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*For this assessment, a common brand pairing is defined as having been purchased for more than 25,000 dogs. 591,200 pet owners paired NexGard for flea and tick control with HEARTGARD Plus for heartworm disease prevention – more than any other possible pairing.


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COVID-19 and animals: Then and now

One year later, experts have a better view of the path ahead.

By James Barr, DVM, DACVECC; and Christian M. Leutenegger, DrMedVet, PhD, BSc, FVH

Last January, few would have predicted that a pandemic would upend our daily lives and place the world in its morbid grip. Reports of devastating illness and death—some based on fact, others on speculation—circulated through news networks as the threat of the virus ran rampant across countries.

Many reputable organizations and associations, including the World Small Animal Veterinary Association (WSAVA), World Organisation for Animal Health (OIE), and Centers for Disease Control and Prevention (CDC), offered resources to combat disinformation and reassure pet owners and society at large that, as currently evidenced, neither domestic dogs nor cats could be a source of coronavirus disease 2019 (COVID-19) infection to humans or other animals.1-3 Although these reports shined much needed light on severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2),

Hospital Design Competition: And the winner is...

Introducing the over 8000-square-feet Hospital of the Year

By Sarah A. Moser

Of the 15 veterinary practices that entered the 2021 dvm360® Hospital Design Competition, 5 were selected as winners based on their efficient floor plans, attractive interior designs, great finishes, and more. This month, we present our featured winner in the "over 8000 square feet" category: VCA West Coast Specialty and Emergency Animal Hospital in Fountain Valley, California.

In coming months, we will feature all of this year’s winners (see page 12 for the full list). Read these articles for tips, tricks, and ideas that you can implement in your hospital.

See page 34
Keep your shelves stocked with triple-action FRONTLINE® Gold brand products, and our newest product, FRONTLINE® Shield for Dogs with FRONTLINE’s fastest speed of kill and added repellency.

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Here are some of the CE opportunities coming in the next several months. Note that many 2021 CE events are now being held online or via a combination of live and virtual learning. Please visit individual event websites for details.

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

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

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

  - Fetch® dvm360 Virtual Conference
  - May 13-15
  - fetchdvm360.com
  - events@dvm360.com
  - 800-255-6864

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

- **DC Vet**
  - June 18-19
  - Washington, DC
  - us.vetshow.com/washington-dc
  - 646-437-9080

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

### July
- **Veterinary Dentistry for Technicians Weekend Extravaganza**
  - July 24-25
  - San Diego, CA
  - veterinarydentistry.net
  - 619-221-1900

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

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

- **ExoticsCon**
  - August 27-September 2
  - Nashville, TN
  - exoticscon.org

### September
- **Connexity 2021**
  - September 22-25
  - Scottsdale, AZ
  - aaha.org/connexion

- **Southwest Veterinary Symposium**
  - September 23-26
  - San Antonio, TX
  - swvs.org/swvs-202

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At MJH Life Sciences®, the parent company of dvm360®, we pride ourselves on providing content that medical and veterinary professionals need to be at their best both professionally and personally. Over nearly 40 years, we’ve gotten to know our audiences intimately, and that allows us to bring you content that will make a true difference in your lives.

This issue of dvm360® is no exception. In our first cover feature this month, James Barr, DVM, DACVECC, chief medical officer at BluePearl Specialty and Emergency Pet Hospital, and Christian M. Leutenegger, DrMedVet, PhD, BSc, FVH, director of molecular diagnostics at Antech Diagnostics, share an update on the coronavirus disease 2019 (COVID-19) as it relates to animals. As more research becomes available, they say, experts are gaining a clearer picture of SARS-CoV-2 (the virus that causes COVID-19), how different animals can be affected by COVID-19, and the path ahead.

We also highlight one of the grand prize winners in our annual dvm360® Hospital Design Competition. VCA West Coast Specialty and Emergency Animal Hospital in Fountain Valley, California, took top honors in the over 8000 square feet category. Discover what makes this hospital unique on page 34. And check out page 12 for a list of all the 2021 competition winners. Congratulations to all!

Also in this issue is a heartfelt commentary from Pam Hale, DVM, MBA, chief medical officer at Destination Pets, about diversity—more specifically, the lack thereof—in the veterinary profession (page 10). “Although strides have been made to create a more equal, inclusive, and diverse profession, abiding change is a long way off,” she says. dvm360® is proud to offer an avenue for education about this very important topic.

There is good news from the American Veterinary Medical Association (AVMA) this month about consumer behavior. According to Matthew Salois, PhD, director of the AVMA Economics Division, economic trends propelled by COVID-19 have placed veterinary practices in a good position for success (page 14). These trends include a heightened sense of value and frugality, a shift to online shopping, waning brand loyalty, and a “homebody economy.” But now is not the time for complacency, he warns, instead offering ways veterinary practices can harness these fundamental consumer shifts to propel success in uncertain times.

These and other informative articles are awaiting you in this and every issue of dvm360®. They are what make us so well rounded and well respected. Thank you for reading!

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

COVID-19 vaccination offers hope for a brighter tomorrow

As scientists, veterinarians understand, appreciate, and respect the research involved in developing and distributing the coronavirus disease 2019 (COVID-19) vaccine. The fact that vaccines have been formulated and made available to the public at such a rapid pace is nothing short of miraculous. I know many Americans have mixed feelings about receiving the vaccine, so I want to share my personal experience in hopes of allaying some of the fear and uncertainty.

My vaccine journey
I was thrilled when I received my vaccine confirmation email. It contained a QR code that I needed to display several times throughout the vaccination process. Traveling to the vaccination megasite at a local New Jersey college to get my first shot was especially challenging given the snowy and icy conditions that day. Normally only an hour away, this time the drive to campus took 2.5 hours.

There must have been more than 100 National Guard troops at the site, all of whom demonstrated the utmost professionalism and kindness. Temperature checks were performed upon arrival. Then, individuals receiving their first vaccine lined up socially distant on the left, and those receiving their second dose lined up on the right. Once we received the green light, we moved to another line to again show proof of appointment time, driver’s license, and QR code.

Once we were officially checked in, we walked in groups of 15 to another building that had about 23 paperwork stations with plexiglass separating patients from the Guardsmen, who collected our email addresses and cross-verified our contact information. Anyone receiving their first dose also scheduled their second appointment.

Once we arrived at the bank of more than 30 nurse triage stations, we were asked to remove our outerwear and/or roll up our long sleeves. The Guardsmen then assigned each person to a station, where a nurse calmly and compassionately walked us through the process, taking time to answer any questions. Following vaccination, the nurse asked us several questions, we again provided our QR code, then we moved to a waiting room to be monitored briefly for potential adverse reactions. We were given a sticker stamped with our vaccination time and told we could leave when our time was called.

The takeaway
I share my COVID-19 vaccination story because teamwork and communication are everything today. From start to finish, the smooth process, excellent communication between the nurses and Guardsmen, and commitment, respect, and empathy shown to patients were admirable and enlightening. I encourage you all to thank your fellow frontline workers and military personnel for navigating through these very choppy waters. Although the vaccine is not 100% effective, along with continued mask wearing and social distancing it can help provide much-needed healing to a world that has been devastated by this deadly disease.

On behalf of the dvm360® family, we thank all essential workers for your service. We hope you find creative, effective, and efficient ways to streamline your workflow during these turbulent times.

—Adam Christman, DVM, MBA
Chief Veterinary Officer
Reunited: Putting all services under 1 roof (where they belong)

A much-needed renovation and addition put this specialty/emergency hospital in the digs they deserve.

By Sarah A. Moser

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*Source: Survey conducted among small animal veterinarians who recommended animal supplements.
Building a diverse, united house in veterinary medicine

Although strides have been made to create a more equal, inclusive, and diverse profession, abiding change is a long way off.

By Pam Hale, DVM, MBA

Some people might say that I have a chip on my shoulder. I say it’s more than that. Let me explain.

The interview
I once flew 2000 miles to interview a veterinarian for an opening at a hospital located within my region. I had spoken with this candidate on the phone, but this was the era before Zoom, FaceTime, or any other visual communication, so the next step was an in-person meeting. We set a time and place to meet in the lobby of a hotel in his town.

