Clearing up veterinary compounding confusion

A breakdown of the rules on compounding medications for veterinary patients, both currently and with respect to pending legislation—plus, how to identify a reputable compounding pharmacy.

By Rebecca A. Packer, DVM, MS, DACVIM (Neurology/Neurosurgery)

Are you wondering about the latest changes in veterinary compounding, and the impact of the US Food and Drug Administration Center for Veterinary Medicine Guidance for Industry (FDA CVM GFI) #256, Compounding Animal Drugs From Bulk Substances? If so, you are not alone—and you’re in luck. At the Fetch dvm360® virtual conference last month, Michael Azzarello, MBA, BS, LVT, CVT, a territory manager at Patterson Veterinary Supply, explained the practical implications of the guidance and offered recommendations surrounding compounding veterinary medications.

From fatal to curable to complicated: An update on treating feline infectious peritonitis

After decades of only being able to play defense, cats with FIP now have a fighting chance thanks to antiviral compounds. But this offensive strategy is still fraught with obstacles. Here’s the latest.

By Sarah Mouton-Dowdy

End-of-life care
How pet owners deal with euthanasia

End-of-life care
How pet owners deal with euthanasia

Equine medicine
Endoscopy and respiratory disease

Gastroenterology
Motility disorders and esophageal disease

Urology
Streamlining your PU/PD diagnostics

See page 19
IMPORTANT SAFETY INFORMATION: METACAM (meloxicam oral suspension) and PREVICOX (firocoxib) Chewable Tablets are for use in dogs only. METACAM (meloxicam) Solution for Injection is approved for use in dogs or cats (not indicated for osteoarthritis in 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. Please refer to the package insert or product website for complete product information.

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Brief Summary
NADA 141-219, Approved by FDA

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Warnings: Meloxicam is a non-steroidal anti-inflammatory drug (NSAID). Oral meloxicam has been associated with acute renal failure and death in dogs. Overuse of meloxicam in dogs has been associated with increased risk of gastrointestinal ulceration, hemorrhage, and perforation

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In addition, multiple hospitals will earn Merit Awards. The number of Merit Award winners will be determined based on the number of entries received. Entries must be submitted no later than January 2, 2021, so don’t delay! For complete details on how to enter your hospital into the competition, visit dvm360.com/view-enter-the-2021-dvm360-hospital-design-competition.
The grant, sponsored by Zoetis Petcare, is designed to help more people of color become veterinarians.
FROM FATAL TO CURABLE TO COMPLICATED: AN UPDATE ON TREATING FELINE INFECTIONOUS PERITONITIS

After decades of only being able to play defense, cats with FIP now have a fighting chance thanks to antiviral compounds. But this offensive strategy is still fraught with obstacles.

By Sarah Mouton Dowdy

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- Failing to meet their minimum environmental needs is killing cats
Hill’s Prescription Diet GI Biome demonstrated clinical results in cats with constipation or diarrhea¹ and dogs with diarrhea² in as little as 24 hours.

¹Wernimont, S.M., et al. Food with Specialized Dietary Fiber Sources Improves Clinical Outcomes in Adult Cats with Constipation or Diarrhea (in a 2 Month Study). FASEB J. 2020;34(1). Some cats may require multimodal management.
Feeling the virtual vibes

By all accounts, the Fetch dvm360 virtual conferences we hosted this year have been a great success. The breadth of topics, delivered in both prerecorded and live sessions by expert speakers from around the world, has been second to none. Our conferences—whether in person or virtual—offer practical, relevant content that you can put to use in practice right away. Providing this type of content is also among the primary goals of our publications, so we think it’s important to share a variety of the conference learnings with our readership. We do that on our website (dvm360.com/conferences) as well as in our magazines and newsletters (dvm360.com/subscribe).

This month we include 3 articles from our most recent conference. Starting on the cover, Michael Azzarello, MBA, BS, LVT, CVT, breaks down the rules on compounding medications for veterinary patients, both currently and with respect to pending legislation. He also provides great advice for identifying a reputable compounding pharmacy. On page 20, Michael R. Lappin, DVM, PhD, DACVIM, provides the latest on feline infectious peritonitis, noting that treatment decisions are still fraught with uncertainty despite recent progress on therapeutics. And on page 37, Heather Kvitko-White, DVM, DACVIM (SAIM), shares tips for working through cases of polyuria/polydipsia in companion animals, including which tests should be ordered when to confirm the patient’s diagnosis.

Look for more conference-related content in the coming months in dvm360, on dvm360.com, and in our sister publications Vetted and Firstline. Registration for our February virtual conference is now open, with a whole new lineup of topics and speakers to help you practice your best medicine, run a profitable business, thrive professionally, and maintain your sanity. To join us for the latest and greatest at this new conference, visit fetchdvm360.com. In the meantime, enjoy the holiday season!

—Mike Hennessy Sr
Chairman and Founder,
MJH Life Sciences™

A few of our favorite things (2020 edition)

This year has been a lesson in rituals, creating space, and finding presence. It has presented unforeseen challenges and much sadness, but it has also given us an opportunity to slow down and really think about our profession, our commitment to doing things we care deeply about, and what makes our profession resilient and adaptable. Here are just a few of our favorite things from 2020.

Family
No one knew a pandemic would flip the entire world upside down. This has been the year to put a pause on the hustle and bustle of our daily lives and realize how precious life really is. Family—including the furry members—has been front and center. We have gained profound appreciation for unplugging and for Mother Nature. Creating memories with family is one of life’s greatest treasures. We don’t know what tomorrow will bring, but we’ve learned to enjoy today with those who love and cherish us.

Patients and patience
With so many people stuck at home, pet adoption rates have been at record levels—and our hospitals have been busy. Veterinarians and support team members have had to learn how to adapt their protocols and communicate with pet parents in new ways. We have had to implement additional resources and virtual care measures to help facilitate efficiency and ensure safety for both the health care team and pet parent.

Diversity and inclusion
Although we have much work yet to do, change is afoot with regard to diversity and inclusion in the veterinary profession, including equal pay for men and women, celebrating our colleagues in the LGBTQ+ community, and supporting working mothers. We also have work to do in understanding veterinarians and support staff with disabilities. This year has elicited fantastic conversations on all of these matters, and we look forward to offering a bigger platform on which to continue these important discussions in 2021.

One Health
The pandemic brought the One Health Initiative front and center. Physicians have expressed interest in working with veterinarians, ecologists, and microbiologists on a global initiative to help our planet thrive together.

Self-care
We know how crucial it is to devote time to our personal, emotional, and financial well-being. This year has allowed us to take more actionable steps to ensure we are taking care of ourselves. I have become very protective of particular places in my house, like my home office, which I’ve outfitted with plants, pleasant aromas, and at least one Dachshund at all times. This has allowed me to do deep work and be the best leader I can be. It also provides a boundary for me when I “leave my office” to decompress and meditate. I make sure I start every day with a workout, no matter how tired I am, how dark and cold it is outside, or how many tasks I have ahead of me for the day. Because in the words of our wonderful colleague Betsy Charles, DVM, MA, “keep moving,” I do exactly that. Move, exercise, and breathe. One day at a time.

On behalf of the entire dvm360 family, we want to wish you and your family a safe and joyous holiday season. Thank you to our readers, listeners, subscribers, virtual conference attendees, veterinary student ambassadors, Editorial Advisory Board members, sponsors, and followers for all your love, feedback, contributions, knowledge, inspiration, and support. This has been an incredible year of collaboration with all of you, and we are just getting started. May 2021 be healthy and happy for all!

—Adam Christman, DVM, MBA
Chief Veterinary Officer
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Reflections on 2020

Some of the most challenging yet gratifying moments are unexpected.

By Mark P. Helfat, DVM

This year started like any other year, full of promise and opportunity. No one expected it to become one of the most challenging years we’ve faced in ages. The veterinary profession, like many others, had to suddenly and quickly adjust to sweeping changes, but we adapted, evolved, and conquered.

Aside from the continued fight against coronavirus disease 2019 (COVID-19), there is a laundry list of other topics that, unfortunately, kept many of us up at night:

- A contentious presidential election
- An obtuse rejection of science
- Civil unrest and mass outrages against the status quo
- A crashing economy like no other in decades

But instead of dwelling on what we’ve lost, missed, or sacrificed, I prefer to focus on what I, and perhaps you, have learned during these unprecedented times. Here’s a look at my top 6 reflections during 2020.

We stepped up to the plate.

Instead of caving in, we kept our doors open and continued to serve. Our leadership prevailed in advocating for veterinary medicine as an essential business, sparking new guidelines for safe and efficient operation. We also continued to promote the human-animal bond, and our clients praised us for our efforts. Additionally, the American Veterinary Medical Association (AVMA) and all of our state associations offered untold assistance, support, knowledge, and expertise. Each veterinary facility, likewise, resembled a family: Voices were heard, and safe, judicious protocols were enacted.

The financial glass became half full.

Instead of regressing into a dark hole, economically, we are surviving. More than 50% of practices received funding from the Small Business Association’s Paycheck Protection Program. Who could have predicted that COVID-19 would bring an onslaught of new pets and fully booked appointments?

More people became aware of our role in public health.

COVID-19 has reminded many that we are scientists and that veterinary medicine encompasses not just animal health but also public health. This virus is the poster child for zoonotic disease. Who better to discuss its evolution with than a veterinarian? Think of all the years of study we endured to receive our doctorates. Don’t minimize your knowledge or your foundation in medicine, immunology, virology, physiology, pathology, and refuse to allow others to violate the principles of science and glibly add their unfounded opinions to what we know and accept as truth.

We became more resilient.

Instead of drowning in despair, I was inspired by how my staff, clients, and strangers offered me daily encouragement, fueling me with strength, optimism, and comfort. More and more, I meet those who see a light at the end of the tunnel, who find solace amid chaos.

We embraced our differences.

This year has reminded us that as a country, we are one people. Our staff, our clients, our neighbors—we all have different challenges, religions, backgrounds, races, and ethnicities—but deep down, we are one: e pluribus unum. Let us continue working toward making this a reality, not just a phrase. I am reminded of Atticus Finch in To Kill a Mockingbird when he softly lectures his young daughter: “You never really understand a person until you consider things from his point of view…until you climb into his skin and walk around in it.”

We embarked on personal journeys.

2020 has encouraged many of us to find ourselves. What does this mean exactly? For me, I want to understand what I want to express to others and how. Or perhaps figure out how I want others to see me. I ask myself: Am I fair? Do I listen? Do I act? Do I neglect? Do I care? In the Old Testament of the Bible, Adam hides from God and God asks, ”Where are you?” Of course, God knows where he is. He is God! What He really wants to know is: Where are you? Not an easy question to answer.

May the upcoming year be a bit more... boring!

Mark P. Helfat, DVM, is founder and owner of Larchmont Animal Hospital in Mount Laurel, New Jersey.
Failing to meet their minimum environmental needs is killing cats

If you ask a random cat owner what they are doing for environmental enrichment for their cat, their likely response would be “What is environmental enrichment?” And that is precisely the problem.

By Liz Bales, VMD

Our clients have no idea what environmental enrichment means. Most of them are not providing it, and that is killing our patients. Yes, killing. The No. 1 cause of death for cats is something we are not treating or educating clients about: euthanasia. And the most common reason for euthanasia in cats is behavior problems. We know why the behaviors happen, we know what cats need to minimize or eliminate these behaviors, and yet we avoid even bringing it up with clients.

Imagine not treating or educating your clients about cancer or kidney disease. Unthinkable, right? And yet your feline patients are less likely to lose their life to either of these. So, why are we ignoring environmental enrichment?

