr. Boothe’s statement that “anyone can grow hemp” is incorrect, as the 2018 Farm Bill prohibits anyone with a federal or state felony conviction relating to controlled substances from growing hemp. An exception is someone whose conviction occurred before Dec. 20, 2018, and who legally grew hemp under the 2014 Farm Bill before that date. Currently, hemp-derived supplements are legal federally and in many states as long as they are not marketed to prevent or treat a disease and not a food. There are a growing number of states, however, where hemp is allowed to be added to pet food.

Many veterinarians are concerned about the FDA’s regulations and laws determining whether they can use or sell hemp animal supplements.

—Stacey Evans, JD, vice president and general counsel, EliteVet Sciences; former member, USDA Secretary’s Advisory Committee on Animal Health; past chair, American Bar Association Animal Law Committee

An attorney disagrees with a recent article on cannabidiol legality. The author responds.
inhibiting, non-steroidal anti-inflammatory drug

sixty two (262) of the 285 dogs were included in the effectiveness evaluation. Dogs were 16.75 years and weighing between 4.1 and 59.6 kgs (9 –131 lbs) with radiographic and consult with their veterinarian if appetite decreases or stools become abnormal.

total protein. Appetite and stools should be monitored and owners should be advised to reactions may include vomiting, diarrhea, decreased appetite, and decreasing albumin and Information for Dog Owners:

*Galliprant was used safely during the field studies with other concurrent therapies, *Dogs may have experienced more than one type or occurrence during the study.

given either Galliprant or a vehicle control (tablet minus grapiprant) at a dose of 2 mg/kg In a controlled field study, 285 dogs were evaluated for safety when switching from corticosteroids or COX-inhibiting NSAIDs to Galliprant use.
The concomitant use of protein-bound drugs with Galliprant has not been studied. 

corticosteroids, should be avoided. If additional pain medication is needed after a daily dose of Galliprant with other anti-inflammatory drugs, such as COX-inhibiting NSAIDs or If Galliprant is used long term appropriate monitoring is recommended. 

appetite, mucoid, watery or bloody stools, and decreases in serum albumin and total protein.

lactating dogs. 

Precautions:

Use the lowest effective dose for the shortest duration consistent with Dosage and Administration: Always provide “Information for Dog Owners” Sheet with Indication:

veterinarian.

Information for Dog Owners:

20 mg, 60 mg and 100 mg flavored tablets For oral use in dogs only

Warnings:

Contraindications:

Not for use in humans. Keep this and all medications out of reach of children and 

Important Safety Information

28

The dose of Galliprant (grapiprant tablets) is 0.9 mg/lb (2 mg/kg) once daily. Only the individual response.

A statistically significant difference in the proportion of 7 A statistically significant difference in the proportion of N = 144
I cried at work today. This is not something I do often. When it comes to patients, I’ve trained myself to preserve a minimal level of disconnect to protect my own mental wellbeing. Most days, it’s the only way I can survive this profession But this time, my emotional shield unraveled.

It started with an emergency call a week prior. That’s when Bubba the beagle entered my life and started picking apart my meticulously manufactured armor.

Bubba had been attacked by another dog and, by all rights, had no business being alive. It was obvious by his wounds that the other dog had intended to kill him. Bubba shouldn’t have been breathing, but here he was, lying on my exam table, with a distraught owner draped over his broken and bleeding body.

After my initial assessment, I was concerned that Bubba didn’t seem to have much function in his front limbs. I wondered about spinal trauma, but the radiographs were normal, showing no obvious fractures or dislocations.

I’d be lying if I said part of me wasn’t hoping to find something major on those images. The little dog lying so calmly in front of me was going to have a long, painful fight ahead of him. Finding something “unfixable” would make the decision much easier for the owner. Euthanasia would be a simple choice. However, nothing about Bubba was simple.

My medical brain told me this dog had only a tiny chance of surviving with what I could offer. I couldn’t send him to a referral center because the owner was barely going to have the money for my workup. Yet he hung on to Bubba and begged me to try. “I have to do something,” he said between sobs. So I spent the next several hours clipping Bubba’s wounds, scrubbing, suturing, placing drains, checking fluid rates, monitoring vitals, and on and on. Everything took twice as long because I was alone. It was a holiday and I didn’t feel right asking a tech to come in. It was just me and Bubba.

I wish I could say I was feeling heroic and altruistic, but the truth is I wasn’t. I was resentful. I’d been called away from my family and friends. I was working on a creature that would likely die in the next few hours, and there was a good chance I wasn’t going to get paid. It’s safe to say I wasn’t having a James Herriot moment.

The good fight

Ipatched up Bubba as well as I could and said a little prayer. I prepared the owner for the fact that his pet might not make it through the night. I assumed I’d find a dead dog waiting for me in the morning. But Bubba had other ideas. The next morning he was stable, and he stayed that way for 36 hours.

Then his bloodwork changed and indicated he was getting ready to crash. That’s when I did what every modern veterinarian does and consulted my network of colleagues online. I put Bubba’s case on a Facebook group filled with 11,000 brilliant vets. Within seconds I had comment after comment of tips and suggestions, including from specialists. Maybe Bubba had a chance after all.

I became consumed with the case. Over the weekend I was physically with my family, but mentally I was with Bubba. My outspoken children commented several times that I was leaving them, once again, to go check on “that dog.” I was torn between being a good vet and a good mom, and I was failing at both.

As the days went on, I became irrationally focused on Bubba’s survival. If I was going to sacrifice myself as a wife and mother, I reasoned, the stupid dog better darn well live! I gave him the chance to prove me wrong, but every time I wrote Bubba off, he bounced back. One tiny bit at a time he kept defying the odds.

Within a few days Bubba was strong enough to go home and continue his healing there. I knew he had a long road ahead, but he was through the worst of it. I was elated when he walked out of the building. Maybe we were actually going to win this thing! Maybe the time away from my family would be all worth it.

Recheck discovery

Six days later Bubba came back for a recheck. I had already made a plan for bandaging and wound care. What I wasn’t prepared to see was his entire left ear sloughing from his head. It was obvious that no part of the external ear was viable. It was going to come off, and due to the massive tissue trauma surrounding the rest of his head, it was unlikely that any sort of cosmetic or functional closure would be possible without thousands of dollars of specialized care—care I couldn’t offer.

Bubba’s owner had been waiting out in his truck while I did my “quick” recheck exam. I walked out to him, and when he saw my face, he knew Bubba was in trouble—again. I had to explain it a few times because, understandably, it wasn’t an easy concept to absorb. As he sat with a cigar box full of 1980s baseball cards on his lap (which I assumed he was planning to sell to subsidize Bubba’s care),
I had to put into words what we were now asking of this small dog. Bubba needed surgery. I had zero experience with and little confidence I could undertake successfully. He would need to undergo multiple procedures, some of which would be painful, over the next few weeks and, in the end, they likely wouldn’t work. There was no good option.

I walked away and gave the owner time to take it all in. I couldn’t make this decision for him. I went inside and waited. And just like he knew when I walked out to his truck, as soon as I saw him standing at the reception desk, I knew what his choice was. He tried to articulate it, but it came out in sobs. I nodded. And I cried, too. We couldn’t keep asking the impossible of Bubba.

**A peaceful hell**

We sat outside at a picnic table because we agreed that Bubba needed to be in the sunshine. He was happiest outside. Three of us sat around him—my tech (who also had spent many hours on his care), myself and his heartbroken owner. It was a peaceful hell.

This may sound strange, but I’m usually good at euthanasia. I’ve disciplined myself to be the model of caring and composure. I’ve recognized that owners who are in this heart-wrenching situation need quiet strength. They need reassurance that this is the last gift they can provide their pet.

But it was a struggle to be “good” at Bubba’s passing. The weight of my career seemed to fall on this one dog. My choices as a parent and spouse were somehow tangled up in his survival. I felt every bit of grief giving up on a dog who never gave up on himself. However, I respected Bubba enough to not experiment on him with my surgical abilities. I respected my client’s budget enough to not keep spending money he didn’t have. It was a crappy decision, but it was the right decision.

**Why Bubba?**

I’ve had many emotionally charged cases throughout my career. There was no rational reason for this one to affect me so deeply. I suspect that it had a lot to do with how it pulled me from my family—and yet I still wasn’t able to be anyone’s hero. I felt disappointment from all sides. I couldn’t give anybody the win.

But I don’t believe things happen without a reason, so I suppose Bubba came into my life for a specific purpose. Perhaps I’d been overdue on personal reflection and evaluating my priorities. Maybe I was closer to the edge of burnout than I realized.

I may not be entirely certain of my ultimate path, but I do appreciate that Bubba led me to something potentially bigger than myself. All of us in this profession have had a Bubba, but many of us haven’t been able to process the emotional toll it creates. Not everyone can find the words for their discontent. Maybe a story about my experience with a battered beagle will be a voice for others. Maybe it’s time we forgive ourselves for crying at work. dvm360

Dr. Melissa Detweiler is an associate veterinarian at Bern-Sabetha Veterinary Clinic in Sebetha, Kansas.
6 tips to speed along a practice sale

Here’s my advice from years of helping veterinary practice buyers and sellers on financing, finding the right practice and speeding along a sale before it goes bad.

My office gets inquiries from veterinarians at all career stages who say they’ve got “their eye on a practice” they might want to buy. In some instances these doctors have already discussed a possible purchase with the current owner in detail, while in others the potential buyer hasn’t even approached the owner yet. What these doctors usually want to know is, “What do I do next?”

So, for them and for you, here are a few useful tips to help move the concept of a practice purchase from an amorphous thought to an expeditious closing (or the reaching of a sensible decision to move on)

Step 1: Let someone else do the footwork
Sit with bankers—whether you need one or not. Bankers earn their living by closing loans and acquiring customers. When the idea of buying a practice occurs to you, start interviewing bankers. Talk to several and see how receptive they are to your dream of acquiring a clinic. Ask about their experience and area of expertise or specialization.

If a banker doesn’t seem particularly interested in discussing the loan process with you because you don’t have a target practice selected, just leave. Move on to the next financial institution. As a person with an eight-year college educational background, you’re not to be dismissed simply because you aren’t ready to move forward with a loan application today. A banker who’s not willing to spend time educating you about the loan process to earn your business later doesn’t deserve your business.

You will, in time, find a helpful and knowledgeable banker, and when you do, spend time letting her educate you.