When I arrived, I spotted a man who appeared to be waiting for someone. I casually walked over, smiled, and said, “Hello, I am Dr Hale. Are you Dr Whoneedsajob?”

But as I stood beside the table, he seemed to look right past me as though I was blocking his view of the people coming in. After all, he was meeting with a prospective employer. His gaze moved to me only when I extended my hand for a handshake. He remained seated as we shook hands firmly and proceeded with small talk before the interview. We will return to this story later.

The road to diversity
I am a proud graduate of Tuskegee University College of Veterinary Medicine, which was established in 1945. Fast forward 76 years, and Tuskegee remains the only historically Black college or university with acclaimed full preveterinary and veterinary curricula. Black people are still disproportionately represented in the veterinary profession, making up just 1% to 2% of the population, according to the US Bureau of Labor Statistics and American Veterinary Medical Association data.²

Perhaps that explains why, during many years in clinical practice, I often heard inflammatory comments from clients after finding out they would be seeing a Black veterinarian for their appointment. Comments ranged from “What color are the [other] doctors here?” and “My dog is afraid of Black people” to “Of course Black people are good animal doctors” and (when upset over the cost of care) “This is why Black people shouldn’t run a business.” Seriously?

I have coached and comforted numerous young Black veterinarians who have experienced similar disparaging remarks from clients. I have even had to fire clients due to bigoted, insensitive, and moronic comments.

My first job was at a Black-owned veterinary practice. Although this practice felt like a safe haven, we were not immune from clients in East Tennessee who, even in the 1990s, refused to respect a Black doctor. We often had White receptionists as a way to create an illusion of sameness for our White clientele. Although we have come a long way since then, the profession still has miles to go in terms of diversity and inclusion at all levels, especially the loftier positions.

Some minority veterinarians have worked hard to achieve advanced certification beyond the DVM/VMD, from master’s degrees in public health or business to specialty certification in any number of clinical areas. Many opt to establish their own specialty practices rather than compete for positions within these groups. There are also barriers to getting accepted into rigorous internships and other programs because there is often bias in selections. Unfortunately, for minorities, it is still not good enough to be good enough.

Let us not misconstrue the accomplishments and advancements made by minority veterinarians. I know Black veterinary colleagues who have elevated themselves in their own businesses, and worked their way up in academia, industry, and corporate practice, yet we are often alone in these positions as there can only be one of us. We get to senior vice president, senior division director, and global vice president roles or the coveted “C-suite” positions to yet again find ourselves as the sole minority. That’s why we are adamant about reaching out to help others who have immense talent but don’t have an advocate lighting their runways. Minorities have the will, skill, and desire to contribute at the highest capacity in this profession.

Recently, a young Black veterinarian asked me how to approach her regional medical director about becoming chief of staff. When she first joined this large veterinary group, she was told that she would be given that opportunity. It has been more than 5 years, and no one has acknowledged her aspirations. My advice? Get their name and call them up. Remind them who you are, what was said, and what you have done professionally. Elbow your way through the noise and advocate for yourself. If they cannot clearly articulate a pathway to either a “yes” or “no” answer, our industry has more opportunities for those positions now more than ever. Network and apply for leadership roles with other employers. More importantly, challenge the status quo.

There are ongoing preconceived biases in our profession on the part of clients, prospective employers, and supervisors alike. Take a look at our society as a whole, then narrow the focus to veterinary medicine. Black veterinarians are already the invisible people based on sheer statistical numbers. When the same leaders appear over and over again, the old guard never changes. The day is fast
approaching when minority veterinarians will be in positions of power within the profession, with little or no fanfare. It is just not happening fast enough.

It is vital that veterinary leaders who wield the influence and power help us remove that tree and recognize it for what it is—a yoke binding us to the ground, preventing us from taking flight.

**Back to my story**

As the interview progressed, I realized I did not have the candidate’s attention—no eye contact, no smiles. It was clear that this veterinarian had the clinical skills necessary for the role, but his body language told me he was very uncomfortable speaking with me. That could portend difficulty in leadership. Would he allow me to be his boss? I knew it was more than just interview nerves. This gentleman was not expecting a Black woman to be his potential boss. He had a preconceived notion about what the boss should look like, and I didn’t fit that image.

It became my responsibility to break down the wall that was potentially keeping him from a great opportunity. It would have been easy for me to walk away and write him off for being obstinate and not giving me a chance. We were both veterinarians, we already had that commonality. What more could I say to kick through the force he wielded against me and his future?

It wasn’t until I said, “You know, when I graduated back in...” that he turned to face me. I had said something that resonated with him; his face relaxed and I finally felt heard. He was not only concerned about me being who I was but what he thought was my age bothered him as well. I could see him doing the math and realizing that we were of the same generation. The rest of the interview went well. I hired him, and we worked together successfully for several years with me as his boss.

I often find in similar interactions that it is incumbent on the minority to make those who are uncomfortable feel more comfortable. Simply stated, this veterinarian was the one who wanted the job, but I had to help him ace the interview despite his prejudice. I have encountered this scenario far too many times. Being magnanimous is rarely afforded to minorities but always expected from us. It is burdensome, demeaning, and discrediting.

**Creating a brighter future**

Back to that chip on my shoulder. I imagine that chip to be made of wood, then it is not a mere chip on my shoulder or on the shoulders of many Black and minority veterinarians—it is the whole darn tree. As professionals, we are paving our way to becoming acknowledged, having equal opportunities, and advocating for doors 1, 2, and 3 to open up for us. We want equal and unbiased avenues to represent our community in the larger veterinary space. That chip we carry daily on our shoulders is a 5000-year-old redwood with a street-wide trunk. It is a chip that has grown into a tree passed down through generations that we are wary of accommodating.

When you see us, really see us. See the tree. Think about when I helped that veterinarian remove his albatross of bias. I would prefer not to have this tree on my back. My Black veterinary colleagues would rather walk unburdened in this profession and know we have access to the same opportunities as others without being on guard, without a chip to be knocked off, and without that tree on our shoulders. It is vital that veterinary leaders who wield the influence and power help us remove that tree and recognize it for what it is—a yoke binding us to the ground, preventing us from taking flight. Our taking flight doesn’t diminish your ascent. Our success is not your demise. Let us use these chips to build a united house.

**Pam Hale, DVM, MBA**

Pam Hale, DVM, MBA, is chief medical officer at Destination Pets. She graduated from Tuskegee University College of Veterinary Medicine in Alabama and earned her MBA from St. George’s University in Grenada. Hale is a member of the American Veterinary Medical Association (AVMA) and Georgia VMA, serves on the dean’s council for Tuskegee University College of Veterinary Medicine, and is a trustee for the AVMA Professional Liability Insurance Trust. She shares her home with her husband, Chuck, and 7 pups.

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breeding bitches, stud dogs and puppies aged 6 or more weeks. In clinical trials, many commonly used flea collars, dips, recommended dose (60 mcg/kg) in sensitive Collies. Results of these trials and bioequivalency studies, support the safety of paresis, recumbency, excitability, stupor, coma and death. HEARTGARD demonstrated no signs of toxicity at 10 times the doses, sensitive dogs showed adverse reactions which included mydriasis, depression, ataxia, tremors, drooling, administered at elevated dose levels (more than 16 times the target use level) than dogs of other breeds. At elevated doses, sensitive dogs showed adverse reactions which included mydriasis, depression, ataxia, tremors, drooling, parasit, recumbency, excitability, stupor, coma and death. HEARTGARD demonstrated no signs of toxicity at 10 times the recommended dose (60 mcg/kg) in sensitive Collies. Results of these trials and bioequivalency studies, support the safety of

SAFETY: HEARTGARD Plus has been shown to be bioequivalent to HEARTGARD, with respect to the bioavailability of ivermectin. The dose regimens of HEARTGARD Plus and HEARTGARD are the same with regard to ivermectin (6 mcg/kg, 2.7 mg/lb). Studies with vermectin indicate that certain dogs of the Collie breed are more sensitive to the effects of ivermectin administered at elevated dose levels (more than 16 times the target use level) than dogs of other breeds. At elevated doses, sensitive dogs showed adverse reactions which included mydriasis, depression, ataxia, tremors, drooling, paralysis, recumbency, excitability, stupor, coma and death. HEARTGARD demonstrated no signs of toxicity at 10 times the recommended dose (60 mcg/kg) in sensitive Collies. Results of these trials and bioequivalency studies, support the safety of HEARTGARD products in dogs, including Collies, when used as recommended.