The repercussions of not meeting cats’ needs

The evidence is clear that failing to meet cats’ needs in the indoor environment results in more than just euthanasia—it makes them sick by contributing to obesity, lower urinary tract disease, gastrointestinal disease, dermatologic disease, endocrine disease, and more.

Is providing for a cat’s needs really enrichment? If lacking these resources is killing cats and contributing to most of the diseases they face, shouldn’t we redefine minimum cat care requirements, educate our clients about what those requirements are, and give them the tools to fulfill those requirements successfully?

In our profession, we suffer from compassion fatigue. I get it. Our clients break our hearts and wear us out. They come in full of enthusiasm for kitten vaccines and then we don’t see them again until they are at the end of their rope because their cat is chronically urinating outside the litter box. Then, they might implore us to perform a convenience euthanasia. When their cat has destroyed their furniture and they just can’t deal with it anymore, they ask us to perform a declaw. When their cats keep fighting with each other, we drain their abscesses, sew them up, and talk about re-homing. Some days it is just too much to bear.

This is a vicious cycle

Cats’ needs are not intuitive to humans, and most clients do not know where to turn for behavior and cat care counseling when things start to go wrong. They guess, ask a friend, turn to Google, or just ignore the problem. When the behavior becomes intolerable, they take the cat to the shelter or simply put it outside.

At that point we have lost a patient and a client. We have lost the opportunity to listen to this cat’s heart, palpate its abdomen, perform a dental, and engage with an informed and grateful client.

Cats are counting on us

But, my colleagues, we can get in front of this problem. We can save lives. After all, isn’t this why we became veterinarians? Our clients are looking to us for education and support at their first kitten visit. They are looking for more than vaccines and screening blood work at their annual visits. The time to inform and educate our clients about minimum cat care needs is before the human-animal bond—and our professional spirits—break.

The science is there. The American Association of Feline Practitioners (AAFP) has beautifully laid out the 5 pillars of feline environmental enrichment, why they are important, and the consequences of denying our cats the resources they need to be physically and emotionally healthy in the indoor environment. In case you have not had the opportunity to read this entire position statement, here’s my favorite bit: “Many behavioral and physical disorders that are seen in cats are often secondary to stress from lack of appropriate stimulation. Environmental enhancement should be part of the overall treatment plan for these disorders. As part of the wellness exam, it is the responsibility of the veterinarian to discuss the current state of the environment and to provide resources for environmental enhancement to indoor cat owners.”

It is well known that if an appropriate environment is not provided for indoor cats, they are at greater risk for stress-induced illnesses such as the following:

- Feline lower urinary tract disease
- Obesity
- Different forms of aggression
- Overgrooming and other compulsive disorders
- Upper respiratory infection

In an attempt to prevent the above conditions, it should become routine for the veterinary team to inform owners of the importance of environmental enhancement and to provide resources to owners. It is also important to consider environmental enhancement in shelter cats for the same reasons.1

Cats are counting on us to get this information from the pages of veterinary journals and textbooks to their caretakers. One way or another, this is our job!

We study diseases of the kidneys, endocrine system, eyes, skin, and many more so we are prepared when patients walk through our exam room door. But do you know what every cat in our care has in common? Every single one is completely dependent on its human to create an environment where it stands a chance of being physically and mentally well. We need to be prepared with information and resources to treat and cure this.

Making it happen

How are we going to manage this? We are already squeezed with the amount of education and procedures that we need to cram into a 15- to 20-minute appointment. I know it will be hard, but we can do it. It is our responsibility to educate every cat owner about minimum cat care needs and the physical and behavioral consequences of not providing for them. Ideally we will train technicians, add time onto every office visit, and review this information with all of our clients, including providing print and/or digital resources they can take home. We should increase our exam fee to cover the cost of this service.

As a profession, I know we can figure out how to incorporate this into our practice. I know we can. And the time starts now, with a very simple question: “Can I show you what we have found out about minimum cat care needs?”

REFERENCE


Liz Bales, VMD, has a special interest in the unique behavioral and wellness needs of cats. She is a writer, speaker, and featured expert in all things cat around the globe. Bales sits on the Dean’s Alumni Board at the University of Pennsylvania School of Veterinary Medicine and on the advisory boards for dvm360®, AAFP Cat Friendly Practice, Vet Candy, and Fear Free.
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Licking wounds after pet euthanasia

Pet owners have to employ coping strategies to buffer them through the trauma of euthanizing a pet. New study results reveal—on a grand scale—how they seek comfort.

By Joan Capuzzi, VMD

The tragic mismatch between the lifespans of animals and their people usually means that even the deepest bonds are inevitably broken by euthanasia. While human death is attended by many shared social rituals, from memorial services and bereavement leave to sympathy cards and casseroles, companion animal loss lacks such communal rituals.1

Grieving pet owners have a compromised support system if family and friends fail to understand the significance of their loss.2 These experiences tend to invalidate their grief and incite fear of being judged.3

Companion animal owners may opt to end a pet’s life because of painful and/or severe, untreated conditions. While the usual method of euthanasia—barbiturate overdose—offers a quick and painless death,4 the decision to euthanize is one that can wreak guilt and complicate grieving. Some bereaved owners have reported physical symptoms, including sleep disturbances, trembling, dizziness, and gastrointestinal distress,5 as well as psychological issues ranging from anxiety to depression.

Prior studies have shown that social support can come from key people in the owner’s life or from alternative lifelines, such as counseling, support groups, support hotlines, and veterinarians.6 But this research is hobbled by limited scope, incorporating mostly female recruits, single clinics, and narrow geographic ranges.

Putting down the data

Utilizing Amazon Mechanical Turk (mTurk), a crowdsourcing marketplace offering the potential to recruit a socioeconomically and culturally diverse sample of companion animal owners with euthanasia experience, investigators at North Carolina State University’s Department of Clinical Sciences obtained a sample of 800 mTurk participants identifying as companion animal owners with a target margin of error within 3.5%. All participants were at least 18 years old and legal residents of the United States. Each received a nominal fee for completing an online survey.

The questionnaire began with a qualifying item: “Have you ever had to euthanize a pet?” Those who answered “no” were excluded from analysis. Those who responded “yes” were then asked, “How were you able to find comfort after your loss?” and prompted to select among listed strategies informed by research literature5: mourned privately, sought support from family/friends, adopted a new pet, prayed/relied on faith, participated in a support group, and other.

Quelling the pain

About 93% of participants in the recently published study were White, some 70% were 21 to 40 years old, and the male to female ratio was 57%/43%. A total of 340 (42.5%) of the 800 participants reported having euthanized a companion animal. Of these, most (74.7%) said they had mourned privately. About 58% sought support from family and friends. One-third acquired a new pet. Much lesser numbers disclosed having turned to faith (12.4%) or support groups (0.9%).

Twenty-two (6.5%) respondents selected “other” among their coping strategies. Asked to specify, they gave the following answers: found no comfort, did not seek comfort, did not need comfort, alcohol, acceptance of death, distracting self, increased interactions with other family pets, volunteered at animal shelter, memorialized pet, cathartic crying, reflected on joy animal brought to household, reflected on animal’s relief from suffering, read book about pet loss.

No statistically significant response patterns based on demographic criteria were identified.

Evaluating support

In this first study to estimate a national rate for companion animal euthanasia, 43% of pet owners reported experience with euthanizing a pet. With 68 million pet-owning households in the United States, this rate translates to many Americans being impacted by euthanasia.

Nearly 75% of participants said they mourned the experience privately; less than 60% of those surveyed sought support from family and friends. This mismatch tells a story of disenfranchised grief, consistent with smaller-scale findings that have demonstrated the tendency of bereaved companion animal owners to practice emotional distancing and social isolation.7

Social constraints could be a factor in the choice to mourn privately. Pet owners have previously expressed fear of sharing their grief with others who might not understand their pain.5 But the present findings are alarming because internalized grief by bereaved pet owners has been associated with depression, increased stress, and poor physical health.2

Fortunately, over half of those who have dealt with euthanasia worked through their grief with loved ones. This coping strategy is a strong predictor of positive psychosocial outcomes following loss.9

Almost one-third of participants noted that they had adopted a new pet following their loss. The study did not specify a time interval following the death, but doing so would likely change the numbers. An earlier study investigating coping strategies during the 2- to 3-week period following canine euthanasia found that only 14% had acquired a new companion animal.10 Certainly, grieving owners can find comfort in companionship and the act of caring for another pet.

Support groups took a strong back seat, despite the fact that veterinarians commonly recommend them to owners putting down pets.10 This is something of a contradiction, given that bereaved pet owners report reluctance to share their grief for fear that others cannot empathize with them, yet rarely take advantage of forums in which to grieve with others who can relate to their loss.

The findings in this investigation are likely generalizable, given the ample size, representative gender split of subjects, and diverse blend of ages, socioeconomic groups, and geographic regions. Additionally, the time interval since euthanasia was open-ended, leading to responses that incorporate coping tools used throughout the different grief stages. The study is, however, limited by subject selection bias. It also lacked racial/ethnic diversity. Finally, the investigators did not collect information regarding companion animal demographics and such euthanasia factors as reasoning, time elapsed since euthanasia, and person responsible for euthanasia decision. These data are needed to assess whether coping styles are linked to grief resulting from the euthanasia decision or from the loss itself.

Regardless, the results suggest that most people whose pets are euthanized mourn privately. When not combined with other coping mechanisms, this may foster a cycle of isolation at a time when social support is crucial. Future studies might explore the reasons why people are drawn to this and other coping styles.

The findings herein suggest that bereaved pet owners might benefit from additional social support, via support groups, counseling, and hotlines, and that veterinary practices might incorporate these tools into standard practice for euthanasia clients. References available online at dvm360.com
The ASPCA has announced the imminent launch of the Julie Morris Shelter Medicine Residency to provide a 3-year training program for licensed veterinarians interested in developing expertise in shelter medicine practice to meet the unique health and behavior needs of homeless animals.

The new program, which has been approved by the American Board of Veterinary Practitioners and launches in 2021, will provide trainees with advanced knowledge and skills in all aspects of shelter medicine, including clinical medicine and surgery; shelter operations; population management; high-quality, high-volume spay/neuter surgery; community outreach; cruelty investigations and forensics; and disaster response.

“The ASPCA has long recognized and supported the unique role that shelter medicine plays in advancing animal welfare, ending the euthanasia of adoptable cats and dogs, and expanding access to veterinary care,” Stephanie Janeczko, DVM, MS, DABVP, CAWA, vice president of ASPCA Shelter Medicine Services, said in a press release. “The role of animal shelters in communities continues to expand, with animal welfare organizations supporting not just homeless animals but owned pets and pet owners alike. There is an unprecedented demand for skilled veterinarians to design and oversee comprehensive programs that support animals in shelters and at risk for homelessness.

Shelter veterinarians provide a unique blend of individual and population-level care for homeless animals, including a strong focus on physical and behavioral wellness. Shelter medicine practice was formally recognized by the American Veterinary Medical Association as a specialty in 2014, an acknowledgement that veterinarians who work with or for shelters require unique knowledge and skills to design and oversee comprehensive programs that support animals in shelters and at risk for homelessness.

The new residency program is named after former ASPCA Senior Vice President of Strategic Animal Welfare Partnerships and animal welfare visionary, Julie Morris, who played a pivotal role in the field of animal sheltering for more than 30 years. Through the ASPCA Julie Morris Shelter Medicine Residency program, her legacy as a mentor and pioneer will continue to positively impact the lives of animals.

For more information, visit www.aspca.org.
New practice group raises $17 million toward expansion

The company plans to open at least 10 new clinics by the end of 2021.

By dvm360® Staff

Bond Vet, which launched its first veterinary clinic in June 2019, has raised $17 million to open 10 or more clinics by the end of 2021. The New York–based animal health company says private investment firm Talisman Capital Partners will pay for the expansion after a Series A funding round.