Learning what bankers know from their years of loan experience can save you a great deal of time. And once you’re familiar with a bank’s borrower evaluation criteria, you can save everyone involved time by identifying practices that are (1) too expensive for your objective creditworthiness, (2) not profitable enough to justify the asking price, (3) growing too slowly to justify further investigation or (4) perfectly suited for you to aggressively pursue.

Step 2: Make your introductions
Spending time with adroit bankers will give you the confidence to reach out to practice owners who fall into three categories: sellers who haven’t seriously considered selling, sellers who are interested in selling but haven’t advertised or listed with a broker, and sellers who’ve taken actual steps toward selling.

Consider starting your clinic search with a seller who has advertised her facility or listed with a broker. Why? Because regardless of whether you eventually make an offer, you’ll learn a plethora of useful information and negotiation skills during the process of dealing with seasoned practice sale professionals. And you might even discover that the clinic is more affordable or desirable than you’d thought. Either way, this first incursion will ramp up your knowledge and experience such that when the ideal target practice does present itself, you’ll be more savvy than the dozens of other suitors who never bothered to school themselves on the practice purchase “dance.”

When you approach a seller who hasn’t seriously considered an asking price, simply stop in, call or write them. The worst they can say is no. And as vintage automobile enthusiasts such as myself know, “not for sale” very frequently means “not yet for sale.”

Every time you let a practice owner know you’re in the market, you maximize the likelihood that that seller will hold on to your contact info. In a month, a year or a couple years, if that seller becomes motivated, who gets the first call? The broker or you. Veterinary practice sellers who manage to avoid the intervention of a broker stand to net a much better price—and may do so while allowing you to pay less.

Step 3: Talking price
Avoid this early on and continue avoiding it for a spell. A potential seller may tell you her “ask” right off the bat or refer to an appraisal she had done last week or a decade ago. Just listen patiently. Don’t act crestfallen, overly anxious or shocked. If you demonstrate emotion at the outset, you may inadvertently set the tone for all further negotiations. Also, if you suggest a price too early and with minimal supporting information, you may insult the seller—so much so that you find yourself written off as a "bottom feeder" who tosses out lowball offers in hopes of finding a naïve seller who’ll take the bait.

There’s plenty of time to discuss and negotiate price after you and the seller get to know each other a bit. And if your seller happens to mention a price range, you can sprint back to your banker. If the banker says, “Sure” to the idea of lending on that specific clinic, you may already be in the ballpark as to price. If the banker shakes his head and looks down despondently, you can feel confident in offering a lower price and telling the seller, “Sorry—it’s not me, it’s my bank.” Insult averted.

Step 4: Shop for a final bank
Once you’ve got a banker you want to work with on a potential clinic, get his offer and then manipulate the numbers. Based on that first loan offer, “pencil” the transaction multiple ways based on what the banker tells you about the bank’s prevailing term options. Ten-year loan? Fifteen? Prepayment penalty? Fixed or adjustable rate?

Simultaneously, use what you learn from “your banker” to evaluate other lending sources with different terms. You can always end up using your preferred banker, but if...
when banker’s rate and terms aren’t competitive, you need to agree to disagree and let him move on to the next borrower. You’re not intentionally wasting anybody’s time, and you’ve given that banker a second shot at your business—for an equipment loan, checking account or credit card processing services. But after having worked with you, that banker knows you’re a price- and fee-sensitive commercial customer.

**Step 5: Speed up the closing**

As one of my real estate agents always reminds me, “Time is the killer of all deals.” What that New Mexico cowboy means is that once a transaction is fundamentally agreed to, the clock starts to run on the buyer’s opportunity. The difference between a quick closing and a long-lasting cavalcade of disappointing delays can be total collapse of the sale. Remember:

＞ Sellers experience pre-closing remorse if they have too much time to think about it.

＞ Financing rates change faster than most attorneys work—the rate you’re depending on can rise while paperwork slowly meanders its way from your lawyer to the title company ... to your lender ... to the seller’s lawyer ... and then back to your lawyer.

**Step 6: Go back to your banker for the checklist**

Your lawyer wants a commission. Your lawyer wants a fee. But nobody is more highly motivated to get the deal closed than you. It’s the only deal you’ve got in the works, but to your professional helpers, yours is one of many.

So be proactive! Ask your lending institution for an exhaustive list of forms, documents, records and other information you need to provide to get a bank’s commitment and then funding. The list can be long, including tax records, insurance commitments and explanations of flaws in your credit report. Nothing moves until these items are supplied, and your ability to get ahold of these documents can hold things up.

Finally, the only way to move your deal to closing at the fastest possible speed is to keep an eye on all the players, making sure that each of them knows what’s required of them and that they’re aggressively striving to meet a realistic timetable. This goes for everybody: title officers, escrow agents, surveyors, environmental consultants, everybody.

And last but certainly far from least: If your closing is scheduled in July, August or December, ask everybody involved if and when they’ll be away on vacation. Some practice deals get scuttled because summer trips, family reunions and Christmas visits slow things down.

Christopher J. Allen, DVM, JD, is president of Associates in Veterinary Law PC, which provides legal and consulting services exclusively to veterinarians. He can be reached at info@veterinarylaw.com. Dr. Allen serves on dvm360 magazine’s Editorial Advisory Board.

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Christopher J. Allen, DVM, JD | LETTER OF THE LAW

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* Common side effects of steroids include polyuria, polydipsia and polyphagia.² ³ Side effects of APOQUEL reported most often are vomiting and diarrhea. ⁴ ⁵ Based on survey data from veterinarians (n=250) and pet owners (n=150). ² ³
How to get more pets to the vet

AVMA data show that—surprise, surprise—preventive care improves when the veterinarian-client-patient relationship (VCPR) is stronger. Are you doing what you can to make sure that the next time that patient comes in, wellness care is on the table?

Did you know that the veterinarian-client-patient relationship (VCPR) plays a critical role in whether clients bring pets to the veterinarian for routine wellness and preventive care?

It’s true. Based on the research reported in the AVMA’s most recent Pet Ownership and Demographics Sourcebook, we can safely say that developing a strong veterinarian-client bond can help us get more pets into veterinary practices on an ongoing basis for the preventive healthcare we know they need.

What the data show

Let’s dig into the research, and you’ll see what I mean. The AVMA’s pet demographics survey asked pet owners not only about what pets they have, but also about how frequently each pet sees a veterinarian, and why they do or don’t go to the veterinarian. Among its key findings:

- Nearly 30% of pet owners don’t regularly bring their companion animals to see a veterinarian at least once a year. That’s more than 48 million pets that aren’t getting regular preventive care.
- Veterinary visits vary by species. The research found that even for dogs—which typically get more veterinary care than cats, companion horses or birds—nearly one in five don’t see a veterinarian at least once a year. Nearly half of all cats (46%) and companion horses (44%) don’t get to the vet annually, and fully 88% of pet birds don’t.
- The primary reason pets don’t get the wellness care they need is that their owners don’t understand the value and need for it. For instance: Among dog owners whose pets didn’t get to see a veterinarian, 35% said they didn’t go because the pet had been sick. Another 21% said the animals didn’t need vaccines or that they had treated the pets themselves at home. This same reasoning showed up across all species.
companion animal species; dogs are just an example.

When pet owners cited financial reasons for not going to the veterinarian, it was primarily a question of affordability, not value. Encouragingly, only 5% of those who didn’t get to the veterinarian said it was because veterinary care wasn’t worth the price charged.

Pets need a ‘regular’ veterinarian
Where does the VCPR come in?
Among pet owners, and especially dog owners, our research found that both price and convenience are less of a factor for owners who have what they consider a “regular” veterinarian. Most pet owners without a regular veterinarian choose a veterinarian based on location and price. Those who do have a regular veterinarian are influenced more by the veterinarian’s level of perceived knowledge, quality of care and demonstrated compassion.

For veterinarians in daily practice, this underscores the importance of building a relationship with the client by becoming that “regular” veterinarian. That status allows veterinarians to talk about preventive care, demonstrate and explain its value, and make a dent in the number of clients who don’t understand why and how much it matters.

Remember: More than half of the pets who aren’t getting to the veterinarian regularly are staying home because their owners don’t understand why they need to go in for regular examinations, vaccinations and other wellness care. The better job we do talking about the importance of preventive care with clients, the better chance we have of reducing the number who don’t bring in their pets just because they weren’t sick or injured, or had been given vaccines or parasite preventives at home.

How to become the ‘regular’ veterinarian
To move the needle on preventive care, one of the first priorities is to solidify and maintain your position as a trusted partner for clients—in other words, improving the veterinarian-client relationship. One of the most effective ways is to forward-book each patient’s next wellness exam when you already have them in the hospital. Whether they’ve come to see you for an injury, illness, vaccination or other care, you can get their next preventive visit on the calendar right away—and make it much more likely they’ll come in when they should.

Because you’re probably not booking your own appointments, this could be a matter of training client service representatives to do this with every client. You can play a role, too. If veterinarians walk clients from the exam room to the front desk, the veterinarian can tell the front-desk staff when the patient should come back. When veterinarians are busy, the same protocol can ask veterinary technicians, assistants or receptionists to do the same thing.

Whatever steps you and your team can take today to get clients from any veterinarian to their veterinarian will, in the end, improve the chances those pet owners will get their favorite animals in to you.

Matthew Salois, PhD, is chief economist and director of the Veterinary Economics Division at the AVMA. He worked in private industry, government and academia before joining the AVMA in 2018.
Will the real assistance dog please stand up?

A pet owner asks her veterinarian to sign off on a certificate for her pet, and he thinks it might be fraud. Should he push back?

Dr. Louis Kay’s veterinary practice is located in what some would describe as a “posh” community, and his clients make many trendy requests. For instance, a microchip is not enough—they need a GPS collar trackable with a smartphone. The number of newly popular breeds among his clients—labradoodles, morkiepoos, French bulldogs—has risen tenfold in the past four years.

Dr. Kay, having practiced for more than 20 years, has no issues with any of the trends he sees come and go over the years—as long as they don’t harm the health and welfare of his patients. If pet owners and pet patients are happy, so is he. This is all true until a new trend challenges his ethical and professional boundaries.

In the past few years, Dr. Kay has seen a marked increase in the number of emotional support animals, therapy dogs and more. He firmly believes the support dogs give to people in need is nothing short of miraculous. For decades we’ve marveled at the help service animals offer to the blind and deaf. In the last decade, therapeutic assistance has expanded to help those with physical disabilities, anxiety issues and many types of life-compromising phobias. As might be expected, along with the increased numbers of helping dogs and the privileges they’re accorded has come abuse of those designations by pet owners.