HEARTGARD Plus has shown a wide margin of safety at the recommended dose level in dogs, including pregnant or breeding bitches, stud dogs and puppies aged 6 or more weeks. In clinical trials, many commonly used flea collars, dips, shampoos, anthelmintics, antibiotics, vaccines and steroid preparations have been administered with HEARTGARD Plus in a heartworm disease prevention program.

In one trial, where some pups had parvovirus, there was a marginal reduction in efficacy against intestinal nematodes, possibly due to a change in intestinal transit time.

HOW SUPPLIED: HEARTGARD Plus is available in three dosage strengths (see DOSAGE section) for dogs of different weights. Each strength comes in convenient cartons of 6 and 12 chewables.

Marketed by Boehringer Ingelheim Animal Health USA Inc.

Dubuque, IA 52001

Made in U.S.A.

dvm360® announces 2021 Hospital Design Competition winners

Top honors went to Fenton River Animal Hospital in Stafford Springs, Connecticut, and VCA West Coast Specialty and Emergency Animal Hospital in Fountain Valley, California.

By dvm360® Staff

O

f the 15 veterinary practices that entered the 2021 dvm360® Hospital Design Competition, 5 earned awards for their beautiful and functional designs, including 2 overall winners and 3 merit award winners:

• Grand prize winners
  • Over 8000 square feet: VCA West Coast Specialty and Emergency Animal Hospital, Fountain Valley, California
  • Under 8000 square feet: Fenton River Veterinary Hospital, Stafford Springs, Connecticut

• Merit Award Winners
  • Turning Stone Animal Hospital, Cibolo, Texas
  • GoodVets Lee’s Summit, Lee’s Summit, Missouri
  • Bond Vet, New York, New York

“We are honored to have had many submissions for our 2021 Hospital Design Contest given the year of uncertainty,” says Chief Veterinary Officer Adam Christman, DVM, MBA. “Our winners have truly shown innovation, creativity and ingenuity. We thank them for elevating the veterinary profession and wish them all the great success in their new hospitals.

Keep an eye out for feature articles with gorgeous color photographs on these award-winning designs on page 34 of this issue and in the coming months. And watch for our special Hospital Design Supplement coming with our June 2021 issue for more tips, tricks, and ideas from architects, interior designers, and builders that you can borrow to implement in your future projects. Can’t wait? Visit dvm360.com for more on these winning hospitals and design advice from the pros. dvm360®

dvm360.com
University of Missouri veterinary school receives record gift

A university alumnus and his wife have donated $11 million to establish an imaging center at the veterinary college.

By dvm360® Staff

The University of Missouri (MU) has announced its largest endowment to date. MU alumnus Glenn Linnerson, DVM, and his wife, Nancy Linnerson, donated $11 million to the College of Veterinary Medicine to establish the Dr. Glenn R. and Nancy A. Linnerson Imaging Center, the intent of which is to further comparative and translational medicine research at the university.

“Together with the MU Research Reactor and the upcoming NextGen Precision Health Building, these facilities will help accelerate new pharmaceuticals and biomedical devices to improve patient care,” says MU President Mun Choi in a university press release. “Mizzou is home to world-class medical imaging resources, and now, with this gift, we can honor the Linnerson’s legacy by taking our research to the next level.”

The Linnersons shared a mutual passion for comparative and translational medicine, with a special focus in prostate cancer and comparative oncology. According to Carolyn J. Henry, dean of the MU College of Veterinary Medicine, she and Mrs Linnerson spent much time discussing how this contribution will benefit not only veterinary medicine but also biomedical discoveries for both animals and humans.

“The Linnerson Imaging Center will do just that by equipping the College of Veterinary Medicine to play an essential role in translational medicine at MU and beyond. We are so grateful to the Linnersons and this estate gift, which is the single largest gift our college has ever received,” Henry says.

Both Linnersons are MU graduates, with Dr Linnerson earning his DVM and Mrs Linnerson earning a degree in human environmental sciences. They met at the university and remained connected to their alma mater throughout their lives. Dr Linnerson died in 2014 and Mrs Linnerson in 2018.

“Estate gifts such as the one so generously provided by the Linnersons help ensure that our faculty and students have the tools they need to conduct groundbreaking and innovative research for generations to come,” says Jackie Lewis, vice chancellor for advancement at MU. “Their legacy will only grow with every breakthrough and every life saved because of the work done at the Linnerson Imaging Center.”

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

<table>
<thead>
<tr>
<th>Treatment Group</th>
<th>Afoxolaner</th>
<th>Oral active control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vomiting</td>
<td>17</td>
<td>4.1</td>
</tr>
<tr>
<td>Dry/Frizzy Skin</td>
<td>13</td>
<td>3.1</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>13</td>
<td>3.1</td>
</tr>
<tr>
<td>Lethargy</td>
<td>7</td>
<td>1.7</td>
</tr>
<tr>
<td>Anorexia</td>
<td>5</td>
<td>1.2</td>
</tr>
</tbody>
</table>

1 Number of dogs in the afoxolaner treatment group with the identified abnormality.

2 Number of dogs in the control group with the identified abnormality.

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

**Post-Approval Experience (July 2018):** The following adverse events are based on post-approval adverse drug experience reporting. Not all adverse events are reported to FDA/CVM. It is not always possible to reliably estimate the adverse event frequency or establish a causal relationship to product exposure using these data.

The following adverse events reported for dogs are listed in decreasing order of reporting frequency for NexGard: Vomiting, pruritus, lethargy, diarrhea (with and without blood), anorexia, seizure, hyperactivity/ restlessness, panting, erythema, ataxia, dermatitis (including rash, papules), allergic reactions (including hives, swelling), and tremors.

**Effectiveness:** See full product insert for details regarding Effectiveness.

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

In a well-controlled field study, no adverse reactions were observed from the concomitant use of NexGard with other medications.

**Contact Information:** For a copy of the Safety Data Sheet (SDS) or to report suspected adverse drug events, contact Boehringer Ingelheim Animal Health USA Inc. at 1-888-637-4251. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or www.fda.gov/REPORTANIMALDRUG. The information provided here is not comprehensive. The full FDA-approved product insert is available at www.nexgardfordogs.com. Consult your veterinarian for further information.

Product approved by FDA under NADA # 141-406

Marketed by: Frontline Vet Labs™, a Division of Boehringer Ingelheim Animal Health USA Inc. Duluth, GA 30096

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Reference package insert: 1050-4493-09 Rev. 11/2019

Brief summary preparation date: 08/2020

US-PET-0735-2020
Fundamental shifts in consumer behavior: What’s next?

Economic trends propelled by the pandemic have placed veterinary practices in a good position for success, but now is not the time for complacency.

By Matthew Salois, PhD

Consumer behavior looks vastly different today than it did before the start of the coronavirus disease 2019 (COVID-19) pandemic. Although we can’t be certain how long these changes will last—or whether they are here to stay—the success of veterinary practices hinges on our ability to continue evaluating and adapting our business models to meet shifting consumer needs. Fortunately, we have data that help us understand how our economy has changed during the pandemic and how the changes have driven client needs and preferences.

Slow recovery across the board
Consumer spending is slowly rising across the nation, spurred by the distribution of stimulus payments from the federal government and progress in COVID-19 vaccinations. Still, consumer habits remain volatile. Foot traffic has dropped dramatically since the onset of the pandemic. There is positive movement toward recovery, but we have yet to reach pre-pandemic levels. Consumer confidence also took a big hit over a short period of time, and economists expect a slow recovery.