“We’ve seen more than 13,000 pets since we launched our very first clinic, and it’s clear that there is consumer demand for a new kind of veterinary experience,” says Bond Vet cofounder and chief executive officer Mo Punjani. “This round of funding will help us to continue realizing our mission to elevate and enhance the veterinary space.”

Since its launch last year, Bond Vet has provided both urgent and primary care, according to a company release. Additionally, walk-ins and scheduled appointments are welcomed in most of their locations without the need for membership.

With the veterinary profession notorious for high burnout rates, compassion fatigue, suicide, and depression, Bond Vet says it’s also dedicated to the well-being of its employees—which, in turn, allows them to provide exceptional care to their patients.

“To date, we’ve built an incredible team of veterinarians, nurses, veterinary assistants, and care coordinators with a new, differentiated approach, making us one of the largest veterinary employers in New York City,” says cofounder and chief veterinary officer Bond Vet Zay Satchu, DVM. Satchu also vows to develop exceptional staff and patient care by hiring, cross-training, and utilizing the company’s robust continuing education program.

“We believe the best way to drive a best-in-class experience for pets, pet parents, and our team members is to do it from the ground up. The Bond Vet team has done exactly that, and we’re excited to expand our impact in the industry,” says Matt Bennett, a partner at Talisman Capital.

Chewy launches compounded medications for pets

FDA approves weight loss management drug for cats with CKD

Elura increases appetite and weight gain in cats suffering from chronic kidney disease.

By dvm360® Staff

In its efforts to serve as a go-to resource for both pet owners and veterinarians, Chewy has announced that it is now offering compounded medications for pet owners.

“Building off our relationship with both pet parents and veterinarians, Chewy is uniquely positioned to make pet health care more accessible and affordable for every American household,” said Mita Malhotra, vice president of healthcare at Chewy, in a press release. “By making these types of medications more widely available, we want to better serve pet parents who need a customized solution in an otherwise limited marketplace.”

According to the release, Chewy Pharmacy’s compounding ingredients are sourced from FDA-registered manufacturers and distributors, and all customized medications are prepared by licensed compounding pharmacists, to the specifications requested by the veterinarian. Customers can order compounded medications online from Chewy in the same way they do their other medications.

The company also announced plans to expand its compounding service to veterinarians. Late last month, the company launched “Connect With a Vet,” a free pet telehealth service for its auto-ship customers.

The US Food and Drug Administration (FDA) announced last month the approval of Elura (capromorelin oral solution; Elanco), the first drug approved specifically for weight loss management in cats with chronic kidney disease (CKD).

Cats with CKD may begin to lose weight prior to diagnosis and typically continue to lose weight as the disease progresses, thus worsening their prognosis and shortening their lifespan.

“Capromorelin is a ghrelin receptor agonist known to increase appetite and weight gain and is approved as Entyce for appetite stimulation in dogs. Elura is the second product that the FDA has approved for the management of unintended weight loss in cats,” according to the FDA website.

Elura’s safety was evaluated in a 56-day study in which the drug was administered to cats with unintended and documented weight loss and a history of CKD. Researchers found that cats receiving Elura had gained weight and cats in the control group had lost weight. Additionally, a 6-month safety study of healthy domestic shorthair cats dosed with water or Elura at 1, 3, or 5 times the labeled dose (2 mg/kg once daily) found that Elura caused weight gain in all treatment groups. Additionally, cats in groups given 3 and 5 times the labeled dose of Elura consumed more food than cats in the other groups.

The most common adverse reactions associated with Elura in both studies were vomiting and hypersalivation—both were seen more frequently in male cats.

Elura is available by prescription only, as it should be administered only by veterinary personnel with the expertise to ensure safe use of the drug, assess the patient for contraindications, and monitor for adverse reactions. The drug is supplied in 15-mL bottles with an oral dosing syringe.
Although there are many FDA-approved medications available to use when treating animal patients, sometimes medications are on backorder, no longer available, or not available in a formulation we need. In other cases, patient adherence with your recommendations drives the need for compounding, such as flavored or transdermal formulations. We have all been in situations where compounded medications are required in the course of practicing veterinary medicine.

History of compounding
Azzarello shared the history of compounding, which can be traced to the origin of pharmacies.7 The first documented compounding processes can be traced back to the Egyptians.8

Initially, all medications were compounded. Now, of course, we have manufactured medications. In human medicine, compounding began to decline in the 20th century when high-volume manufactured medications became widely available. But for veterinary medicine, these manufactured medications do not fit all situations, and the use of compounding has become commonplace in veterinary practice.

Compounding in veterinary medicine
Veterinarians often find ourselves unable to use manufactured formulations of drugs in our veterinary patients. Patient size varies significantly, and manufactured formulations may not be the appropriate size or strength for our patients. In some cases, medications contain ingredients that are toxic to pets or to which our patients may be allergic. Some patients are not amenable to oral medication administration, requiring flavorings specific to their species or transdermal formulations for effective drug delivery. And manufactured medications today are often on backorder or unavailable, requiring a compounded substitute to be prescribed. Finally, for patients on multiple medications, it may be possible to combine medications into a single tablet or capsule that contains multiple active ingredients, to avoid having to administer multiple pills per dose.

How is compounding regulated?
Several agencies are involved in pharmacy regulation, Azzarello said, but not all of them regulate compounding per se versus general pharmacy ethics and guidelines. The Pharmacy Compounding Accreditation Board (PCAB) assesses and accredits compounding pharmacies. The National Association of Boards of Pharmacy ensures that pharmacists in compounding pharmacies are licensed and accredited. And state boards of pharmacy write the regulations affecting individual states.

Azzarello provided a few examples of variations in state regulations that affect compounding activities. In some states, for example, you can purchase compounded medications to use within your hospital and prescribe to patients, whereas in other states you can only order compounded medications for a specific patient on the order of a prescription for that patient. The United States Pharmacopeia chapters USP795 and USP797 provide guidelines for the compounding of nonsterile and sterile medications, respectively.6,9 They do not provide laws, simply guidelines. The Drug Enforcement Agency’s only role is to regulate and monitor the compounding of controlled substances.

So then, what is the role of the FDA? This is where things become a bit interesting, said Azzarello. The FDA has developed draft guidance (CVM GFI #256) that permits compounding of animal drugs when the source of the active ingredient is an FDA-approved, manufactured drug. The use of bulk substances in compounding medications is not supported, under the premise that bulk substances are not regulated to confirm the active ingredient. This bill will be voted on at the government level and, if it becomes law, will likely cause a number of issues for veterinarians and our patients.

If CVM GFI #256 becomes law, the requirement to use manufactured drugs will drive costs up astronomically. Not only are manufactured drugs more expensive than bulk substances—sometimes dramatically so—but the subsequent costs of compounding the drugs will be added on top of these already high costs. For some medication this cost increase will be minor. For others, the average increase is predicted to be 300%. This will affect not only pet owners but also shelters and zoos. Further, some manufactured drugs contain inactive ingredients that are harmful to animals, such as xylitol (toxic in dogs) or benzyl alcohol (toxic in cats). In these cases, using bulk substances is necessary to avoid potentially harmful inactive ingredients such as these. The use of bulk substances also avoids variation in potency between formulations, as you are always starting with the original, pure compound. Further, when manufactured medications are unavailable, the use of bulk substances is necessary. For these reasons, veterinary organizations are opposing this proposed legislation.

Choosing a compounding pharmacy
Medications can be compounded legally either by a licensed veterinarian in cases in which a valid veterinarian-client-patient relationship exists, or by a licensed pharmacist on the order of a prescribing veterinarian. Regardless of whether the compounding is performed by a veterinarian or a pharmacist, liability falls to the prescribing veterinarian. That’s why it is imperative to research pharmacies well, use a reliable compounding pharmacy, and document any discussions with pet owners regarding a medication that will be compounded.

So, how do you choose a reputable compounding pharmacy? Ensure they are licensed with the state board of pharmacy, whose website lists any disciplinary actions that may have occurred.6 The FDA also keeps a list of pharmacies that have received warning letters. Referrals from colleagues are helpful as well. Azzarello also recommends asking these questions before selecting a pharmacy:
• Can you provide documentation of your certification and accreditation? They should be able to provide specific expiration dates for their accreditation by the PCAB.
• How is your staff trained? Reputable pharmacies should be able to explain what kind of training they require for their staff.
• Do you have a quality assurance program in place? They should be able to describe their protocol and what kind of sterility testing is done.
• Where do you obtain your bulk substances, and is your bulk substance distributor FDA approved? Even if the bulk substances are not FDA approved, the bulk substance distributor should be.

The importance of these things is not to be overlooked, as any liability from poor practice may ultimately be your responsibility as the prescribing veterinarian.

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7. Rebecca A. Packer, DVM, MS, DACVIM (Neurology/Neurosurgery), is an associate professor at Colorado State University College of Veterinary Medicine and Biomedical Sciences in Fort Collins. She is active in clinical and didactic training of veterinary students and residents and has developed a comparative neuro-oncology research program at Colorado State University.

Cover story | NEWS
Presenting an upbeat lecture on the topic of feline infectious peritonitis (FIP) is a relatively novel (and welcome) sensation for Michael R. Lappin, DVM, PhD, DACVIM, professor of internal medicine and director of the Center for Companion Animal Studies at Colorado State University College of Veterinary Medicine and Biomedical Sciences. “This has been the most frustrating infectious disease of my whole life,” Lappin said during his Winn Feline Foundation–sponsored session at the Fetch dvm360® virtual conference. “And now, after 30 years [working as a board-certified specialist], we’re finally making some inroads.”

**Offensive strategy:**

**Antiviral compounds**

Despite some promise shown with 3C-like protease inhibitor GC-376,1 Lappin says RNA transcription inhibitors (nucleoside analogs)—specifically GS-441524—are “where all the action is right now.” (It should be noted that Anivive Lifesciences Inc is working to gain FDA approval of GC-376 as a treatment for FIP.)

According to Winn, anecdotal evidence suggests that antiviral compounds have been used to treat and potentially cure thousands of cats worldwide. GS-441524, which is produced by Gilead Sciences, has demonstrated the most success but it’s not available for veterinary use. The drug has become increasingly important in the world of human medicine of late. Lappin explained that GS-441524 is the biologically active compound in remdesivir (GS-5734), which is currently being used to treat patients with coronavirus disease 2019 (COVID-19). “This small molecule interferes directly with the replication process of some viruses,” he added, “including feline coronavirus.”

Lappin described the 2019 research2 by Niels Pedersen, DVM, PhD, on the efficacy and safety of using GS-441524 to treat cats with FIP as “absolutely imperative reading” for those practicing feline medicine. He broke down the following highlights:

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**Infectious disease**

> Continued from cover

**From fatal to curable to complicated:**

An update on treating feline infectious peritonitis

After decades of only being able to play defense, cats with FIP now have a fighting chance thanks to antiviral compounds. But this offensive strategy is still fraught with obstacles. Here’s the latest.

*By Sarah Mouton Dowdy*
• 18 of the 26 cats that completed the 12-week trial were in remission for multiple weeks (and were still healthy at the time of publication in February 2019) after only 1 treatment.
• Of the 8 cats that relapsed, 7 responded to repeated treatment.
• In all, the trial produced 25 longtime survivors.
• Daily subcutaneous injections of 4.0 mg/kg for at least 12 weeks was determined to be the optimal dose.

Before you pop that champagne...
“Here we are,” Lappin said. “Now we’re all excited. We have 3C-like protease inhibitors and nucleoside analogs… but you can’t get them.” So while the title of his session, “From fatal to treatable” is true, reality is definitely more complicated.