Now Dr. Kay faces a professional and ethical question. His longtime client Mrs. Toss comes in to have her dog examined to be classified as an assistance animal. In Dr. Kay’s state, a medical doctor has to sign off on the patient’s need for an assistance dog. In addition, a veterinarian has to attest to the health and disposition of the dog. Both of these approvals are required before an animal can be registered as an assistance animal and thus entitled to the privileges that go along with this certification.

It’s clear to Dr. Kay that Mrs. Toss, who frequently travels to her Florida home by plane, wants her beagle, Lucky, to travel in the cabin with her and accompany her to restaurants in his capacity as an assistance animal. To Dr. Kay, it also seems clear that his client does not have a disability but has gone to these lengths to accommodate her personal preferences. As diplomatically as possible, Dr. Kay asks the woman why she needs an assistance dog. She seems a bit taken aback by his question and says it was recommended by her doctor. She goes on to say that revealing anymore information would violate her medical privacy.

Dr. Kay struggles with what to do. By signing the veterinary certificate, is he complicit in what he feels may be a fraud? Is it possible that his client has a medical disability that he isn’t privy to? When presented with a physician’s certificate approving a need for animal assistance, should he just sign off and be done with it? The fact that people abuse their rights to handicapped parking plates and assistance dog certifications does not sit well with Dr. Kay—but he signs off anyway.

What would you have done if you were Dr. Kay? Email us and let us know at dvm360news@mmhgroup.com.

Dr. Rosenberg’s response

As veterinarians, sometimes we need to pick our battles. The battles that I personally always pursue are to see that my patients are not frightened and not in pain. Dr Kay’s instincts were probably right about his client’s effort to have her dog declared an assistance dog for selfish reasons. But if veterinarians had to actively respond to all the irresponsible actions of their clients, there would be no time to care for pet patients.

I agree with Dr. Kay’s decision. Nevertheless, it shouldn’t stop the profession from advocating that animals not be exploited as assistance and support animals in cases where deception is the only disability in play.

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

I would have never dreamed of a daytime sleep habit, but hey—doctor’s orders.

Remember when you were a kid and your folks had to tell you to take a nap? It was a battle to see who’d give up first. Naps were almost a form of punishment. Now, when you take a nap do you notice how refreshed you feel?

But isn’t napping a waste of time? I kind of thought so during the last few months, when I was recovering from a knee replacement surgery. My surgeon warned me that, although it’s a fairly routine surgery, recovery would go faster if I remembered three simple things: ice is my friend (constant cold compresses reduced postop pain almost as well as opioids), stick to the physical therapy (prevention of stiffness made recovery more doable) and commit to rest (which means sleep and relaxing).

Turns out, staying awake was hard and I often fell asleep mid-sentence. I soon realized I was taking naps every few hours, and if nothing else, it helped me rest my surgical site. My recovery was quick and easy. I slept through most of it.

Don’t think of napping as lost time or feel guilty for indulging in daytime sleep. According to the National Sleep Foundation, naps can boost memory and mood, improve job performance and alertness, and reduce stress. Here, I’ll share the basics I found in my quick research when it comes to the dos and don’ts of napping.

Don’t overdo it
A short nap of 20 to 30 minutes is recommended for short-term alertness. A 30-minute nap in the early afternoon—combined with moderate exercise, like a walk and stretching in the evening—can improve nighttime sleep. Longer naps can make you sluggish, because they require your body to kick you awake from a deeper sleep (called “sleep inertia”). It’s also important not to nap late in the day, because this can make it harder to fall asleep at night.

Pick the right time
See above: early afternoon, people. The best hour for most people to nap is between 2 and 3 p.m. That’s because you’ve already eaten lunch and your blood sugar and energy levels naturally start to dip. In fact, your body clock is often programmed to make you feel a little sleepy in the middle of the afternoon. Make sure you wake up no less than three hours before your bedtime.

Nap at work
There is no reason to apologize for napping at work. Daytime drowsiness can affect concentration, attention to detail, mood, productivity and creativity. Sleep-deprived workers can be affected by health issues, such as hypertension, diabetes and depression. Just like your other naps, if the schedule works out, take it between 2 and 3 p.m. and keep it to 20 minutes (easily fitting in a lunch break). Pick a quiet spot—your car, an outdoor bench, an office.

Lots to think about, but if it’s wearing you out, take a nap! dvm360

Dr. Mike Paul is a former president of the American Animal Hospital Association. He is currently the principal of Magpie Veterinary Consulting. He is retired from practice and lives in Anguilla, British West Indies.
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Cardiomyopathies in cats—and what to do with them

Cardiologist Meg Sleeper outlines everything you need to know about the three most common feline cardiomyopathies you may encounter in practice. By Eliza Smith, DVM

3 cardiomyopathies in cats—and what to do with them

While cardiomyopathies have long been the most common cardiac diseases found in cats, they still can be difficult to detect and treat, says Meg Sleeper, VMD, DACVIM (cardiology), professor of cardiology at the University of Florida College of Veterinary Medicine in Gainesville.

“Detecting cardiomyopathies in cats is difficult because feline cardiac disease is so unpredictable,” Dr. Sleeper said in a recent conversation with dvm360 magazine. A full 50% of cats with heart disease will not have a detectable murmur, she notes. And of those that do, only about 50% will have echocardiographic evidence of heart disease.

Types of cardiomyopathy
Here are the most common culprits to keep in mind when dealing with cats with cardiomyopathy.

Hypertrophic cardiomyopathy. Hypertrophic cardiomyopathy (HCM) is the most common primary cardiomyopathy in cats. Cats with HCM have a defect in their cardiac myocytes, causing the muscle cells to be in disarray rather than in a regular, organized pattern. HCM is characterized by concentric hypertrophy and fibrosis of the left ventricle. This causes stiffening of the ventricle, which prevents relaxation and impairs ventricular filling during diastole.

In ragdoll and Maine coon cats, the disease is caused by an autosomal dominant mutation with incomplete penetrance. This means that all cats with the mutation will have some form of HCM, even if they are heterozygous for the mutation. Dr. Sleeper adds that other, undiscovered genetic mutations are likely the cause of HCM seen in other breeds, including domestic shorthair cats.

Manifestation of HCM can vary widely from patient to patient, with variables including:

> Age: Age of onset ranges from 6 months to 16 years (mean is 6 years).

> Areas affected: Some cats will have widespread concentric hypertrophy, while others will have only a focal area of hypertrophy. “This underscores the need to look at the entire ventricle during echocardiography,” Dr. Sleeper says.

> Dynamic outflow obstruction: Some cats experience systolic anterior motion (SAM) of the mitral valve, which is the mitral valve is drawn into the left ventricular outflow tract during systole. Moderate or severe SAM increases left ventricular systolic pressure, which exacerbates left ventricular hypertrophy. “This creates a vicious cycle of hypertrophy and the potential for worsened diastolic function,” Dr. Sleeper says.
> **Disease severity:** Some cats may have very mild, slowly progressive disease, never becoming symptomatic, while others will develop more severe disease that may lead to arterial thromboembolism, congestive heart failure (CHF) or sudden death. “About half of cats that go into CHF have some precipitating event, such as a dental or other stressful procedure,” Dr. Sleeper says.

> **Clinical presentation:** Although many cats with HCM are asymptomatic, 36% to 72% have a systolic murmur, 33% have a gallop rhythm, 35% have dyspnea, 4% have syncope and others will have nonspecific signs, such as lethargy, hyporexia or vomiting.

**Restrictive cardiomyopathy.** Like HCM, restrictive cardiomyopathy affects diastolic function, Dr. Sleeper says. The disease is characterized by focal, regional fibrosis of the left ventricular myocardium, causing stiffening of the left ventricle and inhibiting passive filling during diastole. Unlike HCM, restrictive cardiomyopathy does not cause ventricular wall thickening.

**Dilated cardiomyopathy.** Dilated cardiomyopathy (DCM) is characterized by a dilated heart with thin walls and decreased systolic function. The disease was once common in cats but has become quite rare since the association between DCM and insufficient dietary taurine was discovered. The disease is more common in Abyssinian, Burmese and Siamese cats than in other breeds.

**Diagnostic testing**

The variability in signalment and presentation of cats with cardiomyopathy can make the condition difficult to recognize. While echocardiography is needed to diagnose and differentiate between the cardiomyopathies, other diagnostic tests play an important role.

**Lab work.** If a primary cardiomyopathy is suspected, diseases that can cause secondary hypertrophy should always be ruled out, says Dr. Sleeper. “Cats with CHF or suspected HCM should have comprehensive lab work performed, including a complete blood count, serum chemistry, total thyroxine level and urinalysis,” she says. This is especially true for middle-aged and older cats, which are more likely to have renal disease or hyperthyroidism. Renal disease can contribute to hypertension, and it’s important to assess renal function before initiating treatment for CHF. Assessing total thyroxine concentration is essential, Dr. Sleeper says, because hyperthyroidism is a secondary cause of concentric hypertrophy.

Acromegaly is a less common cause of secondary HCM. While serum growth hormone levels can be measured to test for acromegaly, checking growth hormone levels usually is not necessary because acromegaly often is evident on physical exam, says Dr. Sleeper.

**Electrocardiography.** Some cats with cardiomyopathy may have changes on an electrocardiogram (ECG), while others will have a completely normal ECG. The most common changes are tall R waves (indicating left ventricular hypertrophy), tall P waves (indicating right atrial enlargement) and arrhythmias. “Electrocardiography is not the most sensitive test,” Dr. Sleeper says, “but it is an important test in cats that have a history of arrhythmia or syncopal episodes.”

**Radiography.** Thoracic radiographs in cats with cardiomyopathy may look normal, or they may show left atrial enlargement or generalized cardiomegaly. Radiographs also can show evidence of CHF. Serial vertebral heart scoring is an inexpensive, objective method to monitor heart size and disease progression when client finances are limited, Dr. Sleeper says. Because measurements of both the left atrium and the left ventricle are captured with a vertebral heart score, the score will change with enlargement of either chamber.