As of January 2021, employment rates were 7.2% lower than a year earlier, and the divide between high- and low-wage workers continues to grow. In terms of revenue impacts, small businesses are hurting the most, with revenue 30% lower than pre-pandemic levels on average.

Faster upswing in veterinary medicine
The veterinary profession has reason to be cautiously optimistic. At the start of the pandemic, practice revenue dipped 20% (year over year) nationwide. That returned to positive revenue growth nationwide in early May 2020, although not all areas and practices saw the same results. Currently, practice revenue nationally is higher than it was before COVID-19, thanks to a variety of factors. These include new pet adoptions, a surge in pent-up demand after early lockdowns, new disposable income from stimulus payments, and closer attention being paid to pets by owners spending more time at home.

Fundamental consumer shifts
- Heightened sense of value and frugality
- Flight to digital and omnichannel
- Willingness to switch to brand loyalty
- A homebody economy
More AVMA resources to help

- Profit-loss calculator: avma.org/resources-tools/practice-management/veterinary-profit-and-loss-calculator
- Market share estimator: avma.org/resources-tools/veterinary-economics/market-share-estimator
- Veterinary workforce dashboard: avma.org/resources-tools/veterinary-economics/veterinary-workforce-model-data-prepare-future
- Pricing strategy for practices: avma.org/resources-tools/practice-management/pricing-strategy-veterinary-practices

Fundamental consumer shifts and how to harness them

Changes to our economy are driving a new consumer paradigm, embodied in 4 fundamental shifts in behavior, according to a recent report by McKinsey & Company.1

Heightened sense of value and frugality

Four in 10 Americans believe their finances will not return to normal before the latter half of 2021 or 2022. The same proportion say they’re being more mindful of how they spend their money and focusing on essentials. Price isn’t the only factor for veterinary clients, or even the most important one, when it comes to patient care. But affordability is a top priority, and we must be able to offer competitive prices on the products our clients are looking for. At the same time, it’s more important than ever to communicate to clients the full, tangible value of the services we provide, especially wellness care.

Flight to digital and omnichannel

Consumers continue to shift to online shopping across the categories, and veterinary medicine is no exception. Here’s something to consider: Although overall consumer spending has fallen during the pandemic, e-commerce expenditures have grown at epic rates. Practices need an online presence beyond the business webpage. If you haven’t already adopted a digital platform to sell and provide home delivery of medications, food, and other products, that could be a good place to start. Also consider ramping up digital communication, including email and social media, because that’s where consumers are spending an increasing amount of their time.

Willingness to switch to brand loyalty

With continued pressure on income, consumers are trying out new brands and channels. Primarily, they’re looking for convenience and better value, and they’ll try any number of companies to find the best option at any given moment.

Here, forward thinking and creativity are key. We have to be adaptable, flexible, and agile. Customer loyalty is no longer a certainty, so we must stay highly attuned to our clients’ wants and needs (value and convenience). This is especially important as we focus on cultivating the types of authentic relationships that lead to client retention and growth.

Establishing a homebody economy

The majority of people have not resumed “normal” out-of-home activities, and the home has been recast as the new office, school, and coffee shop. The lines are blurred between labor, leisure, and learning, and will remain so for some time.

We must rethink how and where we connect with clients and provide patient care. We could be bouncing between periods of lockdown and transition for the next 6 to 24 months. How our clients experience veterinary care during this time is going to have a lasting impact.

Keeping a pulse on practice trends

Being attuned to economic changes is vital for practices to make informed business decisions and stay competitive. Practice owners and managers who keep an eye on economic indicators beyond their own practice can get a leg up, spotting trends and patterns that provide foresight into what might be coming next.

This is an area where you can lean on the American Veterinary Medical Association (AVMA) for help. The practice management tools on our website include interactive dashboards with veterinary benchmark and tracking data, and you can sign up to have a practical summary of those trends sent to your inbox every month.

One example is the new Veterinary Industry Tracker (avma.org/IndustryTracker), an interactive dashboard that provides 24/7 access for practice owners to monitor business activity across the profession and get benchmarks for comparison with their own practices. Collecting data from thousands of veterinary practices nationwide, the tracker shows revenue and visits per practice, year-over-year comparisons, service and product revenues, and much more, all updated daily. The tool is a result of a partnership between AVMA and VetSuccess.

Practice Pulse, AVMA’s free monthly newsletter, puts the data to practical use, providing actionable tips and advice to guide veterinary decision-making and support business strategy. Subscribe on the economics section of the AVMA website (avma.org/VeterinaryEconomics).

Matthew Salois, PhD, is the director of the American Veterinary Medical Association Economics Division.

REFERENCE

Cats: From darling to doormat and back again

Cats come with caveats, both real and misconceived. But a new generation of pet owners seems determined to understand cats—and enrich their lives like never before.

By Joan Capuzzi, VMD

The most popular pet in America doesn’t bark. It purrs.

Cats outnumber dogs in the United States by about 5 million, yet cats are killed in shelters at a rate 30% higher than dogs. Herein lies the feline paradox.

When it comes to cats, history is rife with contradictions. Cats were revered by ancient Egyptians, who believed them to be magical creatures. But they were viewed as agents of the devil at various junctures throughout time. In the 14th century, cats were exterminated on a mass scale due to misplaced blame that they brought bubonic plague.

“We love ’em and we hate ’em,” said radio show host, blogger, and animal behavior expert Steve Dale, CABC, during a recent Fetch dvm360® virtual conference session. Dale was copresenting with Michael Lappin, DVM, PhD, DACVIM, a professor and director of the Center for Companion Animal Studies at Colorado State University College of Veterinary Medicine and Biomedical Sciences.

Bye bye, kitty

So why do more than 3 million cats end up in US shelters each year? Ignoring their fecundity and their ability to live—and breed—individually, the top reasons, according to the National Council on Pet Population Study and Policy, involve owner relocation, landlords, household pet overabundance, maintenance costs, human health risks, and house soiling.

Litter box issues are on the rise today, Lappin said. This increase coincides with people keeping their cats inside. In 2006, almost 40% of pet cats were given access to the outdoors. Today, this number is just 25%.

The fallout for many shut-in cats is anxiety and sometimes litter box aversion.

Lappin pointed out that about half of shelter cats are relinquished due to physical issues that could have been managed medically. One such culprit are uroliths, commonly found in cats given up for inappropriate urination. There is an easy fix, but it often goes unaddressed because of the assumption that these cats are urinating outside the litter box due to behavioral issues that support surrender rather than a trip to the veterinarian.

For a number of reasons, many cats are denied medical evaluations. First, Dale said, almost 60% of owners report that their cats hate going to the vet. Often, it’s difficult to even load them into the carrier. Other factors include sticker shock associated with veterinary visits, relying on Dr Google, and the misperception that cats are self-sufficient and don’t require medical care.

Cats are also relinquished when household members are allergic to them. All cats produce a large, highly allergenic protein called Fel d 1. Produced in the salivary and sebaceous glands, Fel d 1 is transferred to the cat’s hair and skin during grooming and then dispersed into the environment via hair and dander. Although human reactions to Fel d 1 are not uncommon, the feline protein is often the default scapegoat.

An allergy in a family member, even if it’s not proven to be from the cat, is often assumed to be from the cat,” Lappin said.

Recently, Purina Institute scientists found an anti-Fel d 1 antibody (IgY) that blocks Fel d 1 sites and neutralizes the allergen. Cats fed a diet (now available commercially) that included an egg product containing IgY experienced a 47% reduction in active Fel d 1 on the hair coat. Reducing the allergen load in the environment is one way for allergy sufferers to live healthily with cats.

But allergy is hardly the only health risk that people associate with cats. Owners fear a variety of zoonoses that can jump between cats and people either directly (ie, from bites, scratches, or cutaneous/respiratory/fecal-oral exposure) or indirectly, through shared vectors, fomites, and the environment. These include toxoplasmosis, bartonellosis, tick-borne diseases, ringworm, and fungal respiratory infections. “If they’re sick, have vomiting, diarrhea, coughing, sneezing, or pus dripping from a body part, we should think about zoonoses,” Lappin said.