Lack of access to approved drugs has put clients and veterinarians in a precarious situation, as the black market remains the only option for now. According to Winn, several Chinese companies say they’ve developed products—currently marketed as “dietary supplements” to treat FIP—that are the same or similar to nucleoside analogs. Their use in veterinary health care remains illegal in the United States due to FDA restrictions, but owners of cats with FIP can get them through online and nonveterinary sources (such as members of the public referred through Facebook groups), according to Winn.

As with all black-market drugs, there are issues to consider, said Lappin, including sterility and toxicity. Moreover, there’s no way of knowing for certain that the compound contains what it says it does, and price doesn’t always correlate with quality.

What’s a veterinarian to do?
Alas, there’s no easy, one-size-fits-all answer at the moment. “I have to leave that up to you and your clients,” said Lappin. While you may not be able to prescribe or dispense these potentially lifesaving compounds, you can choose to partner with your clients to provide monitoring and support to cats receiving black-market drugs. As to whether he would pursue these compounds for his own cats if he were a layperson, Lappin simply said: “I love my cats. I love my cats a lot.” (It should be noted that he refers to dogs as the “inferior species.”)

Lappin recommended a couple of online resources for learning more about how pet owners are taking treatment matters into their own hands. Facebook groups, he said, can be a great way to learn about what people who love their cats and hate this virus and who don’t have their Drug Enforcement Agency or other veterinary licenses to think about (and who don’t have their Drug Enforcement Agency or other veterinary licenses to think about) are doing. There’s a lot of information to glean from their indirect trials to inform conversations with your own clients, Lappin explained. (Editor’s note: Lappin mentioned the group FIP Warriors but it has been removed by Facebook).

SOCK FIP (sockfip.org) is on his list as well. The nonprofit site, which features Pedersen’s work, can help you (and your clients) stay current on the issues and think through what’s involved with seeking out black-market drugs, Lappin said.

Still, many veterinarians aren’t willing to partner with clients using nonapproved compounds and many clients are unwilling or unable to pursue them (as the cost is not insignificant). For such cases, Lappin recommended reading a 2017 study on treating FIP with Polypropenyl Immunostimulant (PI). While it isn’t a cure and more research is needed, of the 60 cats diagnosed with FIP and treated with PI:
• 16 survived more than 100 days.
• 8 survived more than 200 days.
• 4 survived more than 300 days.
• 2 survived more than 900 days.
• 1 survived 1829 days.

“They had some pretty good data,” Lappin said of the study. “Not all of the cats had the complete diagnostics, but if you look at Table 7 in the study, this would convince me that if I was going to treat a kitty and wasn’t going to use black-market drugs, I would consider this one.”

And the best part, according to Lappin? It’s readily available online from Vetimmune. He noted that the second part of Table 7 shows that concurrent use of glucocorticoids appears to shorten duration of survival, so he would “just give them the product, not steroids.”

Could we have other options in the future?
Lappin answered this question by pointing to 2019 research on the antiviral activity of itraconazole against type 1 feline coronavirus. “If something we use like crazy for fungal infections actually inhibits some coronaviruses,” he explained. “It needs a clinical trial, but it’s kind of cool to know we can kill these coronaviruses. In fact, SARS-CoV-2 (the virus that causes COVID-19) can be killed with really high doses of ivermectin—unfortu-nately in doses we can’t achieve. But the bottom line is that we can sometimes go from the petri dish to a clinical trial.”

Anti-feline tumor necrosis factor (TNF)-alpha monoclonal antibody has also shown promise as a treatment for FIP, Lappin said, referencing a 2016 study.2 “FIP is an inflammatory disease so I think things like this will be a part of our lives as we go further,” he explained.

Hate the pandemic, love the research
Lappin didn’t lose his optimistic spirit as he noted that cats are susceptible to a certain other notorious coronavirus: SARS-CoV-2. “The fact that there are great studies going on

As with all black-market drugs, there are issues to consider, said Lappin, including sterility and toxicity. Moreover, there’s no way of knowing for certain that the compound contains what it says it does, and price doesn’t always correlate with quality.

REFERENCES

Sarah Mouton Dowdy is a freelance writer and editor in Kansas City, Missouri.
In 2001, Mike Foster, DVM, and his wife and practice manager, Sherry, bought Southview Animal Hospital in West St. Paul, Minnesota. The practice was started in 1971 and the Fosters became the third owners of the growing business.

“We bought the practice from Dr John Newman and his wife, Esther, who gave us a wonderful opportunity to own this place,” says Sherry Foster. “Dr Newman’s philosophy of creating career opportunities for others has been a driving force for us. We strive to pay it forward to our staff and doctors because we are so grateful for the opportunities he gave us as new practice owners.”

The Fosters started with 2.5 full-time doctors and 20 staff members working in an old building with a house on the same property. They lived in the house for a few years then moved out and converted that space into a business office, break room, and rehab facility, essentially operating out of 2 buildings.

The arrangement wasn’t ideal. The practice continued to grow but the Fosters needed to expand both their hours and their practice footprint to be available for their clients.

The result is an eye-catching and spacious 13-exam-room practice that allows the doctors and staff to give clients their best. A beautiful facility is great but the Fosters especially love that the new space gives them a chance to pay the opportunities forward to even more doctors and staff members, just as the Newmans did for them. The 2020 dvm360 Hospital Design Competition judges approved, giving Southview Animal Hospital a Merit Award for excellence in design.

From buffet to fine dining, so to speak
After scouting new locations for a while, the Fosters brought in a real estate investor who helped them find the perfect spot—once they got past the fact that it had once housed an Old Country Buffet restaurant. The first order of business for the Fosters was to make it look like anything but an Old Country Buffet.

“Our architect guided us, creating an entrance that is completely different from the previous one,” says Sherry Foster. “We feel like we created a warm and welcoming entrance and clients who’ve eaten at Old Country Buffet say they can’t believe what the building used to be, that it looks nothing like it—thank goodness!”

The use of differing materials, colors, and shapes helped set the building apart from what it used to be. The exterior materials were mirrored inside for consistency. The Fosters say this gives clients outside the practice a view of what to expect inside. "The design is a reflection of our medical practice," Sherry Foster says.

Starting from scratch with more than 13,000 available square feet allowed the Fosters to create their dream hospital, making it look and, even more importantly, function the way they needed it to. The spacious lobby, hallways, and multiple exam rooms have been a boon for Southview, especially during the coronavirus disease 2019 pandemic.

“We wanted lots of space so clients weren’t crowded, but our philosophy is to not have clients in the waiting area too long,” says Sherry Foster. “We didn’t need the Taj Mahal, as we get clients into exam rooms quickly, but the space is warm and comfortable anyway.”

### Striving to pay it forward

Building a new hospital created more opportunities for career growth as well as better care for the community.

By Sarah A. Moser

► A steel and stone entry canopy welcomes guests to Southview Animal Hospital. The owners say the silver metal roof and arched shape conjure up imagery of cleanliness and engineered devices, with precision, art, and science setting the tone for the medicine practiced within. The canopy ceiling is natural cedar and the large columns are stone, offering warmth and comfort.

► Separate dog and cat waiting areas were important to the Fosters to give clients and patients plenty of space and privacy to wait without stress. Comfortable chairs and couches, benches, side tables, and a fireplace offer plenty of relaxing places to wait.

► The cat waiting area includes wood benches and tables, a statue that doubles as a bench, and floor decals to help differentiate it from the dog waiting area.

► From buffet to fine dining, so to speak. After scouting new locations for a while, the Fosters brought in a real estate investor who helped them find the perfect spot—one they got past the fact that it had once housed an Old Country Buffet restaurant. The first order of business for the Fosters was to make it look like anything but an Old Country Buffet.

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Looking back, Sherry Foster believes someone was looking out for them. “There’s no way we could have functioned during the pandemic if we were still working in the old space,” she says. Since opening the doors at the new facility, they are seeing about 400 more clients per month than they were before. They have also added about 10 full-time doctors and more than 50 additional support staff members, carrying on the idea of paying it forward with job opportunities for others.

Easing the process
The Fosters are thrilled with their new hospital, in large part because of the research they did ahead of time and the professionals they hired to make it happen. Knowing they wanted a practice around 13,000 square feet, they toured others in the area around that size, gathering ideas about what works and what doesn’t.

Another must is hiring an architect and builder who work well together, Sherry Foster says. And don’t forget about attending hospital design conferences that allow for networking, education, and inspired ideas.

“We took our original design plans to a conference and had another architect take a peek at them,” she says. “It seems simple, but he was able to suggest that we get rid of a certain hallway he said we didn’t need because it wouldn’t generate income, and removing it would allow us to expand our access point to other areas and increase the size of some spaces. That one suggestion made attending the conference worthwhile.”

By the numbers:
Southview Animal Hospital, PA
Owner: Michael Foster, DVM, and Sherry Foster
Number of doctors: 10 full-time, 1 part-time
Exam rooms: 13
Total cost: $1,825,564
Cost per square foot: $137.32
Square footage: 13,294
Structure type: New, leasehold
Architect: Robert Vanney, Vanney & Associates

Kennels line the treatment area to give staff a better view of patients while working. A convenient workspace adjacent to the treatment area allows staff members to write up records, return calls, and consult with one another while staying in the heart of the action.

With 13 large exam rooms, clients never have to wait in the lobby for long. Adjustable computers, fold-down exam tables, and movable chairs and benches give doctors plenty of room to work with clients and patients, even when entire families join the appointment. Doctors are especially thankful for room to socially distance during appointments. One-way visual film was installed on the exterior windows to keep outsiders from looking in while allowing those inside to enjoy sunlight.

The warm stone and wood tones used on the entryway canopy carry into the curved reception desk just inside. The reception desk helps define the canine and feline waiting areas as well as the circulation to the exam rooms beyond.

The dog and cat exam room hallways each feature a comfort room. These larger rooms offer a sofa, loveseat, and chairs to accommodate families during difficult appointments.

Two surgery suites boast large monitors that can project radiographs for easy viewing.
Contrary to popular belief, veterinary medicine is often faster to adapt and evolve than human medicine, depending on the circumstances. And that’s for good reason: it enjoys a less restrictive regulatory environment, more discretionary income being spent on pets, and a higher level of local competition. For veterinarians, this means less red tape, more options, and extra motivation to implement innovative technologies in order to keep up and differentiate.

This was true in the case of digital radiography, and the industry-transforming effect of its proliferation in the veterinary field. Pushing further, veterinarians have been implementing AI-based radiography tools clinically for several years now, and with much success. As a result, the veterinary industry is at the forefront of bettering healthcare through digital radiography.

Now, a new diagnostic transformation is afoot. Until very recently, microscopy-based diagnostics have been performed almost exclusively using the manual microscope. This requires that couriers shuttle your microscope slides and tubes of fluid to the veterinary pathologists who read them, creating logistical complexity and delay. In human medicine, the solution—rendering a pathologic diagnosis via digital microscopy—has only recently started to gain traction in a clinical setting. The first FDA approvals have been awarded, with more expected soon after restrictions have been relaxed in the wake of COVID-19, to encourage remote consultation. Despite these recent developments, adoption of digital microscopy in human medicine is in its infancy. However, not surprisingly, the practice is heating up on the veterinary side.

A NEW (DIGITAL) AGE OF MICROSCOPY FOR VETERINARY MEDICINE

Various digital cytology solutions are available now to veterinary hospitals around the world. Digital cytology enables veterinary hospitals to digitize cytology and hematology cases and send them from the point of care to a global network of clinical pathologists who provide rapid analysis around the clock. Now that microscopy samples are digital, the images are accessible to computers thus paving the way for artificial intelligence (AI) tools to be developed and applied to microscopy, much like they are in digital radiology. We’re already starting to see digital, automated, and point-of-care tools such as platelet count estimates, avian complete blood cell count, and fecal flotation tests become available, and these are only the beginning.