**Cardiac pro-brain natriuretic peptide (pro-BNP).** BNP is a vasodilatory and natriuretic protein that is released from the ventricular myocardium in response to physical stress (i.e., increased stretching, increased wall tension, ischemia). BNP levels can be useful in detecting cardiomyopathy in cats. There are very few cats with a pro-BNP level higher than 100 pmol/L that do not have HCM, but the test can miss those with mild to moderate disease. In other words, at higher than 100 pmol/L, the test will have very few false positives but can have false negatives. “The pro-BNP level will often rise prior to radiographic evidence of cardiac enlargement in the cat,” Dr. Sleeper says.

**Echocardiography.** As noted earlier, many diagnostic tests can be suggestive of cardiomyopathy, but echocardiography is needed to differentiate between the types of cardiomyopathies. Echocardiography is used to measure ventricular wall thickness, identify myocardial fibrosis, assess for SAM of the mitral valve, measure pressure gradients, measure left atrial size and assess for atrial blood stasis and thrombus formation. In cats, the diameter of the left atrium should approximately equal the diameter of the aorta. The magnitude of left atrial enlargement is a very important prognostic indicator, says Dr. Sleeper, who uses this measurement in determining when to initiate treatment.
**Treatment and monitoring**

Treatment of cats with HCM and restrictive cardiomyopathy can be controversial, Dr. Sleeper says, adding that “the best medicine for some cats may be no treatment at all.” Because some asymptomatic cats will never develop severe disease, it’s difficult to know when to begin treatment. Factors to consider before starting treatment include the presence of left atrial dilation, a history of previous thromboembolism, severity of SAM of the mitral valve, tachycardia, severity of left ventricular hypertrophy, and client and patient motivation and ability to administer medications long term. If the client and patient can tolerate treatment, Dr. Sleeper says she generally will start treatment if a consistent tachycardia or arrhythmia is present, if there is severe dynamic stenosis or if there is evidence of significant left atrial enlargement.

“The best medicine for some cats may be no treatment at all.”
—Dr. Meg Sleeper

Atenolol and diltiazem are the most commonly used drugs in asymptomatic cats with HCM. Atenolol is more useful than diltiazem in treating tachycardia and reducing SAM of the mitral valve. Angiotensin-converting enzyme (ACE) inhibitors also have been used in asymptomatic cats with HCM. Clinical evidence from placebo-controlled, blinded clinical studies indicate that early use of ACE inhibitors or diuretics in cats with asymptomatic HCM is not warranted, Dr. Sleeper says.

Prophylactic anticoagulant therapy in asymptomatic cats with HCM also is controversial, according to Dr. Sleeper, and generally is not needed in cats with HCM and normal left atrial size. Cats with echocardiographic evidence of spontaneous contrast (red blood cell aggregation), intracardiac thrombus, a history of previous thromboembolism, and moderate to severe left atrial dilation (left atrial-to-aortic ratio ≥1.9 and/or evidence of atrial blood stasis) should be placed on anticoagulant therapy. Clopidogrel, aspirin and low-molecular-weight heparin are used as anticoagulants in cats. Although clopidogrel is superior to aspirin as an anticoagulant, it is extremely bitter and giving the medication can become a quality issue for patients and their families, Dr. Sleeper says, adding that aspirin may be preferable in these cases.

Treatment for cats with DCM is less controversial. “DCM is treated with taurine supplementation, pimobendan and an ACE inhibitor,” says Dr. Sleeper, who sees a handful of feline DCM cases each year.

Furosemide is the most effective and life-saving treatment for cats with CHF, she says. Depending on the severity of heart failure, furosemide can be given orally at 1 to 2 mg/kg every eight to 24 hours as outpatient therapy. The lowest effective dose should be used, and a higher initial dose often can be tapered rapidly, based on respiratory rate and effort as well as evaluation of thoracic radiographs. In acute heart failure, parenteral furosemide is given at a dose of 1 to 2 mg/kg every one to four hours, tapering the dose and frequency once respiratory effort normalizes and the respiratory rate decreases to 50 bpm or less.

Oxygen therapy with 60% to 70% fraction of inspired oxygen also can be used in patients with acute heart failure but should be decreased to 50% or less within 12 hours to avoid barotrauma secondary to high inspiratory oxygen concentration. Dr. Sleeper cautioned. Cats in acute heart failure at high risk for arterial thromboembolism are started on prophylactic anticoagulants while hospitalized.

Pimobendan may also be used in patients with acute heart disease, ideally based on echocardiographic findings. Negative inotropes, such as atenolol and diltiazem, generally are not indicated in acute cases, unless the patient has a hemodynamically significant tachyarrhythmia. Beta-blockers, such as atenolol, should be avoided until heart failure has been stabilized. ACE inhibitors also are not used in emergent cases, says Dr. Sleeper, adding that they can be useful as an adjunct treatment once the cat is stable at home and well hydrated.

Middle-aged to older cats should be monitored periodically for development of hypertension and hyperthyroidism, as these conditions can accelerate cardiac disease progression. Asymptomatic cats with HCM should have an echocardiogram every 6 to 12 months, depending on the severity and progression of their disease. Cats with significant left atrial enlargement should have radiographs every 3 to 6 months to evaluate for early heart failure. Those that are already in heart failure have an average survival time ranging from 61 to 184 days.

**Prognosis**

Cats with asymptomatic and mild cardiomyopathies have a good prognosis, and may live for years without problems, Dr. Sleeper says, but the prognosis worsens once cats develop CHF and arterial thromboembolism. Survival times in cats with CHF range from 92 to 654 days. Cats with HCM and arterial thromboembolism have an average survival time ranging from 61 to 184 days.

**Image Quiz: Are you on the nose with this nasal issue?**

When a patient presents with sneezing and obstructive nasal breathing, what’s your diagnosis? Take the quiz to see if you’re right.

By Jessica Romine, DVM, DACVIM

A 5-year-old, 4.5-kg female spayed dachshund mix was presented for acute onset of sneezing and obstructive nasal breathing. Approximately three weeks prior, the dog had begun sneezing and reverse sneezing, and stertorous breathing had been noted. The dog was started on enrofloxacin with minimal improvement, and clindamycin was added a week prior to presentation with no change. No discharge or epistaxis was noted and the dog was not coughing or gagging, but snoring was now noted whenever the dog was at rest. The dog was still eating and drinking normally but would not bark, which was very unusual for this patient.

How would you diagnose this patient?

A. Rock foreign body
B. Nasopharyngeal polyp
C. Elongated soft palate
D. Unerupted permanent molar

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The correct answer is A: Rock foreign body

Within the rostral aspect of the nasopharynx is a triangular hyperattenuating structure that measures approximately 4.7 cm dorsoventral by 4.6 cm mediolateral. This structure is surrounded by soft tissue attenuating material that appears poorly contrast-enhancing. The hyperattenuation and shape were highly suggestive of mineral foreign material in the nasopharynx.

This patient was small, weighing approximately 10 lb, limiting evaluation of the nasal cavity with rhinoscopy. Thus, a CT scan was elected, which allowed for clear identification and localization of the stone lodged in the nasopharynx. There was a large amount of purulent discharge and exuberant inflammatory tissue surrounding the stone, which made its dislodgement difficult, but successful removal was achieved with caudal traction using ratigator forceps and a retroflexed endoscope.

The nasal cavity and nasopharynx were then thoroughly flushed with saline, and the patient was discharged on a tapering course of anti-inflammatory steroids. At a follow-up two weeks later, the dog was reported to be doing very well other than minor stertorous breathing noted at night, likely a result of residual inflammatory tissue.

Nasal foreign bodies are one of several possible reasons for congestion and upper respiratory signs. The young age of this patient paired with the sudden and persistent sneezing raised a high index of suspicion for a foreign body.1,2

In one recent study, the mean age at presentation for nasal and nasopharyngeal foreign bodies was 5.7 years, and sneezing was present in 86% of cases, versus only 48% with epistaxis and 29% with nasal discharge.3 The lack of a response to antibiotics is likely attributable to location—often, dogs with foreign material in the nasal cavity will present with purulent nasal discharge, with the nature of the discharge improving with antibiotics as secondary infection is treated. However, signs classically return rapidly after antibiotics are discontinued because the underlying cause is still present.

As mentioned, this patient was smaller than is typical of a dog with a foreign body, as dogs weighing more than 10 kg (22 lb) are statistically more likely than smaller dogs to inhale a nasal foreign body.2 Overall, nasal foreign bodies are significantly less likely than nasal neoplasia, chronic rhinitis or fungal rhinitis to be the cause of upper respiratory signs, with studies reporting that foreign bodies make up 5% to 7% of cases.4,5 Dogs are known to inhale a variety of objects, with 81% of foreign bodies being vegetal, 14% mineral and 4.8% artificial material in one study.1 In our practice, other findings include carpet fibers, muzzle whiskers, Caterebra and horseshoe nails.

Nasal foreign bodies should be particularly suspected in cases of acute onset of sneezing, with or without nasal discharge, and with a minimal or temporary response to antibiotics. Rhinoscopy can often identify the material, but advanced imaging may be required to localize the objects and allow for planning for best approaches for removal.
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Heads up: A report from the AAVN Clinical Nutrition & Research Symposium

Event yields insights on DCM-diet link, home-prepared foods and more. By Martha Cline, DVM, DACVN

The goals of this year’s American Academy of Veterinary Nutrition (AAVN) annual symposium were to share information, promote interest and research, and create relationships among veterinary professionals and other individuals in the field of animal nutrition. The symposium is a mix of research abstract presentations—published annually in the Journal of Animal Physiology and Animal Nutrition—and guest speakers. This year we welcomed nine oral abstract presentations, 16 poster presentations and four guest speakers. Here are some highlights.

**Lentils, DCM and taurine**

Research is starting to emerge investigating the potential link between diet and dilated cardiomyopathy (DCM) in dogs. Researchers from the University of Illinois at Urbana-Champaign investigated the relationship between a high inclusion of pulses (the dried seeds of legumes) and taurine status in dogs. In a controlled environment, dogs were assigned to one of two diets: one containing approximately 45% green lentils and one with a primary protein source of poultry byproduct meal. Over 90 days, no significant differences were found in taurine or amino acid concentrations such as plasma methionine between the two diets. These results suggest that inclusion of about 45% green lentils in a dog’s diet does not affect circulating taurine concentrations.

**How storage affects microbiome**

The winner of the annual AAVN & Waltham Student Research Award, Ching-Yen Lin from the University of Illinois, demonstrated the importance of collection and storage methods when it comes to canine microbiome research. Canine fecal samples were collected and stored under different conditions using a novel microbiome stabilization method or unstabilized at room temperature. Changes in diversity and abundance of dominant bacterial phyla and genera were documented between stabilized and unstabilized samples, suggesting that the storage method is important to maintain data integrity. This study is significant given the abundance of groups investigating the microbiome in veterinary medicine.