He also addressed the possibility that coronavirus disease 2019 (COVID-19) might cross-contaminate cats and people. He explained that even though humans might transmit COVID-19 to their cats, infected cats would likely shed the virus for only a short period of time. Because COVID-19 in animals (and people) is not completely understood at this time, however, conclusions cannot yet be made.

What we do know for sure is that, with feline preventive care and hand washing, people are unlikely to develop zoonotic diseases from their
cats, and needn’t relinquish them because of this. “Healthy pets without ectoparasites aren’t considered much of a risk to humans,” he said.

Being scratched by a cat is unpleasant, and another big reason people shed their cats. A greater risk to children, seniors, and immunocompromised people, cat scratches can be dialed back when owners shield cats from anxiety-provoking situations and provide them with environmental enrichment. This might be particularly crucial for cats that are not allowed to go outside and engage in the natural behaviors that generally keep them calm and content.

Many owners respond to scratching cats by declawing them, a practice Lappin discourages. He notes that the Centers for Disease Control and Prevention (CDC) does not recommend declawing because declawed cats are more likely to turn to biting.5

Lappin also cited ethical issues with declawing: “Cats don’t have a vote in this. If they had a vote, I don’t think they would say, ‘Take these off.’”

The pendulum swings back
Fortunately, Dale said, there’s a new generation of cat owners—millenials—who seem more invested than their predecessors in unrolling the feline mind. This younger demographic group is challenging the conventional wisdom that cats are antisocial and purely self-caring. “Millenials care about the emotional health of their pets more than any generation ever,” he said.

Surveys show that millenials overwhelmingly believe cats provide companionship and bring the family closer together. Over half of them view their cats “like a child.”6 Millenials are more likely to sleep in bed with their cats, bring them to the groomer, enroll them in kitten classes, purchase cat toys and scratching posts for them, engage them in mental enrichment, follow trending information on pet foods, and take them to the veterinarian regularly.

Nearly 80% of millenial cat owners report a favorable view of their veterinarian if the visits address the health benefits of the human-animal bond. Also, they increasingly seek cat-friendly practices and those that incorporate Fear Free standards.

The coronavirus effect
Cats are partly to thank for the use of the drug remdesivir against severe acute respiratory syndrome coronavirus 2, the virus that causes coronavirus disease 2019 (COVID-19). Gilead Sciences developed the compound years ago in a failed effort to treat hepatitis C and, later, Ebola virus disease.

They later collaborated with investigators from the University of California, Davis, and the Winn Feline Foundation (now EveryCat Health Foundation) to show that their related compound, GS-441524, was effective against feline enteric coronavirus, which causes feline infectious peritonitis. When the pandemic hit, these and other data establishing the efficacy of remdesivir against other human coronaviruses prodded efforts to weaponize it against COVID-19.

Cats have cut many deals with humans over time, first offering up their mouse-killing services in grain stores along the Nile, then furnishing vermin control on ancient maritime trade routes, and later delivering understated companionship even while modeling viruses.

Domestic cats have changed little for better or worse. Long gone are their 9000-year legacy in human history, for their natural form. Despite their largely due to an elevated appreciation for their natural form. Despite their 9000-year legacy in human history, cats remain de facto wild animals, for better or worse. Long gone are their days of being mumified and represented in temple murals and bronze statues, but cats are achieving a modern resurgence as sacred.

Joan Capuzzi, VMD, is a small animal veterinarian and journalist based in the Philadelphia area.

REFERENCES
3. American Association of Feline Practitioners, Bayer Animal Health, Brakke Consulting. Bayer Veterinary Care

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Presentation approved by AAVSB in jurisdictions that recognize RACE approval

Speaker: Jan Woods, a previous practice owner

Learning Objectives:
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• Meet opioid continuing education requirements
• Discuss ways to stay compliant with controlled substance regulations
• Simplify and improve recordkeeping/inventory controls
• Recognize staff and client addiction as well as theft behaviors
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BRAVECTO 1-MONTH Chews are not effective against A. americanum in puppies less than 6 months of age.

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For complete product information, refer to the product insert on page 20.

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With the introduction of BRAVECTO® 1-MONTH Chews, BRAVECTO will now be able to protect dogs across all life stages.

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For complete product information, refer to the product insert on page 20.

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

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

Indications:
Bravecto 1-Month kills adult fleas and is indicated for the treatment and prevention of flea infestations (Ctenocephalides felis) and the treatment and control of tick infestations (Ixodes scapularis (black-legged tick), Dermacentor variabilis (American dog tick), and Amblyomma americanum (brown dog tick)) for one month in dogs and puppies 8 weeks of age and older, and weighing 4.4 pounds or greater.

Bravecto 1-Month is also indicated for the treatment and control of Amblyomma americanum (lone star tick) infestations for one month in dogs and puppies 6 months of age and older, and weighing 4.4 pounds or greater.

Contraindications:
There are no known contraindications for the use of this product.

WARNINGS

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

Keep Bravecto 1-Month in a secure location out of reach of dogs, cats, and other animals to prevent accidental ingestion or overdose.

Precautions:
Fluralaner is a member of the isoxazoline class. This class has been associated with neurologic adverse reactions including tremors, ataxia, and seizures. Seizures have been reported in dogs receiving isoxazoline class drugs, even in dogs without a history of seizures. Use with caution in dogs with a history of seizures or neurologic disorders.

Bravecto 1-Month is not effective against A. aneurinum in puppies less than 6 months of age.

The safety of Bravecto 1-Month has not been evaluated in breeding, pregnant and lactating dogs.

Adverse Reactions:
In a well-controlled U.S. field study, which included 271 dogs (201 dogs were administered Bravecto 1-Month every 30 days and 70 dogs were administered an oral active control [an oxacitoline] every 30 days), there were no serious adverse reactions associated with treatment. Over the 90 day study period, all observations of potential adverse reactions were recorded. Adverse Reactions in the Field Study

<table>
<thead>
<tr>
<th>Adverse Reaction (AR)</th>
<th>Fluralaner Group (Percent of Dogs with the AR During the 90-Day Study (n=201 Dogs))</th>
<th>Active Control Group (Percent of Dogs with the AR During the 90-Day Study (n=70 Dogs))</th>
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</thead>
<tbody>
<tr>
<td>Pruritus</td>
<td>7.0%</td>
<td>10.0%</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>3.0%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Vomiting</td>
<td>3.0%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Decreased Appetite</td>
<td>0.0%</td>
<td>0.0%</td>
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<td>Liver enzymes (ALT or ALP) greater than the upper reference range*</td>
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<td>1.4%</td>
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<tr>
<td>Lethargy</td>
<td>1.0%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Weight loss (&gt;15%)</td>
<td>0.5%</td>
<td>0.0%</td>
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</table>

*Upper reference range

One dog in the Bravecto 1-Month group with a history of seizures managed with anticonvulsant medication had seizure activity 28 days after its first dose; the dog received its second dose the same day. No additional seizures occurred during the study. One dog in the control group with no history of seizures had seizure activity 12 days after its second dose. The dog was started on anticonvulsant medication and no additional seizures occurred during the study.

Dogs with Adverse Reactions in the Field Study

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

Post-Approval Experience (2019):
The following adverse events are based on post-approval adverse drug experience reporting for fluralaner. Not all adverse events are reported to FDA/CVM. It is not always possible to reliably estimate the adverse event frequency or establish a causal relationship to product exposure using these data.

The following adverse events reported for dogs are listed in decreasing order of reporting frequency: vomiting, lethargy, diarrhea (with or without blood), anorexia, pruritus, polydipsia, seizure, allergic reactions (including hives, swelling, erythema), dermatitis (including crusts, pustules, rash), tremors and ataxia.

Contact Information:
To report suspected adverse events, for technical assistance or to obtain a copy of the Safety Data Sheet (SDS), contact Merck Animal Health at 1-888-224-5318. Additional information can be found at www.bravecto.com. For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-METS or at http://www.fda.gov/reportanimalae.