Acutely aware that low-tech clinics may be left behind, more veterinarians are beginning to embrace digital cytology to provide their patients and clients with first-class veterinary care. Below are the stories of 2 veterinarians who are leading this charge.

MORE VETERINARIANS ARE BEGINNING TO EMBRACE DIGITAL CYTOLGY TO PROVIDE THEIR PATIENTS AND CLIENTS WITH FIRST-CLASS VETERINARY CARE.

“When I was first considering digital cytology, I wanted to see what the reports would look like and make sure the information I was getting was accurate,” Magnuson reflected. “ScopioVet gave us the first 10 days for free, so I sent a few samples out to my regular diagnostic lab and also sent them digitally. Because I personally compared them, I felt more confident that I was doing the right thing.”

BUILDING AND MAINTAINING MOMENTUM

In addition to helping veterinarians elevate client experience, digital cytology has other benefits that help to move things forward. When Natalie Marks, DVM, CVJ, learned about digital cytology, she recognized immediately that it could benefit her Chicago-area clinic by keeping the pet owner more engaged.

“Digital cytology directly addressed a problem I had in practice,” Marks says. “I send out a cytology, my clients are waiting, they’re nervous, they’re getting frustrated, and perhaps losing momentum to keep moving forward with diagnostics. The case doesn’t remain top-of-mind for me and my staff while we’re waiting, so we move on to other cases. With digital cytology, we get answers and can move quickly. I can say to my client, ‘Your pet is still with me, so let’s get the staging done now.’ Clients are ready to do something. ScopioVet has really allowed us to continue that forward momentum.”

MAKING THE LEAP

While many veterinarians still hesitate to invest in new technology because it’s tricky to calculate the potential ROI, Magnuson points out that efficient tools can earn their keep in other ways.

“Cost savings are difficult to characterize with new technology,” she says. “It may be a more expensive service, but when you get timely information back, that adds more value than cost savings.”

She goes on to explain that if, in the middle of a surgery, she removes an abdominal mass that needs histopathology, traditional labs might take 5 to 7 days to send back results. That can be both aggravating and dangerous.

“I don’t have 5 to 7 days,” she says. “If I think it’s infected, I need cytology on it right away. With digital cytology I can actually take a sample while I’m in surgery, submit it, and finish my surgery. While the patient’s recovering, I’ll get an answer that would’ve taken days with other methods. So that’s not necessarily a cost savings, but it’s a huge benefit that elevates patient care to a whole new level.”

In the end, that’s what innovation is about for veterinarians: better patient and client care, and happier, healthier pets. Adopting new technology can feel risky at first, but as these veterinarians have attested, the quicker and more accurate diagnoses they provide are a blessing to clients, clinics, and doctors alike. These bold veterinarians who are the early adopters of digital cytology are poised to become both an example to follow, and a predictor of what is to come for the field of human medicine.

REFERENCES


No one should wait days for critical results.

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New data-driven insights help you prepare for a strong future

New insight illuminates the path veterinary practices should take to improve patient care, client satisfaction, and your bottom line in 2021 and beyond.

As 2020 inches toward a close, many of us are considering what the future might hold for the veterinary profession. The latest American Veterinary Medical Association (AVMA) economic research uncovers a detailed sketch of what we might expect—both in the upcoming year and over the next decade.

There’s good news in what we project: growing animal populations, rising salaries, and positive changes in client attitudes toward pets. The data serve as a practical roadmap for veterinary professionals and businesses to draw on. Use it as a foundation to base strategic and forward-thinking business decisions that will enhance your opportunities for success.

What the data show: An overview

Incorporating data from a wide range of sources, AVMA’s projections encompass these categories: veterinarian population, species focus, and average salary; livestock and pet populations; owner demographics; demand for veterinarians; and household view of pets as family. The insights are based on a new veterinary workforce model that allows us to make forecasts on the supply and demand of veterinarians and veterinary services.

Here are some key projections:

- The number of active veterinarians in the U.S. is expected to exceed 123,000 by 2030, up from 116,000 in 2020.
- The number of companion animal veterinarians is expected to increase substantially by 2030, and small increases are anticipated for food animal, equine, and mixed animal veterinarians.
- The average starting salary for companion animal veterinarians is expected to rise from $88,000 in 2020 to $102,000 in 2030.
- In the public sector, a net gain of veterinarians will be driven by more people working in higher education, industry/corporate, and nonprofit practice.
- The US dog population is expected to increase from 85 million in 2020 to over 100 million by 2030.
- The cat population is expected to grow from 65 million to over 82 million by 2030.
- The proportion of US households owning a dog is expected to grow from 38% in 2020 to 45% by 2030.

Connecting the dots: Practical applications

While the research offers a basis to understand major trends and patterns, whether and how practitioners use this information is key to its real-world value. First and foremost is understanding the practical implications of these insights. You can then harness that knowledge to implement new or improved programs and strategies to enhance patient care, build client relationships, and boost business success. Here are some examples.

Wellness visits for dogs

AVMA projections show the share of dogs receiving wellness exams has grown rapidly, from 78% in 2011 to 90% in 2016. That number is expected to grow more slowly through 2030, ultimately reaching 96% of dogs.

What it means: This gives us at least 2 pieces of really practical information. One, it tells us that most dogs are getting the preventive care they need to live long and healthy lives. This is excellent news! It shows that our efforts to educate pet owners about the value of regular veterinary care are having a real influence on the care their pets receive. It also tells us that wellness checks as an area of service represent only limited growth potential over the next decade, because a relatively high proportion of the dog population already receives them.

Wellness visits for cats

Wellness visits for cats are expected to continue growing through 2030, reaching nearly 80% (up from around 65%). This makes them an area where you may want to continue focusing for your feline patients. If you don’t already see a large number of cats, this could be a possible growth area. The AVMA has a market share estimator that can help. It’s available with a range of other business tools at avma.org/StayCompetitive.

Client communication

Visibility into changing household demographics and attitudes provides important insight into our current and potential client populations. Data show that most Americans consider their pets to be family members, and that this trend will continue. For dogs this number is expected to rise to nearly 96% by 2030 (from 86%) and for cats to 84% (from 80%).

What it means: Our clients love and cherish their animals. This positive change in owners’ relationships with their pets could imply an increase in the demand for pet health care.

What you can do: Understand the characteristics of the households in your area, and use the knowledge to inform your marketing and communication strategies. How clients view their pets is 1 piece of the equation. Use this information—available on a state-by-state basis—to home in on what your clients need and value most and make sure that you, as the veterinarian, are doing everything you can to meet those needs. Every interaction we have, whether on social media or face-to-face with clients in the exam room, is an opportunity to build and strengthen relationships. Understanding client priorities and attitudes is the first step in addressing them.

A deeper dive: Explore the data online

You can dig deeper into these data via an interactive dashboard on the AVMA website (avma.org/WorkforceTrends). View nationwide industry trends, and drill down to your specific location, practice type, and areas of interest to discover the information most pertinent to you. The projections may change over time based on the latest research, new economic trends, or other variables. AVMA’s ongoing research about the profession will help us keep the dashboard updated, so you can return to it over and over as an accurate and practical business tool. Whether you’re an individual practitioner, large hospital, small nonprofit, or even a national association like the AVMA, these data helps us all plan for a strong and sustainable veterinary future.
How much is too much?
Offsetting COVID-19–related expenses without turning off clients.

The coronavirus disease 2019 (COVID-19) pandemic has significantly impacted veterinary practice cultures and procedures. At Lee Animal Hospital, client load increased, efficiency decreased, and hospital overhead costs skyrocketed. To help offset the unexpected costs associated with the pandemic, the clinic decided to institute new surcharges, including a medical waste fee, a personal protective equipment (PPE) fee, and a cancellation fee.

Pet owners started to notice the new charges and voiced their frustrations and concerns to management. Several clients questioned the need for a medical waste fee and PPE assessment and said they were being nickedled-and-dimed to death.

Clients also asked why medical waste fees and PPE assessments weren’t part of their general overhead costs, and said charging those fees was tantamount to charging a vaccine fee and an additional fee for the syringe. Many clients asked whether surcharges were fixed or if they varied based on pet size and procedure. One pet owner asked whether it would be easier to simply roll these individual surcharges into the overall line item of professional services.

The hospital’s administrator tried to be as transparent as possible about the new fees. Most clients understood the hospital’s reasoning but others disagreed. Many pet owners frowned upon cancellation fees and some even refused to pay them.

To address clients’ frustrations, the hospital’s administrator met with the staff. Many team members said the new surcharge policies weren’t consistent with the hospital’s culture and recommended increasing the professional service line item charge instead of itemizing surcharge fees. After listening to clients’ and staff members’ concerns, hospital management decided to increase professional service fees by 5% and eliminate all additional surcharge line items.

Do you agree with Lee Animal Hospital management’s decision in this case? What would you have done? We would like to know. Email your thoughts to dvm360news@mmhgroup.com.

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

Rosenberg’s response:
When reviewing an invoice, the first thing a client looks at is the bottom line, and the pandemic has intensified this scrutiny. Additionally, veterinary practice costs have increased because of new pandemic protocols. Many small businesses are informing their customers that they are adding a small assessment due to COVID-19. I have never been a fan of “medical waste” surcharges, “hazmat surcharges,” or “PPE surcharges.” These are typical overhead costs that any veterinary medical facility requires to treat patients. These costs, as with other overhead considerations, should be reasonably factored into a professional service line item.

We shouldn’t feel comfortable importing certain practices that our human medical counterparts employ. Third-party payments and fee variations depending on whether the bill is being paid by an insurance carrier or the individual have led to a distrust of human medical service billings. Our invoicing should be fair, equitable, and easy to understand. Let’s not add to the anxiety and stress that this pandemic has already brought upon our clients.
Consolidation concerns: What you need to know

Find out how veterinary corporatization has evolved, plus a look at some consolidation strategies.

Veterinary practice consolidators have become increasingly clever. They have grown from a handful of fledgling clinic groups to animal hospital conglomerates. Initially, the overriding objective was to acquire already profitable hospitals and bring them into a collective through which the consolidator could use economies of scale (bulk purchasing power, streamlined multihospital computerization, etc.) to hoist each acquisition to even greater profitability.

However, with the price of hospitals and associates’ salary demands on the rise, consolidators have identified new ways to incentivize performance of the veterinarians from whom they purchase clinics and who stay on as clinicians, as well as the “worker-bee” employee-veterinarians at the acquired hospital.

Early in the corporatization game, things were simple. A practice seller would be courted, the price was set for the buyout, and the seller/former owner was required to work for a couple of years for a generous salary—a nice and straightforward process.

As time went on, consolidators discovered that once a clinic seller received a big check at closing, enthusiasm for bringing in every last dollar in the exam room began to wane. Suddenly, the set salary seemed pretty high, as many previous owners decided to shift into a lower gear once the hospital was no longer theirs.

The same started happening with associates who suddenly found themselves working for a big business with owners they didn’t know, after working hard for people they knew personally and trusted. For many, there didn’t seem to be as much reason to put in long hours, love on every client, and collect deposits on those late-night emergencies.

Enter compensation incentivization

It isn’t a mystery why corporate veterinary hospitals have firmly embraced the concept of production/salary compensation formulas. It makes sense because the more an associate or former owner generates in revenue, the more money they take home. ProSal seemed like a panacea to corporate veterinary medicine, and it indeed did the trick—for a while.