**Nutrients in home-prepared diets**

Home-prepared diets for pets are becoming increasingly popular not only in the United States but in many other countries as well. Investigators from the University of São Paulo in Brazil evaluated home-prepared diets whose recipes for healthy dogs and cats were published online in Portuguese. Seventy-five canine and 25 feline diets were selected for nutrient evaluation. None of the diets met 2018 nutritional guidelines established by the European Pet Food Industry Federation (FEDIAF), with the majority having three or more nutrient deficiencies. Although no diets supplied all recommended nutrients, those with more ingredients did have an improved nutritional profile. This research further emphasizes that pet owners interested in preparing food at home for their pets should consult with veterinary professionals specifically trained with credentials to balance home-prepared diets.

**The marketing of meat**

Mark Finke, PhD, a pet food formulator with many years of experience, presented a guest lecture titled, “Market Driven Pet Food Ingredients: The Formulator’s Perspective.” In this talk he discussed how the market drives the demands of commercial pet food and what the formulators do to meet these demands. One such example is the marketing of “meat as the first ingredient.” He points out that the ingredient list, presented in descending order by ingredient weight, can be manipulated by the formulator to improve consumer perception of the diet. This includes using multiple carbohydrate sources with similar nutrient profiles or splitting a carbohydrate into its different fractions, thus allowing each ingredient to appear farther down the ingredient list. Additionally, ingredients with equal weight can be listed in the order preferred by the formulator. For example, if chicken, potato and peas have equal weight in a diet formulation, the chicken can be listed first. Formulators must also be familiar with novel ingredients used in pet food formulations. This includes potential hazards and nutrients provided by the new ingredient. Finke also reminded the audience that pet food companies get what they inspect, not what they expect, when it comes to working with suppliers and raw materials.

**More on DCM and diet**

The rise of DCM in dogs and its relationship to diet has created much concern and interest among veterinary professionals and animal nutrition scientists. The cause of diet-associated DCM in dogs remains unknown. Although initially thought to be related to taurine, the majority of cases reported to the FDA are not taurine-deficient. Lisa Freeman, DVM, PhD, DACVN, presented a comprehensive review of the potential link between diet and the development of DCM in the dog. She reminded the audience there may be other nutritional factors contributing to the development of DCM, including thiamine, L-carnitine, copper, choline, vitamin E, selenium and so on. As veterinarians and pet owners sort through information provided by the FDA, we should remember that there may be bias in the data, including underreporting of cases involving breeds typically associated with genetic or primary DCM, such as Doberman pinschers, or overreporting of certain breeds, such as golden retrievers, where there is increased awareness among pet owners.

**AAFCO on hemp, buffalo**

Dave Dzainis, DVM, PhD, DACVN, of Regulatory Discretion Inc., delivered a regulatory report that included updates from the Association of American Feed Control Officials (AAFCO). While hemp-based pet products are becoming more common, AAFCO has not defined hemp-based products as an ingredient for animal feed nor has the FDA approved hemp-based products for inclusion in pet foods. Consumers may also be familiar with buffalo as an ingredient in pet food. What they may not realize is that this ingredient is typically water buffalo or other buffalo species, not the American buffalo—technically bison—that may be depicted on the packaging. AAFCO is working to better define this ingredient to be more transparent to the consumer.

**References**


Dr. Martha G. Cline is president of the American Academy of Veterinary Nutrition Executive Board for the 2017-2021 term.
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As veterinary professionals continue to provide quality preventive and wellness care for their patients, we are seeing a “graying” of this population—which I love! However, caring for senior pets requires not only an all-inclusive approach and ongoing preventive measures but also dealing with body systems issues as they arise, from organ dysfunction and osteoarthritis to tumors and behavioral issues. Managing them ourselves can be frustrating enough. Managing them with pet owners is an entirely different beast. Here are some lessons I’ve learned from taking care of our beloved golden oldies.

Handling the confusion and anxiety
Cognitive dysfunction syndrome (CDS) in our patients can lead to some of the most frustrating issues to manage. Once we’ve ruled out other medical problems, we have tools to assess the level of cognitive decline that might be present in our patients. The acronym DISHA has been used for years to assess cognitive dysfunction syndrome (D for disorientation; I for social interactions; S for sleep and wake cycles; H for house-soiling, learning and memory; and A for activity); it recently was expanded to DISHAA to provide additional focus on the increased anxiety that some pets exhibit.

A minor level of increased anxiety may be due to normal aging processes. If there is a decreased ability to adjust to changes readily, and a potential decrease in their senses of hearing, sight and smell, they can startle more easily. It may be more generalized, with them seeming to enjoy things less or even being jumpier and grumpier. Health issues such as polyuria and polydipsia or osteoarthritis could also contribute to anxiety if there’s house-soiling and discomfort.

But if your client states that their pet is showing more extensive signs of anxiety, from panting, shaking, trembling and being more irritable to having sleep and appetite issues, then you need to pay closer attention. If they seem really restless or clingy, howl or are more depressed and lethargic, they should be presented for a complete evaluation. If they develop more advanced separation anxiety when left alone or at night, or are showing new signs of storm anxiety, fear of loud noises or fear of strangers, then intervention is recommended.

Dealing with this at home
Since CDS is considered a diagnosis of exclusion, manage any other medical or physical issues to see if there’s improvement, and keep in mind that it can coexist with other diseases. If it’s determined that cognitive issues are contributing to the anxiety, there are several steps you can recommend.

First, tell the owner to avoid changing the pet’s environment too much, while at the same time providing some enrichment and sharing some activities. Have the pet owner make adjustments to conditions that can make pets anxious: use non-slip mats on slick floors or get toe-grips to help them get around better.

If house-soiling is an issue, have them taken out more frequently or use a diaper or belly band. If accidents do occur, tell the owner not to punish or scold the pet as that can cause more anxiety. Instruct them to move slowly around the pet and approach them carefully, as sensory deficits (hearing, sight) added to anxiety can make them irritable and even aggressive.

For separation anxiety, when the owner leaves or even at nighttime when pets might feel abandoned, have them provide a secure place with favorite objects (an old shirt), and leave on lights or music or TV to make it seem like someone is there. Different products such as pheromones, supplements and even omega-3 fatty acids help in some patients, so consider recommending those as well.

For more severe reactions, especially for separation anxiety or noise phobia (storms), certain medications can help, as can giving the owner information about counter-conditioning their pet.

As these changes start showing up in your patients, take a proactive approach, when the interventions you can recommend will be more effective than waiting until the signs are severe. Provide optimal care for your senior patients from the start, and you can help make their golden years the best they can be!

Dr. Heidi Lobprise is a veterinary dentist with a special interest in senior care. She is with Main Street Veterinary Hospital and Dental Clinic in Flower Mound, Texas.
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Surgery STAT: Does that lame horse have synovial sepsis?

Time is of the essence when determining whether an equine patient has this potentially life-threatening problem. Make sure you know what diagnostic clues to look for—and what could be a red herring.  

By Maggie Peitzmeier, DVM, DACVS-LA

S
eptic arthritis, tenosynovitis or bursitis can be devastating and even life-threatening for equine athletes. Early diagnosis and aggressive treatment are imperative for a successful outcome. Sepsis in synovial structures is generally diagnosed based on the horse’s history and clinical signs as well as the results of imaging studies, cytology and synovial fluid culture.

History
In foals, septic arthritis can occur from the first week to the first few months of life and is typically hematogenous in origin. In adult horses, septic synovial structures most often are due to a penetrating wound but they can be iatrogenic. In one study, postinjection sepsis presented up to 19 days after injection (median, 2.5 days).1 A higher risk for iatrogenic infection after intra-articular injection has been associated with corticosteroids and polysulfated glycosaminoglycans. Also, corticosteroids can delay the onset of clinical signs up to several weeks.1

Physical examination and bloodwork
Typically, horses with septic synovial structures are markedly lame on presentation. The lameness may be less severe if it is acute or the structure is open and draining. Effusion, heat, swelling and pain during manipulation are common findings on physical examination. However, there may be no synovial effusion if the patient has a draining wound.

A complete blood count is usually unremarkable in adult horses with septic synovial structures, but in foals hyperfibrinogenemia is typical. This is especially true with increased chronicity or with bone involvement.

Synoviocentesis
One of the most useful tests for diagnosing septic synovial structures, synoviocentesis should be performed aseptically at a site distant to any wounds or potentially infected tissue. If a wound is present, distention of the joint after fluid collection can help to determine if there is communication. Place collected fluid into a plain (red-top) tube, an EDTA (purple-top) tube and a blood culture bottle. Normal synovial fluid should be light yellow and clear. See Table 1 for normal values and those suggestive of a septic synovial structure. Many studies have shown that less than half of synovial fluid samples yield a positive culture.2,3 Placing the sample in a blood culture bottle for aerobic and anaerobic culture can help increase the sensitivity. Also, synovial membrane biopsy at surgery can increase the likelihood of a positive culture to up to 70%.4

Serum amyloid A
Serum amyloid A (SAA), a major acute-phase protein that is produced in response to inflammatory cytokines, has a short half-life (24 hours) and can be used to help diagnose and monitor the progress of an infection. In an experimental model of synovitis and septic arthritis, serum and synovial fluid SAA increased significantly in horses with septic arthritis and remained normal in those with synovitis.5 SAA increased more rapidly in serum (24 hours) than in synovial fluid (36 hours).5 Additionally, a correlation has been shown between decreasing SAA and a positive response to treatment.6

New PCR on the horizon
Recently, a real-time polymerase chain reaction (PCR) assay of
synovial fluid has been investigated and shows promise as a faster (four-hour-turnaround) and more sensitive (87%) and specific (72%) diagnostic test than culture. More research is needed to standardize this test for clinical use.

**Imaging studies**
Obtain radiographs to determine whether there is osseous involvement. Radiographic changes are usually not evident for two or three weeks, but it is helpful to have the initial images for comparison later. Contrast radiography, such as fistulography or contrast arthrography, can also be performed to help determine synovial involvement.