How Supplied:
Bravecto 1-Month is available in five strengths for use in dogs (112.5, 250, 500, 1000, and 1400 mg fluralaner per chew). Each chew is packaged individually into aluminum foil blister packs sealed with a peelable paper backed foil lid stock. Product may be packaged in 1, 3, or 4 chews per package.

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Rev. 03/20

Approved by FDA under NADA # 141-426
AAFP releases feline hypertension toolkit

This new digital resource will help veterinary professionals access and gather vital information quickly.

By dvm360® Staff

The American Association of Feline Practitioners (AAFP) has announced the publication of a digital hypertension educational toolkit to help veterinary professionals diagnose and treat systemic arterial hypertension in cats. Sponsored by Boehringer Ingelheim, the toolkit emphasizes the importance of checking blood pressure routinely to aid in tracking trends and detecting hypertension in cats early.

“Assessing blood pressure in the feline species is an important part of feline preventive care, yet it is uncommon for practices to routinely perform this test,” says Kelly St. Denis, MSc, DVM, DABVP (Feline), chair of the task force that created the guidelines, in an association press release. “This toolkit provides a quick, go-to reference that will help veterinary professionals overcome the difficulties and obstacles associated with assessing blood pressure in cats.”

When cats have high blood pressure, a lack of accompanying clinical signs often makes diagnosis difficult. While the toolkit encourages using the information provided on all feline patients, cats aged 10 years and older are at higher risk for hypertension and should be monitored more frequently than younger cats.

The toolkit provides tips for successful blood pressure management, including cuff selection and placement, recommendations for taking blood pressure measurements, and the equipment and environment. Each page also has an associated printable PDF that you can use in your practice. A new Blood Pressure Assessment Form is available to download for recording results and other necessary information. Tabbed sections on clinical signs of hypertension, treatment, classifications, frequently asked questions, client resources, and more make the toolkit easy to navigate.

“With its user-friendly format, veterinary professionals can quickly learn how to perform a Cat-Friendly blood pressure assessment, how to interpret the numbers, and how to treat hypertensive cats,” says St. Denis. Visit catvets.com/hypertension-toolkit to download the toolkit.

AAHA, AAFP release updated Feline Life Stage Guidelines

The guidelines outline lifetime care and cat-friendly approaches to improve feline health and well-being.

By dvm360® Staff

The American Animal Hospital Association (AAHA) and American Association of Feline Practitioners (AAFP) have updated their guidelines on feline health care. Authored by a task force of feline medicine experts, the 2021 AAHA/AAFP Feline Life Stage Guidelines define the feline life stages and provide a framework for tailoring treatment plans for individual cats.

The guidelines were first published in 2010. To create a tailored health care strategy, veterinarians must understand the feline life stages. The updated guidelines reflect this responsibility by including a detailed evolution of feline physiology over time, noting that approaches to health care are quite different for kittens than for senior cats. The updated guidelines include 5 age-related life stages—instead of the previous 6—and note that the end-of-life stage may occur at any age:

- **Kitten**: Birth up to 1 year
- **Young adult**: 1 to 6 years
- **Mature adult**: 7 to 10 years
- **Senior**: >10 years
- **End-of-life**: Any age

Recommendations are included for managing the most critical health-related factors related to specific life stages.

“All cats of every life stage need full, thorough physical examinations at least annually for the best lifelong care; and we recommend checkups every 6 months for senior cats,” says Heather Loenser, DVM, AAHA chief medical officer, in an association press release. “The guidelines provide discussion items and medical history questions for all life stages, as well as life stage-specific focal points for physical examinations, claw care, litter box management, nutrition, behavior, oral health, parasite control, and vaccinations.”

Additionally, the guidelines include educational client resources, including a brochure and chart that explain the feline life stages. Also included are quick reference tables and a Feline Lifestyle Assessment Form to aid veterinary teams in gathering a thorough history more efficiently.

“Because one of the most challenging aspects of delivering regular feline health care is that many cat owners don’t bring their cat in regularly, the guidelines also include practical strategies for encouraging more feline veterinary visits. Boehringer Ingelheim, CareCredit, Dechra Veterinary Products, Idexx Laboratories, Merck Animal Health, and Zoetis Petcare supported the development of the new guidelines through an educational grant to AAHA.”

To create a tailored health care strategy, veterinarians must understand the feline life stages.
Elanco defends Seresto safety
By Maureen McKinney, Associate Editorial Director

Last month, a report by USA Today in conjunction with the Midwest Center for Investigative Reporting alleged that Seresto flea and tick collars (developed by Bayer and now owned by Elanco) have caused nearly 1700 pet deaths and tens of thousands of injuries to animals as well as hundreds of incidents of "harm" in humans. The company was subsequently asked by Raja Krishnamoorthi, chairman of the US House of Representatives subcommittee, to remove the product from the market temporarily. Elanco has refused, reiterating that it "stands behind the safety data of Seresto generated for its registration and monitored via postmarketing surveillance," according to a company press release.

"Thorough investigation of available data has shown no established link between exposure to the active ingredients in Seresto and pet deaths," says Tony Rumschlag, DVM, senior director for technical consultants at Elanco, in a company press release. "Taking drastic action such as a recall results in unjustified worry and confusion that may increase pet exposure to disease-carrying parasites like fleas and ticks." According to the release, all data and scientific evaluation used during the Seresto product registration process and through Elanco’s robust pharmacovigilance review support the product’s safety and efficacy. No regulatory agency has requested a recall, and the product remains available to consumers around the world for flea and tick prevention.

Elanco spokesperson Keri McGrath tells dvm360® that providing quality products for pets and the people who love them is Elanco’s highest priority. “We work tirelessly to ensure that pet owners and veterinarians have access to proven, regulated technology to repel and kill fleas and ticks that transmit disease and can impact a pet’s quality of life,” she says. “We are also working tirelessly to ensure consumers receive accurate information on Seresto, based on robust scientific data from trusted sources such as veterinarians and the news outlets they rely on, like dvm360®.”

The company reports that Seresto collars have been used on more than 25 million pets since 2012, with a US adverse event incident rate below 0.3%. The significant majority of these incidents have been nonserious, such as dermatologic application site issues.

As the collars are a globally distributed product, Seresto's safety data were reviewed rigorously over the course of their development prior to registration by more than 80 regulatory authorities around the world, including the Environmental Protection Agency (EPA). Importantly, as regulated by the EPA, Seresto remains available on the market.

Elanco is cooperating with the subcommittee’s request and looks forward to explaining how the media reports on this topic have been widely refuted by toxicologists and veterinarians, who note that correlation does not necessarily mean causation in the incident reports and that counterfeit collars purchased by consumers may be a complicating factor.

“Thematic analysis of raw data and cannot be used to draw conclusions on what may have actually caused the issues. It is critically important to understand that a report is not an indication of cause,” says Rumschlag. “If a dog were to be wearing a collar and experienced any sort of health issue, the collar would be mentioned in the resulting report as required, even if the collar was very obviously not the source of the issue. In most cases, further investigation and assessment are required to determine cause, often a veterinary exam, laboratory diagnostics, or necropsy, as appropriate. Data are continuously monitored for signals or trends.”

Elanco takes the safety of its products seriously and has policies to ensure that concerns related to their use are investigated and addressed as appropriate. As with all of its products, Elanco says it will continue to take actions to achieve the highest levels of safety and efficacy for Seresto.

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BI introduces Pawru for tech-enabled collaborative pet care
By dvm360® Staff

Boehringer Ingelheim (BI) Animal Health USA Inc has announced the launch of Pawru, Inc as a separate entity within the company’s animal health business. Pawru encompasses and expands BI’s digital collaboration animal health care platform, currently known as PetPro Connect, which was expanded in March 2020 to meet the sudden demand for telemedicine created by pandemic-related social distancing requirements and now serves more than 1.3 million pets. All PetPro Connect branding will transition to Pawru branding.

According to a company press release, Pawru has its origins at BI X, an independent subsidiary the company created in 2017 to incubate ideas for digital innovation in health care. Key features of the platform include appointment scheduling, messaging, prescription refills, health records, rebates, telemedicine, pet health care content, and loyalty programs. With a large majority of pet owners representing millennials and Generation Z, the app is ideal for digital natives and first-time pet parents. The company will also explore strategic partners to expand its commercial offerings.