Initially, the incentive value of ProSal seemed like a great way to get veterinarians to work at maximum efficiency and speed. But eventually, corporations discovered a glitch, something that might seem intuitive once you think about it a bit. Practice sellers who continue to work at their recently sold hospitals found themselves flush with cash from their recent sale closing. As such, the extra money generated by a ProSal-based paycheck may not be all that incentivizing to a veterinarian who is at retirement age and has just received a very large one-time payout for their business.

From the boardroom: New incentives

Corporate veterinary consolidators today are approaching their incentivization goals in numerous innovative ways. Some are banking on new incentivizing “carrots” and others are experimenting with “sticks.”

For example, a corporation (most consolidators are LLCs so “corporation” is a technical misnomer) may decide to change its compensation arrangement for a practice seller, putting them on a strictly production basis so if they slack off, the only one suffering is them.

There is also a myriad of positive incentives consolidators are using to maximize veterinarians’ productivity, and hence, bottom-line profit. Below are brief outlines of strategies and structures employed by players in the veterinary roll-up business space.

Offer of equity participation in the consolidator itself

This incentive program is more commonly offered to practice owners who are casing out of their hospitals rather than to associates. The program allows a seller to take a portion of the clinic’s purchase price in the acquiring company’s stock or “membership units” in the case of an LLC. That way, the company hopes that whoever is selling the practice will work hard during the post-sale work commitment to help make the veterinary clinic more profitable. In return, they will increase the value of the equity held by the former clinic owner.

Offer of equity in the clinic being acquired

This incentive scheme may be offered to encourage associates to stay with the acquired hospital after it’s sold. Under this technique, the corporate clinic acquirer may allow an associate, or in some cases the previous owner, to buy shares in the individual veterinary clinic being acquired. The theory here is that the seller or associate will work as hard as possible to maximize profitability in hopes of getting a dividend on the practice equity held.

Offer of preferred stock-style equity in the consolidator

Preferred stock is a type of equity that is a blend of ownership or stock and a bond. Depending on the legal entity organization of an acquiring corporation or LLC, there may be multiple classes of stock or LLC membership units. While some of these equity classes may increase in value and/or pay a dividend, the classes of equity that are designed as a sort of preferred stock, may never increase dramatically in value. They may simply have to pay an established rate of return to the associate or practice seller who holds it.

For example, a consolidator may have Class A units (which have a vote on management decisions) and at the same time have Class B and C units, with Class B units paying a 5% interest rate for 10 years and Class C units paying 8.5% for 5 years, after which they must be relinquished to the company or perhaps converted into Class A units.

New complexities as new consolidators enter the market

Not so long ago, exiting clinic owners and associates had to make only a few simple decisions when corporate came calling. The seller had to decide on the price and, if it was accepted, collect the sum in cash while the associate simply had to choose to stay or to leave once the hospital was acquired. Associates may or may not have received some type of severance or signing bonus.

Today, there is an ever-expanding menu of financial options offered by practice consolidators. With the increasing number of choices, there is expanding exposure to risk for the doctor who chooses equity participation over cash.

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Endoscopy and respiratory disease in horses

This diagnostic tool can provide a wealth of information about the structure and function of the respiratory tract.

By Kate L. Hepworth-Warren, DVM, DACVIM

Unlike in small animal practice, endoscopy is commonly used in equine practice. Although endoscopy as a diagnostic tool is often thought of for upper airway dysfunction (eg, laryngeal paralysis, dorsal placement of the soft palate) only, it can be a useful adjunct in a number of other respiratory conditions of both the upper and lower respiratory tracts.

Many clinical signs in horses warrant endoscopy of the respiratory tract. The most common include nasal discharge and abnormal respiratory noise during work. Diagnostic differentials for nasal discharge are often determined by the character of the discharge. Once a differential diagnosis is developed, endoscopy can be performed. Common differentials for unilateral nasal discharge include guttural pouch empyema (often associated with Streptococcus equi subspp. equi infection), guttural pouch mycosis, ethmoid hematomas, masses of the sinuses or nasal passages, and dental disease. When bilateral nasal discharge is noted, conditions of the lower airway (eg, pneumonia or equine asthma) become more likely, although strangles and guttural pouch empyema can also cause bilateral mucopurulent discharge. Viral infections of the upper respiratory tract, such as equine influenza and herpesvirus, can also lead to bilateral nasal discharge.

The endoscopic exam

A complete endoscopic examination of the upper airway includes visualization of the nasal passages, nasopharynx, larynx (including arytenoid cartilages, aryepiglottic folds, and epiglottis), soft palate, dorsal pharyngeal recess, ethmoids, both guttural pouches, and proximal trachea. Portions of the exam can be tailored to the specific condition suspected. With unilateral nasal discharge, for example, it is probably not necessary to examine both nasal passages.

Upper airway evaluation

If upper airway function is the primary reason for endoscopy, then examine the horse without sedation. Sedation can decrease abduction of the arytenoid cartilages and lead to dorsal displacement of the soft palate, so definitive diagnoses involving the function of these structures should be made only in an awake patient. Many patients with endoscopy without sedation will use just the use of a nose twitch and potentially application of topical anesthetic (2% lidocaine on a gauze square often works well) in the nasal passages.

In cases in which exercise intolerance or excessive respiratory noise is the presenting complaint, then dynamic endoscopy during exercise may be the best modality if obvious abnormalities cannot be identified with the horse at rest. Conditions commonly identified with dynamic endoscopy include dorsal displacement of the soft palate and recurrent laryngeal neuropathy (RLN). Multiple grading scales can help objectively assess the severity of RLN while at rest and during exercise, ranging from a 4-point scale to a 6-point scale with a variety of subcategories. Dynamic endoscopy can be performed as part of a complete treadmill workup for exercise intolerance or as an isolated diagnostic on the farm. When using endoscopy to find the source of nasal discharge, considering the character of the discharge (unilateral vs bilateral, serous vs mucopurulent vs feed material vs epistaxis) is crucial to ensure that the appropriate structures are visualized. In an ideal world, every exam would include all the structures described above, but patient compliance sometime limits the extent of an exam. In patients with unilateral epistaxis, an ethmoid hematoma and guttural pouch mycosis are the most likely diagnoses. While these could cause bilateral epistaxis, that would more likely be caused by exercise-induced pulmonary hemorrhage, in which case examination of the lower airway may also be warranted. Similarly, unilateral mucopurulent nasal discharge may result from sinusitis (either primary or secondary to dental disease), a mass in the nasal passage, or guttural pouch empyema; thus it would be prudent to perform the exam from the affected nostril.

In any horse suspected of having strangles, examine both guttural pouches thoroughly as this is the site where chronic shedders harbor infection.

Lower airway evaluation

Endoscopy of the airways does not need to be limited to the upper respiratory tract. Not only can endoscopy provide valuable information about conditions in the lower airways, it can also be used to facilitate airway sampling. While a 1-m endoscope will not reach past the carina, it can be used to perform tracheal washes and to inspect the trachea for the presence of purulent material, blood, or feed material that could contribute to clinical signs. Occasionally, the upper airway examination can provide information about lower airway disease. For example, the guttural pouches are important sites to examine in horses suspected of having aspiration pneumonia secondary to dysphagia. Among the critical structures inside the guttural pouches are cranial nerves IX (glossopharyngeal nerve), X (vagus nerve), and XII (hypoglossal nerve), which together control swallowing.

Common noninfectious causes of lower-airway disease, such as exercise-induced pulmonary hemorrhage (EIPH) and equine asthma syndrome (formerly known as inflammatory airway disease, recurrent airway obstruction, heaves, and chronic obstructive
pulmonary disease), are marked by the accumulation of blood (EIPH) or mucus (equine asthma syndrome) in the trachea, both of which can be visualized endoscopically.2,3 Scoring systems have been developed for objective quantification of blood or mucus in the airways in cases of EIPH and equine asthma syndrome, respectively. A common scale for grading blood in the airway for EIPH typically ranges from 1 to 5:

- **Grade 1:** Flecks of blood are present in the trachea.
- **Grade 2:** Blood flecks and a small continuous stream of blood are present in the trachea.
- **Grade 3:** The stream of blood is less than half the total tracheal diameter.
- **Grade 4:** The stream of blood is larger than half the tracheal diameter.
- **Grade 5:** The trachea is filled completely with blood.4,5

In some cases of EIPH, blood may not always be visible in the trachea, depending on the amount of time that has passed since exercise. Similar to EIPH, there is no standard scale for grading mucus in the airways in cases of EIPH and equine asthma syndrome, respectively. A common scale for grading blood in the airway for EIPH typically ranges from 1 to 5:

- **Grade 0:** No mucus is visible.
- **Grade 1:** Single to multiple blobs of mucus are visible; this grade is commonly seen in young racehorses without overt disease.
- **Grade 2:** Multiple blobs of mucus, larger than in grade 1, are visible, but they are still nonconfluent.
- **Grade 3:** The mucus becomes confluent or forms a stream.
- **Grade 4:** Pool-forming mucus is visible.
- **Grade 5:** Profuse amounts of mucus are visible in the trachea.6

In addition to being used to identify excessive mucus in the airways, 3-m endoscopes can also be used to perform bronchoalveolar lavages for definitive diagnosis of asthma. Kate L. Hepworth-Warren, DVM, DACVIM, is an equine internal medicine specialist who works as a clinical assistant professor of equine internal medicine at North Carolina State University College of Veterinary Medicine in Raleigh. Outside work, she enjoys traveling, cooking, reading, running, and the beach.

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Gastrointestinal motility disorders caused by esophageal disease

Esophageal diseases are an important cause of dysmotility and regurgitation in dogs and cats. Here’s what you should know about these disorders.

By Albert E. Jergens, DVM, PhD, DACVIM, AGAF

Gastrointestinal (GI) motility disorders are challenging for many veterinary practitioners, in part because they are caused by a range of conditions affecting the esophagus to the colon. This article focuses on esophageal diseases implicated in motility disturbances.

Overview of esophageal disease

Numerous diseases influence esophageal structure and function, and can cause clinical signs in dogs and cats, especially regurgitation. Broadly speaking, esophageal disorders can be grouped into motility disturbances (eg, megaesophagus [ME], hiatal hernia, diverticula), obstruction (eg, esophageal foreign body, stricture, neoplasia), and esophageal inflammation (eg, esophagitis, fistula). Primary structural/inflammatory disorders of the esophagus, including esophagitis, stricture, and gastroesophageal (GE) reflux, can result in diffuse or segmental dysmotility and clinical signs of esophageal disease, including regurgitation, dysphagia, odynophagia, and vomiting.

History and signalment

A careful patient history is crucial in cases of suspected esophageal disease to determine whether the patient is vomiting or regurgitating (see Is it vomiting or regurgitation?). Once it has been established that a patient is regurgitating, then the focus of the diagnostic workup is on establishing the cause of esophageal disease.

Signalment can provide some clues about the underlying problem. In young dogs that regurgitate, persistent right aortic arch and congenital ME should be high on the list of rule-outs. If the onset of regurgitation and dysphagia is acute, foreign body should be considered in the differential diagnosis. For clinical signs lasting several weeks, esophagitis and esophageal stricture would be potential causes of regurgitation. Chronic regurgitation would be more indicative of ME, chronic esophagitis, or stricture formation. It is also important to remember to ask clients about any oral medications the patient might be taking.

Cats are exquisitely sensitive to drug-induced (eg, doxycycline, clindamycin) esophagitis.

Other disorders, including hiatal hernia, esophageal diverticula, and chronic esophagitis, may be associated with esophageal dysmotility, so it is important to diagnose and treat these conditions specifically. Cats with dysautonomia commonly present with a history of progressive anorexia, weight loss, constipation, regurgitation, and/or vomiting. Abnormalities observed on physical examination in these cats are unique and include dilated and unresponsive pupils, prolapsed nictitating membranes, distended urinary bladder, dry mucous membranes, absent anal tone, bradycardia, and reduced lacrimation.