Ultrasonography can be very useful to help differentiate cellulitis from synovial infection, assess joint fluid character, identify foreign bodies and guide synovialcentesis. In a recent study evaluating ultrasonography and septic arthritis or tenosynovitis, the most common findings were marked effusion, moderate-to-severe synovial thickening and fibrinous loculations. Echogenic fluid was noted in about half of the cases. The presence of synovial effusion should not be used as the sole diagnostic indicator of septic synovial structures because synovial effusion is common with inflammatory synovitis or tenosynovitis.

Magnetic resonance imaging (MRI) and computed tomography can provide high tissue detail and may be performed in cases in which further definition is required. The most common MRI findings reported are extracapsular and subchondral bone hyperintensity on fat-suppressed images.

Arthroscopy or tenoscopy can help determine the extent of synovial structure involvement. These techniques also have therapeutic purposes. The presence of osteitis or osteomyelitis and marked pannus has been associated with nonsurvival.

**Conclusion**
Synovial sepsis can be a life-threatening condition, but with an early diagnosis and aggressive surgical treatment, the prognosis can be good. If you have a patient with a possible septic synovial structure, consult a board-certified equine surgeon to confirm the diagnosis and help treat the horse.

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Dr. Maggie Peitzmeier is an equine surgeon at Pioneer Equine Hospital in Oakdale, California. Her clinical interests include sports medicine, orthopedics and colic. In her spare time, she enjoys riding her horse, playing volleyball and taking her dog to the beach.

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Cancer-sniffing dogs: How canine scent detection could transform human medicine

With dogs’ amazing olfactory capabilities, researchers are optimistic that they will one day play a regular role in early disease detection. By Ed Kane, PhD

Human cancers are devastating for many families throughout the world. According to the American Cancer Society, the most common cancers diagnosed in men are prostate, lung and colorectal cancers. Women experience breast, lung and colorectal cancer more than any other type, with breast cancer accounting for 30% of new cases. A total of 1.8 million new cancer cases of all types and nearly 607,000 deaths from cancer are expected to occur in the U.S. in 2019.

As these statistics reveal, there is a compelling need to utilize early screening strategies and novel approaches for early detection. And there is increasing evidence that dogs may have a significant role to play in the early diagnosis of human cancer.

The canine nose is uniquely suited to detecting scents far beyond human capability. Dogs’ ability to detect odorant molecules is supported by several anatomic factors, such as the extraordinary dimension of their olfactory epithelium (up to 170 cm² vs. 10 cm² in humans), the huge number of olfactory receptors they possess (over 200 million vs. 5 million in humans), the dense innervation of their olfactory mucosa and their ability to “sort” meaningful incoming odors from those that are unwanted or unnecessary.¹ These characteristics give dogs an extraordinary level of sensitivity to detect even minute amounts of a particular odorant, an ability estimated to be one million times more efficient than in humans.¹

Dogs detecting human cancer
The following is a timeline of some studies and case reports from the medical literature in which dogs have detected human cancers:

1. "Dogs' noses: A new treatment for cancer?" by [Author], [Journal].
2. "Canine olfactory detection of human cancer: A review of the literature" by [Author], [Journal].
3. "Cancer-sniffing dogs: A promising tool for early detection" by [Author], [Journal].
> 1989: A 44-year-old woman’s border collie-Doberman cross continuously sniffed at her left thigh, which was later biopsied and a malignant melanoma diagnosed.2

> 2001: A 66-year-old man’s Labrador retriever repeatedly sniffed at his leg through his trousers; he was found to have a basal cell carcinoma.3

> 2004: Two dogs, a 4-year-old standard schnauzer and a 6-year-old golden retriever, were trained to identify melanoma tissue samples hidden on the skin of healthy volunteers. One of the schnauzers’ positively identified samples at first tested negative, but further histologic examination revealed a small number of cancerous cells.4

> 2004: Six dogs of varying breeds and ages were trained to detect bladder cancer in the urine of patients. The dogs correctly determined bladder cancer urine in 41% of the cases.5

> 2004: Researchers used a food-reward system to train five household dogs to identify exhaled breath samples of lung and breast cancer patients, distinguishing them from healthy controls. The sensitivity and specificity were 99% for lung cancer patients and 88% to 98% for breast cancer patients; results were remarkably similar across all four stages of disease.6

> 2006: A dog was taught to identify ovarian carcinoma samples consisting of 31 different histopathological types of various grades and stages. In double-blind tests, the dog was capable of correctly identifying all cancer samples with 100% sensitivity and 97.5% specificity, as well as discriminating ovarian carcinomas from other gynecological carcinomas with 100% sensitivity, 91% specificity.7

> 2011: A Labrador retriever was trained to scent-detect colorectal cancer from breath and watery stool samples. Compared with colonoscopy, dogs showed their ability to detect cancer from breath samples at 91% sensitivity and 99% specificity. With stool samples, sensitivity was 97% and specificity 99%. Accuracy was high even for early cancer.8

> 2012: Trained dogs successfully detected lung cancer from human breath with a sensitivity of 90% and a specificity of 72%.9

> 2015: Two 3-year-old explosion-detection German shepherds were trained to identify human prostate cancer from specific volatile compounds in urine samples from 362 patients with prostate cancer. For the first dog, sensitivity was 100% and specificity 98%; for the second dog, sensitivity was 99% and specificity 98%.10

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Dogs have successfully identified odorant-potential molecules in exhaled breath, transdermal excretions, fecal samples, urine, blood components and pathology samples.

The first published account of canine cancer detection was that of a woman in the U.K. whose dog spontaneously indicated cancer in the owner. This paper was the first to give us the idea that if a dog can spontaneously offer the behavior, then we can train it to reproduce that behavior, McCulloch says.

Dogs have successfully identified odorant-potential molecules in exhaled breath, transdermal excretions, fecal samples, urine, blood components and pathology samples.

“In our 2006 study, we were able to demonstrate strikingly high sensitivity and specificity in both lung and breast cancers,” McCulloch says. “The difference in sensitivity for lung versus breast cancer may be due to the breast tissue being deeper within the body, whereas a lung tumor is essentially a surface tumor. In lung cancer patients, the tumor cells are coming into contact with the air a person breathes.”

McCulloch says the next step is for someone to turn scientific results into a commercial service. “The existing sensitivity and specificity data suggest that it’s scientifically feasible, and what’s remaining now is for entrepreneurs collaborating with scientists to demonstrate the commercial feasibility of the project,” he notes.

> **2017:** Researchers investigated whether dogs could use olfactory cues to discriminate urine samples from dogs with diagnosed urinary tract transitional cell carcinoma versus control dogs.13

> **2017:** Researchers investigated the detection of hepatocellular carcinoma from human breath using canine olfaction. Results showed an accuracy of 78%.14

### Applying dogs’ innate ability

“Several things are happening now regarding the research into canine scent detection of human cancer,” says Michael McCulloch, LAc, MPH, PhD, a researcher with the Pine Street Foundation in San Anselmo, California.

First, a multinational consortium that includes researchers in Chile, France and the United Kingdom set out to understand the threshold of canine detection of odorant molecules. To study this, researchers wafted amyl acetate into a training space at precisely measured concentrations. From this process investigators have concluded that dogs’ olfactory detection threshold ranges between 40 parts per billion and 1.5 parts per trillion.15

“It has been determined that the scientific possibility of dogs detecting odorant target molecules at very low levels is very strong,” states McCulloch. “[This provides] very strong evidence for the detection capability of the dog’s nose with the brain hard-wired into it.”

**Can dogs smell canine cancer?**

A team at the North Carolina State University College of Veterinary Medicine has taken a cue from those studying canine scent detection of human cancers to see if those same skills can be applied to another group—namely, other dogs.

“Our work was based on the research literature of dog scent detection of human cancers,” says research associate Melanie Foster. “We already had scent detection dogs trained for the purpose of explosives detection. We thought, could these dogs be trained to detect cancer in other dogs—similar to their ability to detect human cancer?”

The goal was not necessarily to start using dogs as a diagnostic method for canine cancer, Foster says. But if some dogs could be trained to reliably detect certain types of canine cancers, then perhaps that would lead to the identification of a cancer biomarker that could be used as a clinical diagnostic tool.

“Transitional cell carcinoma of the urogenital tract is fairly common, making up about 2% of canine cancer cases,” Foster explains. “Being a cancer of the urinary bladder, one would expect that a urine sample would have high levels of indicators of what is being produced by those cancer cells. We decided to pursue our first test case, obtaining urine samples from dogs that had been diagnosed with transitional cell carcinoma and compare them to urine samples from control (noncancerous) dogs.”

The team began by training the dogs to choose between one control and one cancer sample—two samples per trial, Foster states. The dogs would sniff each container and get a treat if they successfully selected the cancer sample. The dogs learned to do that quickly using olfaction cues.

“Using that as a test case, we increased the number of samples, using additional control samples that were mixed with the positive cancer samples,” Foster says. “The dogs were reasonably accurate on that also and learned that procedure fairly quickly.”

In the third phase, the dogs faced multiple control samples and multiple positive cancer samples. “In that process, only one out of the group of dogs was able to meet criteria to detect cancer samples reliably versus the controls,” Foster says. “Though these were dogs that had been trained on scent detection before, this phase showed how the different components of what they were sniffing limited their ability to detect canine cancer and made a difference for individual dogs.”

In a fourth phase, a double-blind test was done using samples of control and cancer patient urine to which the dogs had not been exposed before. “With those trials, the dog’s performance was not successful,” Foster says. “That was disappointing, but I think the main limitation was that the study was based on too few samples.”

It’s possible that in the North Carolina State studies, the dogs were keying on individual dogs as opposed to whether a sample was cancerous or not, Foster says: “As our dogs were rewarded by dog to dog scent, we did not know what signal they were responding to.”

Still, Foster is hopeful.

“I believe the capability of the dogs to detect different odors and learn tasks is amazing,” she says. “For dogs to detect either human or canine cancer, I think there’s potential for advancing our understanding of early detection of cancers. Certainly, cancer is not uniform, and every type has different features. There will not be a universal cancer detection dog or cancer detection test. But we do think training dogs to scent-detect certain cancers would help us identify what components are similar across different samples. We could then use dogs as a key to establish better early diagnostic tests, both for human and canine cancer.”
McCulloch and his team are about to publish the results of a double-blinded trial of ovarian cancer detection. While he can’t reveal the actual results while publication is pending, he does say the outcomes are impressive. He is also undertaking a meta-analysis to determine whether it’s possible to identify the factors influencing success one way or the other in published research to date. He adds that formally trained veterinarians are involved in training dogs to detect cancer by scent across the globe—Costa Rica, Canada, Slovenia, Finland, Norway, the U.K., France, Germany, the Netherlands and Poland. “Though already much has been accomplished, a lot still needs to be done, and there is a lot of opportunity that remains,” McCulloch says.