“Since expanding PetPro Connect to the entire United States less than a year ago, we have gained incredible insight into the opportunities for advancing pet health and wellness using innovative digital technologies,” says Heath Wilkes, head of us digital health at BI Animal Health. “We are excited to deliver additional offerings as Pawru—a name that brings together a connected community to deliver friendly, engaging, and valuable digital health services for all who care for pets.”

Randolph Legg, president and head of commercial business at BI Animal Health, concurs. “The evolving trends in pet health care and the experience of caring for animals during a pandemic have accentuated the importance and value of convenient and collaborative veterinary care for pets,” he says. “By establishing Pawru, we are creating a clear path to deliver future digital innovation and growth to benefit our animal health customers and partners.”

To learn more, visit pawru.com.
The Bridge Club names 2 key new players in anticipation of growth

Greg Geckles will play a vital role in increasing company growth and enhancing engagement, and Amanda Landis-Hanna, DVM, will work closely with 2 of the organization’s key audiences.

By dvm360° Staff

The Bridge Club (TBC), the video-based community that invites veterinary professionals to come together for only 25 minutes to engage with one another about important industry topics, has welcomed Greg Geckles as chief operating officer and Amanda Landis-Hanna, DVM, as vice president of veterinary and animal welfare outreach.

Geckles, whose extensive resume includes more than 20 years of industry experience, most recently as the senior consultant of product development at Nationwide, began overseeing the operations of TBC and TBC Pets in January.

“I’m excited to be a part of The Bridge Club and honored to build on its history of serving the veterinary profession and pet owners,” says Geckles in a company release. “Our unique ability to provide the virtual networking that drives partnerships and to engage pet owners with conversational education positions us to deliver great value to our audiences, sponsors, and partners.”

In her new role, Landis-Hanna will work closely with TBC Students, a new division dedicated to helping veterinary students engage in the industry and build networks. She will also work to give animal welfare organizations access to TBC Pets, a forum for educational conversations between veterinary professionals and pet owners that give real-time answers to questions about pet nutrition, wellness care, behavior, and life-stage needs.

Landis-Hanna has nearly 20 years of experience in small animal and exotic medicine, as well as shelter and relief medicine, in both corporate and private practices. Prior to joining TBC, she served for nearly 4 years as senior manager of veterinary outreach for PetSmart Charities.

“I am delighted to be working with The Bridge Club team to increase visibility to veterinary schools and animal welfare organizations,” Landis-Hanna told dvm360°. “The Bridge Club provides high-quality education in a convenient, quick format.”

“Greg and Amanda will play a critical role in the next stage of growth,” says Catherine Haskins, TBC’s founder and CEO. “Greg’s insights and ability to operationalize our mission will enable us to engage more professionals in conversations that are important to propel the profession forward and to elevate the role of the entire veterinary medical team among pet owners. And Amanda has been fortunate to experience all sides of veterinary medicine. She will be an amazing mentor and facilitator for our students and further connect new pet owners with the education they desperately need.”

Veterinary Emergency Group appoints chief veterinary nursing officer

Congratulations to Ken Yagi, MS, RVT, VTS (ECC, SAIM), on being named to this unique position for veterinary technicians.

By dvm360° Staff

The Veterinary Emergency Group (VEG)—a family of 20 emergency veterinary hospitals currently located in 7 states—has named industry leader Kenichiro Yagi, MS, RVT, VTS (ECC, SAIM), as its first chief veterinary nursing officer. According to an association press release, Yagi’s responsibilities will include developing fulfilling career pathways in veterinary nursing, raising nursing care standards and competency, enhancing team dynamics that celebrate autonomous nursing practice, and being a voice for the profession.

“This newly created position...is the first of its kind within the US veterinary industry,” says David Bessler, DVM, founder and CEO of VEG. “This appointment and Ken’s new role reflect the VEG mindset that nurses and technicians are professionals [who] contribute as equals, specializing in the practice of nursing care.”

Yagi wields veterinary technician specialist certifications in emergency and critical care as well as small animal internal medicine, and he holds a master’s degree in veterinary science. He currently serves as program director for the Reassessment Campaign on Veterinary Resuscitation (RECOVER) initiative, a global effort to standardize how veterinary CPR is performed around the world. He also serves on the boards for various veterinary organizations and is an international speaker, author, and advocate for emergency care and the veterinary technician profession.

In 2016, Yagi received both the NAVTA Veterinary Technician of the Year award and the California Veterinary Medical Association Outstanding RVT of the Year award. A year later, he also received RVT of the Year honors from the California Registered Veterinary Technicians Association.

“During my 20 years in the field, I have continued to promote compassionate and progressive care for my patients and their families,” says Yagi. “I’ve found the place to continue challenging the norm, starting with putting veterinary technicians and nurses in decision-making seats at every level. I look forward to reshaping the world of veterinary medicine alongside VEG.”

The right digital x-ray system will save you time, increase profits, and show clients you are a leader in the veterinary field.

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Bravo Packing, Inc. expands pet food recall
This marks the third recall by the company in 3 years for the same problem.

By dvm360® Staff

In early March, New Jersey–based pet food manufacturer Bravo Packing, Inc. announced a recall of its frozen raw pet foods Ground Beef and Performance Dog after samples collected during an FDA inspection tested positive for Salmonella and Listeria monocytogenes. This week, the FDA announced that the company has expanded its voluntary recall due to potential cross-contamination at the facility. The company’s recalled products now include all pet food and bones in all package sizes.

This is not the first time pet food products manufactured by Bravo Packing have tested positive for these pathogens. The company issued recalls for Performance Dog in September 2018 and again in September 2019. In March 2020, the FDA sent the company a warning letter detailing various violations at the facility. In 2016, horse meat chunk animal food samples collected from the facility by the FDA tested positive for pentobarbital and phenytoin. The following products are part of the current recall:

- Performance Dog (chub) frozen raw dog food: 2- and 5-lb packages
- Green Tripe (chub; ground bovine stomach) frozen raw dog food: 2- and 5-lb packages
- Beef (chub; ground) frozen raw dog food: 2- and 5-lb packages
- Performance Dog (patties) frozen raw dog food: Size unknown
- Tripe (patties ¼ lb) frozen raw dog food: Size unknown
- Bones (smoked; 14 varieties: Size unknown
- Performance Dog (chub) frozen raw dog food: Size unknown
- Tripe (patties ¼ lb) frozen raw dog food: Size unknown
- Bones (smoked; 14 varieties: Size unknown
- Performance Dog (chub) frozen raw dog food: Size unknown
- Tripe (patties ¼ lb) frozen raw dog food: Size unknown
- Bones (smoked; 14 varieties: Size unknown

Salmonella can cause illness both in pets that ingest contaminated food as well as their owners who handle products, pets, or surfaces exposed to the bacteria. Clinical signs of Salmonella infection in pets may include lethargy, diarrhea/bloody diarrhea, fever, vomiting, decreased appetite, fever, or abdominal pain. Asymptomatic infected pets can shed the virus through saliva and feces. Signs and symptoms of Salmonella infection in people include nausea, vomiting, diarrhea/bloody diarrhea, and fever. Rarer effects may include arterial infections, muscle pain, urinary tract symptoms, arthritis, eye irritation, and endocarditis.

Listeria monocytogenes can cause serious and sometimes fatal infections in young children, frail or elderly people, and individuals with a weakened immune system. Infections during pregnancy can lead to miscarriage, stillbirth, premature delivery, or life-threatening infection in the newborn. Symptoms can include headache, stiffness, confusion, loss of balance, convulsions, fever, abdominal pain, and muscle aches. Infection with L monocytogenes is uncommon in pets. Signs may include diarrhea; anorexia; fever; nervous, muscular, and respiratory signs; abortion; depression; shock; and death. As with Salmonella, pets infected with L monocytogenes can be asymptomatic and shed virus in their feces and saliva.