Diagnostic evaluation

The diagnostic workup for esophageal disease relies heavily on radiology and endoscopy (ie, esophagoscopy), which provide complementary information in many cases. Routine lab work (complete blood cell count, biochemical profile, and urinalysis) should also be performed to assess overall health status and rule out metabolic/systemic diseases as a cause of clinical signs. In many cases, routine lab results will be normal. The cause may be acquired, particularly in ME cases, and specialized testing (eg, thyroid panel/corticotropin stimulation test, toxin screen, acetylcholine receptor antibody titer) can be helpful. Urinalysis can assess for pathologic proteinuria seen with immune-mediated diseases. Chemistry panels can help to evaluate skeletal muscle inflammation where serum creatine kinase may be elevated. Because the canine esophagus is composed entirely of skeletal muscle, it may be affected by several immune-mediated disorders, including acquired myasthenia gravis (MG), muscular injury, and inflammatory myositis.

Diagnostic imaging is a very important tool, and 2 radiographic views (lateral and ventrodorsal) should always be taken to visualize the entire length of the esophagus. When survey films are inconclusive, barium contrast procedures are needed.

Is it vomiting or regurgitation?

Classically, patients that regurgitate do not retch and do not have premonitory signs (eg, salivation, repeated swallowing, anxiety). Regurgitation is a passive process in which the patient lowers the head and food, fluid, and/or saliva exits by means of gravity alone. The food, saliva, or white froth may be undigested, cylindrical in appearance, and will not contain bile. Importantly, regurgitation may occur before, during, or several hours after meal ingestion.

Vomiting is an active neural reflex involving response to 4 major inputs:

- **Higher central nervous system (CNS) center:** increased CNS pressure or intracranial disease
- **Vestibular input:** idiopathic or in response to motion
- **Chemosensor trigger zone:** common with bloodborne toxins or metabolites
- **Visceral afferents that are stimulated by abdominal irritation, inflammation, or distension:** common

Animals often have premonitory signs before they vomit, and the vomitus may or may not contain bile, blood, or digested food.
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Esophageal obstruction

Vascular ring anomaly, such as persistent right aortic arch, can cause extraluminal esophageal obstruction. A diagnosis of vascular ring anomaly is suspected based on supportive history (intolerance to solid foods at weaning) and thoracic radiography. When performing a barium contrast esophagram, a persistent right aortic arch will appear as a constriction over the base of the heart with dilation of the esophagus observed cranial to the extraluminal compression. Surgery is the preferred therapy; however, residual defects in esophageal motility may persist despite corrective surgery. In these instances, the prognosis is guarded due to continued esophageal dysfunction.

Foreign bodies in the esophagus are also problematic because they cause mechanical obstruction and mucosal trauma that may result in serious consequences, including esophagitis, localized dysmotility, and perforation. The incidence of esophageal foreign bodies is considerably lower than clinically recognized.\(^1\) It is often composed of various gastric fluids, including pepsin, pancreatic enzymes, and bile salts, all of which irritate the esophageal mucosa and may cause injury. Clinical signs of GE reflux can include regurgitation, salivation, neck extension, and odynophagia. Repeated reflux episodes, either secondary to vomiting or caused by defects (reduced tone) in the lower esophageal sphincter (LES), contribute to esophageal mucosal injury but are difficult to detect radiographically. Esophagitis resulting from GE reflux is an endoscopic diagnosis made by visualizing erythema, mucosal erosions, GE reflux, and/or increased friability with acute injury to the esophagus (Figure 4), whereas chronic esophagitis is characterized by granular surface texture, white areas of fibrosis, and strictures. Esophagitis is often a presumptive diagnosis with initial treatment aimed at removing the underlying cause (ie, GE reflux), if possible. There is clear evidence that treatment with proton pump inhibitors (PPIs), such as omeprazole, provides superior gastric acid suppression compared with histamine-2 (H\(_2\)) receptor antagonists (eg, ranitidine, famotidine) for acid-related esophagitis. One strategy to reduce the severity of anesthetic-associated GE reflux is to administer 2 oral doses of omeprazole 18 to 24 hours and again 4 hours before anesthetic induction. Pretreatment with cisapride (if available) also may reduce GE reflux by promoting gastric emptying and increased LES pressure. Sucralfate is a mucosal protectant that binds to damaged mucosa and provides physical protection from acid-peptic disease. There is no evidence that combining sucralfate with either a PPI or an H\(_2\) receptor antagonist for treatment of esophagitis is superior to use of PPIs alone.

Hiatal hernia

Hiatal hernia is a protrusion of the abdominal visera, most often the cardia and fundus of the stomach, through the esophageal hiatus into the caudal mediastinum. Dogs and cats with hiatal hernia present with regurgitation, hypersalivation, vomiting, and odynophagia. The diagnosis is based on findings from survey thoracic radiography and contrast radiography, including fluoroscopy. Imaging shows the presence of an air or fluid-filled, often oval-shaped, soft tissue opacity within the caudodorsal thoracic cavity (Figure 5). Esophagoscopic confirms the presence of esophagitis with cranial displacement of the LES and an enlarged esophageal hiatus. Among dogs, Shar Peis are congenitally predisposed to this problem.\(^2\)

Medical and surgical therapies are available for hiatal hernia. Medical treatment is generally pursued first and includes a combination of acid suppressants (eg, twice-daily oral omeprazole), prokinetics (eg, metoclopramide or cisapride to increase LES tone and stimulate gastric emptying), and cytoprotective agents (eg, sucralfate as a diffusion barrier agent).

Megasophagus

ME is generalized esophageal dilation with hypomotility (lack of primary peristaltic waves).\(^3\) It is common in dogs but rare in cats. ME can be idiopathic or acquired, and due to primary or secondary causes. History and physical examination findings can be variable. ME is characterized by severe diffuse esophageal dilation with hypomotility. Weight loss, anorexia, lethargy, pulmonary crackles, and secondary aspiration pneumonia may be identified in some patients. Other animals may have a ravenous appetite because they cannot hold down their food. Clinical signs of cough, wheezing, and dyspnea may also be observed secondary to aspiration pneumonia. Often, the initial discovery of a
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Esophageal dysmotility can also occur in association with other disorders, including dysautonomia, GE reflux, hiatal hernia, esophageal stricture, acquired MG, and mediastinal masses (eg, thymoma, lymphoma).3

Regurgitation is the most common clinical sign associated with ME in dogs, with frequency varying from intermittent to several episodes per day.3 In cats, ME is associated primarily with MG, causing generalized weakness as the predominant clinical sign. Physical examination in animals with MG may reveal excessive salivation, regurgitation or dysphagia, weight loss, and generalized muscle weakness.

Radiographically, the esophagus may be dilated with air, ingesta, fluid, or all of these (Figure 6). Two views should always be obtained to identify any areas of localized aspiration pneumonia. Motility patterns can be investigated with fluoroscopy, where the presence of primary and secondary peristalsis is assessed using barium contrast alone and mixed with food.

Treatment of idiopathic ME is largely supportive and focuses on meeting the nutritional needs of the patient while managing secondary complications such as aspiration pneumonia.3 For pets that are willing to eat, clients should choose the dietary consistency (ie, kibble vs gruel vs wet food) that best minimizes regurgitation episodes. In debilitated animals, placement of a percutaneous endoscopic gastrostomy tube ensures access for enteral nutrition. Empiric antimicrobial therapy is indicated for patients with aspiration pneumonia. Cisapride therapy may be beneficial in stimulating distal esophageal motility in cats but has no effect on esophageal muscle stimulation in dogs. Medical therapy for acquired MG involves use of pyridostigmine and/or glucocorticoids depending on the clinical response and serial measures of acetylcholine receptor antibody titers.

Key points

Esophageal dysmotility has a variety of causes, some of which are idiopathic.

- In dogs and cats, esophageal dysmotility may occur secondary to esphagitis.
- Thoracic radiography and endoscopy are complementary diagnostic tools. Endoscopy also provides therapeutic options, including removal of esophageal foreign bodies, balloon dilation of strictures, and placement of enteral feeding tubes.
- The severity of esophageal dilation with ME does not relate to the severity of GI signs.
- Aspiration pneumonia is a common sequela of esophageal diseases. Dorsoventral thoracic radiographs are the most sensitive in detecting abnormal lung patterns.
- A creatine kinase test should be performed to evaluate for esophageal muscular injury seen with myositis or neuromuscular injury.
- An acetylcholine receptor antibody titer should be performed to rule out acquired myasthenia gravis as a cause of megaesophagus.
- Patients with megaesophagus carry a guarded to poor prognosis.
- Often, clinicians can treat animals through an ME medical crisis, but clients become frustrated with recurring regurgitation, aspiration pneumonia, and the poor quality of life of their pets.

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Many veterinarians see pets with polyuria (PU) and polydipsia (PD) every day. But are our workups as efficient as they could be? Which tests provide the most useful information? At the Fetch dvm360® virtual conference, Heather Kvitko-White, DVM, DACVIM (SAIM), an internist and founder of KW Veterinary Consulting, offered important tips for working through PU/PD.

What factors affect water intake and urination?
The first step in diagnosing PU/PD is defining the condition. What constitutes “normal” water intake is variable, Kvitko-White said, but a range between 40 and 60 ml/kg/day is generally considered acceptable. PD is diagnosed when drinking exceeds 100 ml/kg/day.

Of course, activity level, ambient temperature (heat and humidity), and other factors affect water drinking. For example, food plays a role. Dry kibble tends to make pets drink more water, but so can certain prescription diets. For example, some bladder stone–dissolution diets are higher in sodium, which causes increased drinking. Kvitko-White also noted that high-protein canned food for cats can increase thirst. So be sure to ask about the pet’s normal diet when trying to determine whether water intake is excessive. Household environment can also affect drinking behavior, Kvitko-White warned. If 1 cat in a multicat household is being bullied away from the water bowl, that cat may be seen drinking more water when it’s accessible, which can make the owner believe the pet is drinking excessively.

Aside from a list of illnesses, other factors that may cause pets to drink more water include stress (due to increased systemic cortisol levels), nausea, fever, pain, and certain drugs, including corticosteroids.

As with drinking, urine output can be somewhat variable. Urine output of 1 to 2 ml/kg/day is considered normal, and PU is defined as urination that exceeds 2 ml/kg/hr. However, definitively assessing PU is limited because catching all the urine a dog or cat makes over the course of the day is unrealistic.

Kvitko-White also noted, “When we think about PU/PD, it’s important to differentiate whether the issue is drinking too much water or urinating too much.” It makes sense that excessive water intake results in increased...

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urination. But excessive water loss through PU can cause dehydration, which triggers increased drinking. According to Kvitko-White, a key factor to remember is that most of the common differentials for PU/PD begin with PU, which then triggers PD as a response.

It may simplify one’s clinical approach to consider that there are only 5 main pathophysiological mechanisms that initiate PU (see Mechanisms that initiate polyuria). Understanding the connection between these mechanisms and the diseases that cause them can help clinicians reason through the diagnostic process.

### Verifying the medical history

When reviewing medical history with a pet owner, it isn’t always easy to verify that what they’re reporting is actually PU/PD versus another situation, such as urinary accidents secondary to lower urinary tract disease. For example, a pet that is urinating more frequently, but not urinating larger volumes, probably doesn’t have PU/PD. Additionally, many of the common clinical signs of PU/PD can overlap with those of other conditions. Leaking urine while sleeping, increased urination at night (including urinating on the pet’s bed or waking the owner to go outside during the night), and having frequent urinary accidents can certainly occur with PU/PD, but they can also occur with lower urinary tract disease and other causes of abnormal urination.