Additional possibilities
While cancer detection is leading the way, exceptional canine olfaction could also potentially be used to detect other pathologies that have characteristic odor signatures, researchers say. These include urinary tract infections, gastrointestinal disorders such as gastritis due to Helicobacter pylori, diabetes, psychological disorders, endocrine diseases such as Cushing’s, thyroid disorders, cirrhosis, Candida esophagitis, sinusitis and alcohol abuse.1 It’s possible that one day dogs will be used to assist physicians in early detection screening of multiple diseases and especially advancing cancer research. In this way, they continue to be our protectors. dvm360

References

New scoring system for canine mammary cancer
Determining a prognosis and deciding on treatment may be a whole lot easier. By Martha Esposito

T
aking a page from human medicine can help veterinarians determine treatment strategies for dogs with mammary tumors. That’s the finding of a team headed by Karin Sorenmo, DVM, DACVIM, DECVM-CA, professor of oncology at the University of Pennsylvania School of Veterinary Medicine. While statistics show that one-quarter of unspayed female dogs will develop a mammary tumor during their lifetime, prognostic tools now in use to help determine tumor stage and the likelihood of progression don’t always give veterinarians an accurate portrait of what will come next, or the best course of treatment. Dr. Sorenmo and her team devised a “bioscoring” system based on how breast cancers are categorized in humans, and recently published their methods and findings in Veterinary and Comparative Oncology.

The researchers used information from 96 dogs treated for mammary cancer as part of Penn Vet’s Shelter Canine Mammary Tumor Program, as well as 31 dogs treated at Norwegian University of Life Sciences in Oslo. The researchers used tumor stage and grade, treatments received and time to metastasis in developing and evaluating the scoring system. According to Dr. Sorenmo, veterinarians normally consider tumor stage when determining treatment. While that system works for tumors that are more predictable, she said, mammary tumors are different. Dogs may be classified with advanced-stage disease, but if the tumor is low-grade—and thus slow-growing—those dogs may fare better than animals with lower-stage disease and advanced tumor grades. In addition, tumor histology can also be predictive of tumor behavior and treatment outcome.

With no existing system putting all those factors together, Dr. Sorenmo and her team decided to apply a scoring system used to categorize breast cancers in people. By using a tumor’s stage, grade and histologic type, they found, for instance, that no matter how large a grade 1 tumor grows, “the vast majority of the time it doesn’t cause any trouble,” Dr. Sorenmo said.

“The same was true for lymph node involvement, which is thought to signal metastasis. “Again we found that with a grade 1 tumor it doesn’t matter,” she said. “Those dogs didn’t develop distant metastasis.” The bioscore also led the investigators to determine the relative risk for metastasis, which could help in treatment decision making. Dogs with a higher bioscore may be better served with more aggressive treatment such as chemotherapy, whereas surgical intervention may suffice for those with a lower bioscore.

Dr. Sorenmo says she is pleased to give veterinarians a workable way to determine a course of treatment that they can implement easily and immediately. “My hope is that this system will be used so that dogs that need systemic therapy after surgery can be identified and, equally important, dogs that have very low risk for metastasis do not have to go through chemotherapy,” Dr. Sorenmo told dvm360. “It is easy to use and with a good pathologist reading the biopsies it should be reproducible.” dvm360

Ed Kane, PhD, is a researcher and consultant in animal nutrition. He is an author and editor on nutrition, physiology and veterinary medicine with a background in horses, pets and livestock. Dr. Kane is based in Seattle.
Studies may pave the way for monthly heartworm-flea-tick chewable for dogs

Studies evaluate efficacy, safety and dosing of monthly oral moxidectin. By Miranda Spindel, DVM, MS

Zoetis—manufacturer of Simparica (sarolaner), a chewable flea-tick preventive for dogs, and ProHeart (moxidectin), an injectable canine heartworm preventive—sponsored two recently published veterinary studies examining oral moxidectin for the prevention of canine heartworm disease. One was to determine the optimal oral dose of moxidectin and whether increasing the number of consecutive monthly treatments would improve efficacy against resistant strains of Dirofilaria immitis. A second study aimed to evaluate the efficacy and safety of an all-in-one monthly chewable parasiticide that combines moxidectin with sarolaner and pyrantel.

Simparica Trio (sarolaner-moxidectin-pyranate), a monthly chewable that kills fleas, ticks and intestinal worms and prevents heartworm disease, was recently approved in Europe, according to a Zoetis release.

What researchers did: Oral moxidectin

To evaluate dosing and frequency, the first study was conducted in three parts. Heartworm-negative dogs were inoculated with D. immitis and randomly allocated to treatment groups. Three macrocyclic-lactone–resistant heartworm strains were used, derived from isolates recently collected from naturally infected dogs from the middle to southeastern United States. All three isolates were validated as infective strains in recipient animals. All dogs were necropsied for adult heartworm recovery four to five months after inoculation.

Part one of the study consisted of six groups of eight inoculated dogs each. One group served as a negative control. Four groups received moxidectin at 3, 6, 12 or 24 µg/kg on day zero only. One group received moxidectin at 3 µg/kg on days zero, 28 and 56; two groups received moxidectin at 3 or 60 µg/kg on day zero only; and three groups received moxidectin at 24, 40 or 60 µg/kg on days zero, 28 and 56. Part three had five groups of five inoculated dogs treated as follows: one group served as a negative control, one received moxidectin at 3 µg/kg on day zero only, and three groups received moxidectin at 24, 40 or 60 µg/kg on days zero, 28 and 56.

What researchers did: Triple-protection chewable

The study evaluating combination therapy also consisted of three parts. In the first two parts, heartworm-negative dogs were inoculated with one of two recent, naturally occurring, nonresistant strains of D. immitis. Each strain was validated as infective. The third part was a field trial. All dogs 6 months or older were confirmed negative for heartworm antigen and microfilariae. Dogs could not be included if they had been recently treated with a heartworm preventive and were within the labeled “protective period” for that product.

In part one, groups of eight heartworm-negative dogs were inoculated and then randomized to treatment with either a placebo or combination product dosed at 24 µg/kg moxidectin, 2 mg/kg sarolaner and 5 mg/kg pyrantel. About five months after inoculation, efficacy was evaluated by adult heartworm counts at necropsy. Part two examined 32 dogs treated with tablets containing only moxidectin (24 µg/kg) or only sarolaner (2 mg/kg). Efficacy was evaluated about five months after inoculation by adult heartworm counts at necropsy.

In part three, a field trial, 410 dogs at least 8 weeks old from 23 veterinary clinics in heartworm-endemic regions of the United States were treated for 11 months with either the combination product (n = 272) or Heartgard Plus (ivermectin-pyranate—Boehringer Ingelheim) (n = 138). Efficacy was evaluated on day 330 using antigen and microfilaria testing to assess adult heartworm infection.

What researchers found

Investigators found that dogs treated with moxidectin alone or in combination showed significantly lower worm counts than controls in both studies. Increasing both the individual moxidectin dose and the overall number of doses improved efficacy, with 100% protection obtained using three doses of moxidectin at either 40 or 60 µg/kg. Three doses at 24 µg/kg were also highly effective, providing greater than 98.8% efficacy for all three strains of macrocyclic-lactone–resistant D. immitis.

The combination product was well tolerated. A single dose of the combination chewable product containing 24 µg/kg moxidectin, sarolaner and pyrantel prevented the development of heartworm infection. Treatments with moxidectin or sarolaner alone confirmed that heartworm prevention was due solely to the moxidectin component. Additionally, in the field study, no dog tested positive for adult heartworm infection when dosed with the combination product monthly for 11 months, while two dogs treated with Heartgard Plus tested positive.

Take-home message

Increasing both the individual dose and number of monthly doses of moxidectin improved its efficacy against macrocyclic lactone–resistant heartworms. Twenty-four µg/kg was selected as the optimal oral dose to develop as a safe and effective means of protecting dogs against heartworm disease in the face of increasing macrocyclic lactone resistance, and it appears to be safe and well tolerated as an oral combination product.

Dr. Miranda Spindel is a member of the Shelter Medicine Organizing Committee and Residency Committee for Shelter Medicine for the American Board of Veterinary Practitioners.

FDA approves Bravecto Plus for cats

Merck Animal Health announced in mid-November that the FDA has approved Bravecto Plus (fluralaner and moxidectin topical solution) for cats 6 months and older, providing coverage for up to two months.

Available in the next couple of months, the topical solution will be the only product on the market to protect against this combination of parasites for the duration, according to the release. Bravecto Plus prevents heartworm disease caused by Dirofilaria immitis, treats infections with intestinal roundworm and kills 100% of fleas and more than 99.7% of ticks in the first 12 hours after application, according to a release.

Bravecto Plus contains fluralaner (280 mg/ml), an ectoparasiticide with systemic activity against ticks and fleas, as well as moxidectin (14 mg/ml), an endectocide with systemic activity against a range of external and internal parasites.

The most commonly reported adverse reactions for this product include vomiting, hair loss, itching, diarrhea, lethargy, dry skin, elevated ALT and hypersalivation. Neurologic adverse reactions have also been reported in cats receiving isoxxazoline class drugs, even in cats without a history of neurologic disorders.

Bravecto (fluralaner topical solution) for dogs and cats has been available since 2016.
Generic clomipramine approved for separation anxiety
Potentially less expensive option augments veterinarians’ behavior management arsenal.

The tricyclic antidepressant Clomicalm (clomipramine hydrochloride—Elanco) was approved just over 20 years ago for veterinary use. In early November, the FDA announced on its website that a generic version of clomipramine has been approved by the Center for Veterinary Medicine.

Clomipramine, used in veterinary medicine as part of a comprehensive behavioral management program to treat separation anxiety in dogs over 6 months of age, reduces the clinical signs of separation anxiety by increasing brain serotonin levels to balance out mood.

Although exact prevalence data are unavailable, experts indicate that separation anxiety affects an estimated 20% to 40% of dogs that present to veterinary behavior specialists.

To gain FDA approval, the manufacturer, Mizner Bioscience, LLC, submitted an abbreviated new animal drug application that showed via an in vivo blood-level study that the 20-mg tablet of its generic version of clomipramine is bioequivalent to the 20-mg tablet of Clomicalm. Based on data from dissolution studies, a biowaiver was granted for the 5-, 40- and 80-mg generic tablets.

Amy L. Pike, DVM, DACVB, owner of the Animal Behavior Wellness Center in northern and central Virginia, spoke with dvm360 for her take on this announcement. Although the availability of a generic will benefit clients financially—Clomicalm can be expensive, especially for large-breed dogs, she said—one concern with all generic medication is that the manufacturer is not required to prove safety or efficacy, only that the drug contains the active ingredient.

“With psychotropic medication, we often find that response to brand can be different than response to generic,” Dr. Pike said. “Many human psychiatrists find this to be true for their patients as well.”

The recommended daily dose of clomipramine (administered once or twice daily) is 2 to 4 mg/kg. Available by prescription only, clomipramine is packaged in color-coded bottles containing 30 tablets in 5-, 20-, 40- and 80-mg doses.

Jon Ayers stepping down after 17 years as IDEXX CEO
Announcement comes four months after Ayers’ catastrophic cycling injury in June.

DEXX Laboratories Inc. announced in late October that Jonathan Ayers would be stepping down from his post as chairman and CEO, effective Nov. 1, 2019. This decision follows Ayers’ four-month medical leave of absence due to a bicycling accident in which he suffered a paralyzing spinal cord injury.

Jonathan (Jay) Mazelsky, who has been with IDEXX since 2012 and serving as president and CEO since late June, has taken over those roles permanently, according to the release. Lawrence Kingsley, the board’s lead director, has been appointed chairman, effective Nov. 1, 2019.

Ayers, who did not sustain any head trauma as a result of the accident, will continue working with IDEXX as a director and senior advisor to the board. “While the nature of my spinal cord injury and my continuing need to focus on an extended rehabilitation process preclude me from returning to IDEXX as CEO, my passion for the company and its purpose has not diminished,” Ayers says in the release. “I am extremely proud of the significant long-term value we have created during my 17-year tenure with IDEXX, and it has been a true privilege to work with our outstanding management team, Board and employees. I am delighted with Jay’s appointment as president and CEO and have complete confidence in his ability to lead IDEXX forward.”

Kingsley offered thanks to Ayers for “leadership, vision and unwavering commitment over his distinguished career” and expressed full confidence in Mazelsky as the company’s new head.

“Under Jon’s guidance and stewardship … the company is well-positioned to drive continued innovation, accelerate product development and enhance profitability. We look forward to Jon’s continued meaningful contributions to IDEXX as a board member and senior advisor, and we wish him all the best as he continues his rehabilitation process,” he says in the release. “Jay has done an outstanding job in the past four months since he assumed the responsibilities of president and CEO on an interim basis, and we look forward to IDEXX’s continued growth and success under his leadership.”

Details about the injury or Ayers’ physical rehabilitation, recovery and prognosis were not provided.
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For more information, visit jax&cali.com.

GALLANT
Canine stem cell banking
Gallant, an animal biotech company, has launched a stem cell banking solution for dogs. With its patent-pending process, Gallant obtains a dog’s stem cells from tissues collected during a routine spay or neuter procedure. The cells, which would otherwise be thrown away, are cryopreserved to create treatments for future ailments. Because the stem cells are collected during spays and neuters, they are preserved when they are young and healthy, in contrast to typical procedures involving surgeries to take stem cells from older animals. Therapies will be sent to the veterinarian on demand, at a cost of approximately $300 plus procedure fee. Stem cell therapies have been demonstrated in clinical studies to help dogs with osteoarthritis, atopic dermatitis, torn ligaments and chronic dry eye. New puppy parents and veterinarians in the U.S. can order kits and storage plans from Gallant.
For more information, visit gallant.com.

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Welactin Advanced 3TA Supplement is a concentrated fish oil intended to support pets’ overall wellness through the benefits of the long-chain omega-3 fatty acids ETA, EPA and DHA. Studies have shown that long-chain omega-3 fatty acids support many body systems such as skin and coat, heart, immune, renal, musculoskeletal, brain and vision. The fish oil in Welactin Advanced 3TA comes from wild-caught, cold-water fish, and because it is a concentrated formula, less material is needed to deliver benefits. A no-mess spout keeps mess to a minimum. The product is available to pet owners exclusively from veterinarians.
For more information, visit welactin.com.

KINETIC VET
Fatty acid granules for horses
Kinetic Vet has announced immediate availability of EquiShield SC (Skin & Coat) Granules. EquiShield SC is a non-GMO and soy-free granular product with highly concentrated levels of omega-3, -6 and -9 fatty acids that mimic the ideal ratio of 4:1 omega-3 to omega-6 fatty acids found in fresh forages. EquiShield SC is specifically formulated to improve skin health, coat sheen and luster. Key ingredients help to support healthy hooves, joint function, and normal functioning of the immune system and inflammatory pathways.
For more information, visit kineticvet.com.
PRN PHARMACAL
Extended-release incontinence drug
PRN Pharmacal has announced its latest product in the urinary health market, once-a-day Proin ER (phenylpropanolamine hydrochloride extended-release tablets), now available. FDA-approved as a treatment for urethral sphincter mechanism incontinence, Proin ER features a unique, patented, extended-release technology. It is available in three sizes in 30-count bottles—18, 38 and 74 mg, with 145 mg expected to be available in early 2020. The product’s new encapsulation technique is intended to provide once-a-day dosing and taste masking to animals while maintaining palatability. A highlight of this delivery system is a retaining of modified-release properties even if the tablet is inadvertently chewed.
For more information, visit prnpharmacal.com.

BASEPAWS
Feline genetics report
Basepaws, a company that offers at-home feline DNA testing, has announced the launch of its new Basepaws Health Report. The report includes 39 genetic mutations that correspond to 17 genetic health conditions. This information lets cat owners know if their pets are positive for genetic variants associated with genetic diseases included in the Basepaws database, helping to save lives through prevention and education. The reported diseases include polycystic kidney disorder, hypertrophic cardiomyopathy and retinal degeneration. Basepaws also offers information on cats’ origins and breed makeup.
For more information, visit basepaws.com.
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Talk about birthing pains!

The day my daughter gave birth, I was curled into a comma shape dripping sweat, feeling like someone was jabbing a dagger into my kidney.

September was a busy month for the Brock clan. Two of our daughters were due to have babies. The oldest was having her fourth and the youngest her first. Great time to be a granddad.

It was Friday the 13th when the youngest child, Kimmi, went into labor. Early in the morning, my wife Kerri and I headed to Lubbock to the hospital where Kimmi was in labor—and where she works in labor and delivery as a nurse. Everyone on the floor was anxious to cheer her on.

As is usually the case, the husband and mother of the pregnant lady were in the room during all the action. The father of the pregnant lady was relegated to a stuffy waiting room somewhere down the hall with the other granddads-to-be. It was me, Kimmi’s father-in-law Danny, and a few other relatives and strangers.

But about three hours into the wait and fun conversation with Danny, I felt a twinge in my right lower back, and a feeling of dread fell over me. “No, please no, God,” I thought to myself. “Don’t let this happen right now while my baby is having a baby!”

Then the pain went away just as quick as it started, and I started to think everything was going to be OK. But it wasn’t. An hour later, Danny had fallen asleep in a chair, and the real pain started. I started sweating all over. I could feel my heart racing in anticipation as well as from the pain.

Four times before I had endured the passing of a kidney stone, so I knew what was about to happen. But what was I gonna do? I couldn’t go waltzing into the labor room and announce that Poppin was passing a stone. It would ruin what was supposed to be the most wonderful day ever. So I just sat there with sweat dripping off my plastic chair—now the most uncomfortable seat on the planet. Standing or sitting up straight was like jabbing a dagger in my kidney.

“No, please no, God,” I thought to myself. “Don’t let this happen right now while my baby is having a baby!”

I knew my wife had some pain pills in the truck. She kept them there all the time just in case one of these dreadful moments occurred. They were about four years out of date, but I figured they’d still have some effect. The problem was, I didn’t think I could walk that far.

In all my agony, I also became sound-sensitive. The voices of the people in the waiting room suddenly became the loudest, most obnoxious noises I’d ever heard. Every one of them seemed louder than a rock concert. There was a man out in the hall running a buffer over and over the floor. The noise of that thing was driving me crazy, like he was running it on top of my head. People were flushing the toilet in the bathroom, and it was as loud as a bomb going off. It was like every noise caused my pain to crescendo and my kidney to throb in rebellion.

I had to find a quiet place, so I finally stood up and headed for the door. Anyone who didn’t know me would have thought I was 90 years old and walked everywhere with a 90-degree stoop. Making my right leg go forward caused pain to shoot up all the way to my arm, so I just kind of dragged it along behind me. I guess in a hospital environment a man dragging his leg was normal, because no one seemed to pay any attention at all. Luckily enough, there was a chapel-like room nearby, so I ducked in there.

About two hours later, the pain was better—or I’d adjusted to it—and I made my way back to the waiting room just a few minutes before Aaron, Kimmi’s husband, came in and told us the baby was a healthy little boy and we could come in after Mom and baby had bonded for a bit. While we waited, the pain kicked up a notch. I was sweating again when they came back and told us we could go in and see baby Asher. I dragged myself over to the room and sat in the window seat in the comma position.

Eventually, my wife asked me to come hold the baby. I staggered over to Kimmi and broke the news. “I’ve been passing a kidney stone for the last few hours and I think I’m about to die,” I said, with a little slobber running down the corner of my mouth.

My wife and daughter both got wide-eyed and asked why I hadn’t said anything. My wife went to the truck and came back with two pain pills. They started working in just a few minutes, and I was holding that baby with a smile. The entire group nagged me—in a hospital of all places, why hadn’t I gotten some help? I had no answer, other than the fact that I couldn’t even walk downstairs and check myself in.

After it was all over, my daughters told me the same thing had happened to one of the characters on an episode of Friends. I never saw the show, but they laughed and laughed at me about it. A few days later, the doctor told me I still had a 10-mm stone stuck in my kidney and I’d need surgery to get it out. He said the one I’d felt on the day of my grandson’s birth was just a fragment that had broken off and got stuck.

I will always remember the day Kimmi gave birth to Asher—and I gave birth to a kidney stone. dvm360

Bo Brock, DVM, owns Brock Veterinary Clinic in Lamesa, Texas. His latest book is Crowded in the Middle of Nowhere: Tales of Humor and Healing From Rural America.
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