Kvitko-White cautioned that there are some important distinctions that shouldn’t be confused or overlooked. “Lower urinary tract disease does not cause PU/PD unless there’s renal involvement, which is generally rare. Also, in an animal with PU/PD, you shouldn’t see any signs of lower urinary tract discomfort or straining. So, remember that lower urinary tract disease is not a differential for PU/PD,” she advised. Clues like these can help improve the accuracy of the medical history.

Pet owners should also be questioned about any medications the pet is receiving, as common medications such as diuretics and corticosteroids can increase water drinking and urination. Kvitko-White warned that topical, inhaled, and ophthalmic corticosteroid medications can undergo enough systemic absorption to cause increased drinking, so these preparations shouldn’t be dismissed when trying to decide whether a medication might be responsible for a pet’s increased thirst.

### Why urine specific gravity is important

Once clinical PU/PD has been confirmed, urine specific gravity (USG) is the next step in the diagnostic workup. It’s inexpensive, noninvasive, and easy to run in-house and yet can yield loads of valuable information. Because urine concentration fluctuates throughout the day, the urine sample for assessing USG should be obtained first thing in the morning before the pet has access to food or water.

“Beyond confirming the need for further workup, the USG can help narrow the differential list,” Kvitko-White said. Hyposthenuria (USG < 1.008) is most consistent with primary PD, diabetes insipidus (including all the causes of secondary nephrogenic diabetes insipidus), or hyperadrenocorticism (HAC), she added. “If you find a USG of less than 1.008, you’ve excluded both acute and chronic (CKD) kidney disease (including secondary to leptospirosis or pyelonephritis).

With 1 very simple, inexpensive test, you’ve begun to narrow down the list (of differentials).”

If urine is isosthenuric (USG 1.008-1.012), CKD should be high on the list of differentials. However, many other diseases can produce isosthenuria, so CKD can’t be confirmed based solely on this finding.

In dogs and cats whose urine is well concentrated, USG is higher than 1.030 and 1.035, respectively. This effectively rules out diabetes insipidus, Kvitko-White noted. HAC is also very unlikely.

### What about other differentials?

Once the minimum database is completed, additional diagnostic testing becomes more specific to investigate diseases such as HAC, hypoadrenocorticism, and leptospirosis.

Blood pressure should be checked to rule out hypertension. Additional laboratory studies include symmetric dimethylarginine (SDMA), which can point to a diagnosis of CKD before azotemia, urine culture if pyelonephritis remains a reasonable differential, serum bile acids assay (if signs, history, and exam findings support liver disease or portosystemic shunt), and leptospirosis microscopic agglutination testing or urine polymerase chain reaction (if leptospirosis is still on the list based on history, clinical signs, and exam findings).

Imaging studies, such as survey radiography (abdominal and thoracic) and abdominal ultrasound, are also informative at this stage of the diagnostic workup, or earlier if the condition warrants.

### What else could it be?

If all the previous diagnostic tests are unremarkable, psychogenic PD and diabetes insipidus remain on the list of possibilities. But clinicians need to differentiate these 2 conditions.

Psychogenic PD is more common in young, hyperactive dogs prone to high stress/anxiety. Owners may also report that the PU/PD is often intermittent, situational, or worse at certain times of the day or night. Oftentimes, these owners have already started restricting water during certain times of the day and night without ill effect to the pet.

Central diabetes insipidus (CDI) is often idiopathic and can occur in dogs of any age. Acquired CDI can occur with conditions such as head trauma or neoplasia affecting the brain (particularly the pituitary gland or hypothalamus). Primary nephrogenic diabetes insipidus is extremely rare and caused by a genetic defect.

Both psychogenic PD and diabetes insipidus cause hyposthenuria, but in CDI the clinical signs tend to be severe. Also, if water is restricted, a dog with psychogenic PD can eventually form concentrated urine (SG > 1.035), whereas the urine of a dog with CDI will never concentrate without medical intervention. It is important to remember that water restriction must be gradual due to washout of the medullary concentration gradient in psychogenic PD. Even a single concentrated urine sample confirms the diagnosis of psychogenic PD. Careful water deprivation testing that fails to concentrate can support a diagnosis of CDI, which is confirmed through a desmopressin trial.

In summary, obtaining a careful medical history and having a general understanding of the 5 mechanisms that initiate PU (and subsequently trigger PD) can help clinicians select the appropriate tests to confirm the patient’s diagnosis.
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Here are some of the CE opportunities coming in the next several months.

NOTE: Many early 2021 CE events are now being held online. Please visit individual event websites for details.

2021

January 7-9
AVMA Leadership Conference (virtual)
avma.org/events/veterinary-leadership-conference

January 24-27
Small Animal Alaskan Mushing CE Experience
Big Lake, AK
907-892-7899

January 25-29
Lake Tahoe Equine Conference
Incline Village, NV
laketahoeequineconference.com

February 11-14
Midwest Veterinary Conference
Columbus, OH
mvctourinfo.org

February 25-27
Fetch® dvm360 Virtual Conference
fetchdvm360.com

March 21-24
WSAVA World Congress
Warsaw, Poland
wsava2020.com

April 15-18
2021 VECCS Spring Symposium
Kauai, HI
veccs.org/spring2021/

April 19-20
Austin Vet
Austin, TX
us.vetshow.com/austin

April 22-25
Uncharted 2021
Greenville, SC
unchartedvet.com/uvc-2021

May 3-5
United Veterinary Services Association Annual Conference
Scottsdale, AZ
uvsa.net/events/annual-conference/

May 12-14
Chicago Vet
Chicago, IL
us.vetshow.com/chicago

May 13-15
Fetch® dvm360 Virtual Conference
fetchdvm360.com

June 5-6
Veterinary Dentistry for Technicians Weekend Extravaganza!
Arlington, VA
veterinarydentistry.net
703-528-4444

June 5-9
Veterinary Meeting & Expo (live and virtual)
Orlando, FL
navc.com/vmx

June 18-19
DC Vet
Washington, DC
us.vetshow.com/washington-dc
616-437-9080

June 18-21
Pacific Veterinary Conference
Long Beach, CA
pavcet.net/long-beach/
800-655-2862

June 20-22
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July 4-25
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veterinarydentistry.net
619-219-1900

July 30-August 3
AVMA Convention
Minneapolis, MN
avma.org/events/avma-convention

August 5-8
2nd Biennial VETgirl U Veterinary Conference
Chicago, IL
vetgirlontherun.com/vetgirl-u-conference

August 25-27
Hospital Design 360 Conference
Kansas City, MO
fetchdvm360.com
events@dvm360.com
800-255-6864

August 27-30
Fetch® dvm360 Conference
Kansas City, MO
fetchdvm360.com

September 4-7
British Equine Veterinary Conference
Birmingham, UK
info@beva.org.uk

September 23-26
Southwest Veterinary Conference
San Antonio, TX
swvs.org/swvs-2021
972-664-9800

September 30-October 1
American Association of Feline Practitioners Annual Conference
Phoenix, AZ
catvets.com

October 11-14
Atlantic Coast Veterinary Conference®
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acvc.org
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December 2-5
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December 4-8
AAEP 2021
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aaep.org
859-233-0147
aaepoffice@aaep.org

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The doctor and the brick
A veterinarian’s keen eye saved not just a mare and filly that Sunday night, but also a long-lost treasure.

The rooster was crowing so loud that Dustin McElwee, DVM, could hardly hear the man he was talking to on the phone. After-hours calls on a family-oriented Sunday afternoon are hard enough to stomach, but when the call involves a rooster that sounds like it is sitting on the shoulder opposite your phone ear…well, you know it’s going to be a long afternoon.

The fellow said he owned the best roping mare in the world, but he didn’t have a trailer. How does one even know how good a horse is if they can’t take it anywhere? Anyway, the mare had a baby 12 hours earlier, and the afterbirth was still hanging down from behind. This was the most McElwee could gather between 100-decibel rooster crows.

The man wanted McElwee to drive 95 miles to remove the afterbirth. The good doctor had another emergency on the way in an hour and driving that far to work on a mare that lived in a chicken coop was probably not going to be productive anyway.

McElwee told the caller to borrow a trailer from a friend as soon as he could and head to Lamesa.

The story unfolds
The man continued rambling, but the rooster prohibited further communication, so McElwee suggested that the mare owner seek refuge from the obnoxious bird. A few minutes later the story continued to unfold.

“The mare had a beautiful filly with 2 socks and a star,” the caller continued. “We don’t know exactly when the baby was born, but it had to be sometime after 10 o’clock last night because Billy Bob checked on her and everything was OK. At about 5 this morning I went out and there she was, a beautiful baby girl with legs just like her momma’s. But that confounded afterbirth was hanging out like a second tail on that mare.

So I tied a brick to it and shooshed the mare off across the pasture. I figured the added weight of a brick would pull that thing out, but it didn’t. So when she came back around after a good long jog, I tied a bigger brick to it and shooshed her off again. Still nothing. Then, I tied both bricks and a plow shank to it and sent her off for a third lap. Still nothing. That’s when I decided to call you. But it took me while to find your number, and I had to cook some spare ribs because Otis is coming in from out of town this evening.”

Who? Billy Bob and Otis? McElwee was beginning to see the writing on the wall. At about 10 PM, this guy was going show up in Lamesa with someone named Billy Bob and a visitor named Otis. And sure enough, that is when they arrived.

Something about that trailer
At 10:15 they pulled into the clinic parking lot. McElwee immediately noticed that the beautiful filly was, in fact, a male. The group included 4 generations of rooster-raising rednecks. Otis turned out to be the son, Billy Bob the grandson, and he, of course, had brought his son. The trailer looked vaguely familiar to McElwee. Only McElwee can remember every horse and every trailer he has ever seen.

“Looks like you found a trailer. Where did you get it?” McElwee asked with a squinted eye aimed at the white CM trailer.

“I borrowed it from Dino, the fellow that lives 3 lots down at the trailer park,” rooster man replied.

McElwee went to work helping out the old swaybacked mare. He had just been to a veterinary conference where he learned a new way to remove a retained placenta by going through the umbilical vein. He was excited to try the new technique and immediately started performing all the steps he had learned.

Questions came rapid fire from the 4 generations of chicken/rooping horse raisers. At times they were asking questions simultaneously, and before he could even answer they asked another question. McElwee decided to ignore all the questions and get the mare fixed up. The conference had been worth the money because the procedure worked out beautifully: The placenta slid right out, even after hauling 2 bricks and a plow shank around a 5-acre pasture.

When it came out, the 4 generations of fairly toothless observers went wild, like the fans at a NASCAR race after their car won. McElwee found himself celebrating with them. But still, something about that trailer bothered him. He told the guys he needed to keep the mare at the clinic for the night and flush her out again the next day. They all agreed that would be a good idea and went merrily on their way back home.

Mystery solved
Somewhere in the night McElwee remembered where he had seen that trailer. It was 10 years earlier, when he first came to Lamesa. The trailer belonged to me, and someone had stolen it while it was parked in front of the clinic. I had reported it missing, but never saw the trailer again. McElwee got the serial number from the trailer and checked with the police. Sure enough, it was the very one that had been stolen from me.

The check rooster man wrote for the services rendered on that Sunday night bounced like a rubber ball. It took him 10 days to find another trailer to come get the mare—there was no way he was taking the stolen one back home.

Dino, of course, denied any knowledge of wrongdoing and swore he bought the trailer for $200 from a guy named Steve.

In the end, everything turned out OK. The mare and baby lived, we got our trailer back after 10 years, and McElwee has a great story to tell for the rest of his life. :)
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