To date, no illnesses related to these products have been reported in either pets or people. Anyone who has the recalled products should cautiously discard them and wash their hands and any surfaces the product touched. For questions, contact Bravo Packing at 856-299-1044 (Monday–Friday, 9 am to 2 pm EDT).

Petriage issued industry-first patent for teletriage app
The Pet Symptom Analysis tool uses a cloud-based system to help clients determine the level of urgency of their pet’s clinical signs.

By dvm360® Staff

Bellevue, Washington–based B2B pet health technology company Petriage has received an industry-first patent from the US Patent and Trademark Office for its Pet Symptom Analysis tool, a teletriage app that uses artificial intelligence to help clients assess with greater than 97% accuracy whether their pets need urgent veterinary care. The app also allows owners to engage remotely with their veterinarian and make payments with ease.

“The pet symptom checker ‘thinks’ like a veterinarian reviewing a sick pet’s complaints,” says Petriage’s Chief Strategy Officer Allon Freiman, in a company release. “What’s more, with the machine learning component, Petriage continues to ‘learn’ and will have richer and richer data to draw upon with each additional use of the app.”

The patent protects the company’s technology and investments for 20 years from its priority date. It also covers all technology invented by Petriage cofounders and the principal product owner.

“This patent, Petriage’s first, underscores how our state-of-the-art technology is transforming vet clinics’ patient care, profitability, and productivity while improving the quality of life for vets and their staffs,” says CEO Joseph Coury. “We’re pleased that one of our core technologies has received patent protection, an important step as we continue to enhance our platform with new features.”

Petriage says it is also developing additional telehealth technology and services, including wearables and enhanced data analytics capabilities. To learn more about the Pet Symptom Analysis app, visit petriage.com.
Introducing the New PUREVAX® Half-mL Doses.
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Talk to your Boehringer Ingelheim Sales Representative today to learn more.
About 6 million domestic and feral cats live in Australia, and collectively they kill an incredible 1.7 billion native animals each year. Cats have played a major role in most of the nation’s mammal extinctions—34 species have become extinct since Europeans arrived in Australia with their cats more than 200 years ago—and they continue to pose an extinction threat to at least another 120 species.

These startling figures are a sobering reminder of what Australia has the worst mammal extinction record of any country in the world. To mitigate the problem, the government recently released a parliamentary report, “Tackling the Feral Cat Pandemic: A Plan to Save Australian Wildlife,” which contains a raft of recommendations to counter the effect of cats on Australia’s unique wildlife.¹

The country’s House of Representatives Standing Committee on the Environment and Energy launched its inquiry into the problem of feral and domestic cats in 2020. The committee took submissions from over 200 individuals and organizations, and published a list of 6 key recommendations.

Key government guidance
The report’s recommendations include a call to prioritize the problem of feral cats in Australia as a matter of national environmental significance that must be addressed effectively to ensure the continued survival of native wildlife and ecological communities.¹

In addition, further research would improve our understanding of the impact of feral, stray, and domestic cats in Australia. Developing a clear strategy to inform our resourcing of and response to the problem of feral cats is also recommended, including a “reset” of current policy and planning.¹

Further, the report recommends a new national conservation mission to expand Australia’s network of predator-free safe-haven enclosures and feral cat–free islands. The final 2 recommendations relate to developing a clear strategy for managing stray and domestic cats and developing an effective governance framework to best enable the new strategies and programs outlined in the other recommendations.¹

Are the recommendations enough?
“The recommendations are welcome, although in some areas [they do] not go far enough, and there has not been any formal commitment to resourcing the recommendations,” says Sarah Legge, PhD, a professor in the College of Science at Australian National University and deputy director of the Threatened Species Recovery Hub of Australia’s National Environmental Science Program. “The report emphasizes the need to improve alignment of legislation and management across national, state, and local governments to support coordinated and consistent approaches to managing both feral cats and pet cats.”

Among the actions proposed, the report calls for nighttime curfews for Australia’s 3.8 million pet cats. Although this would alleviate some hunting of Australia’s mammals, which are largely nocturnal, it would not prevent the hunting of birds and reptiles, of which over 160 million are killed by pet cats each year. There are 2.1 million feral cats in Australia in an average year, with the number fluctuating in response to rainfall and prey. Each feral cat in the bush kills an average of 790 animals per year.

“The recommendation calling for the expansion of Australia’s network of cat- and fox-free islands and fenced reserves will be important to prevent extinctions. Many Australian mammals cannot survive with even very low numbers of cats in the landscape and need the protection of one of these cat-free havens,” says Legge.

Results from a multitude of research studies from different parts of Australia have demonstrated that areas with better habitats, particularly thicker ground and shrub vegetation, reduce cat numbers and cat hunting, resulting in an increase in native wildlife numbers.

“Climate change is increasing the frequency and intensity of wildfires that will have significant consequences for Australian wildlife. Cats gravitate to burnt landscapes due to the ease of hunting, so more fires will bring more challenges. It would have been good to see some commitment to improving habitat in conservation areas through better fire management and feral herbivore control, such as culling rabbits and feral cattle. In many areas this would be a more efficient and effective way to reduce the impact of cats on wildlife than just directly trying to cull cats,” Legge says.

Australia is not alone
As an ecologist who has been closely involved in research into the effects of cats on Australian wildlife for more than 20 years, Legge is keen to impart a recommendation of her own to veterinarians and the more than 25% of Australian households that include a pet cat.

“Cats have been particularly devastating in Australia, but they impose a heavy predation toll on wildlife in many other countries, and are likely causing population declines in some places. As the human and pet cat population grows, these pressures increase,” she says.

“Cats make fantastic pets, and we can keep enjoying their company whilst limiting their impacts on the natural world. Veterinarians can assist by encouraging cat owners to desex their cats and to keep them securely contained 24/7. This also has health benefits for cats as they are less likely to be involved in car accidents or cat fights, or to pick up diseases,” Legge concludes. ²

Phil Tucak, BVMS, BSc, is an Australian veterinarian, communications manager, and veterinary journalist. As the Wildlife Outreach Vet, he works to share the conversation about conservation. Visit philtucak.com.

REFERENCE

². Climate change is increasing the frequency and intensity of wildfires that will have significant consequences for Australian wildlife. Cats gravitate to burnt landscapes due to the ease of hunting, so more fires will bring more challenges. It would have been good to see some commitment to improving habitat in conservation areas through better fire management and feral herbivore control, such as culling rabbits and feral cattle. In many areas this would be a more efficient and effective way to reduce the impact of cats on wildlife than just directly trying to cull cats,” Legge says.
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RenalTech is the first predictive diagnostic tool in the veterinary industry. Using common serum and urine diagnostics, RenalTech can predict with 95% accuracy whether or not a cat will develop chronic kidney disease in the next 24 months—enabling veterinarians and pet owners to intervene early and affect positive patient outcomes.

To download the full study and learn more about RenalTech and how it drives feline visits
dvm360® announces 2021 veterinary student ambassadors

The goal of the Student Ambassador Program is to amplify communication between veterinary students and the industry.

By dvm360® Staff

dvm360® is excited to welcome 55 veterinary students from around the world to our Student Ambassador Program. This new program, led by 2020 graduates Trusten Moore, DVM, and Danny Sack, DVM, is designed to elevate student voices and foster networking opportunities. Ambassadors will be contributing to our platform through articles, video, and networking with other students and key opinion leaders.

“I wanted to help create a space where student voices could be heard in the profession. After all, [our] current veterinary students are the future of this profession,” says Moore. “Let’s uplift, encourage and help them succeed!”

At least 1 student representative from each AVMA-accredited veterinary school was selected by Moore and Sack and will be featured on dvm360.com and in dvm360® magazine. All ambassadors will also receive exposure on our social media platforms, complimentary admission to a dvm360® conference of their choice, and access to industry thought leaders.

This year’s student ambassadors and their colleges:

- Adinda Rana Fauziah: IPB University
- Aishwarya Chitnis: Purdue University
- Alissa Peura: University of Melbourne (Australia)
- Ambre Malabar: CEU Cardenal Herrera University (Valencia, Spain)
- Ashley Genetti: University of Edinburgh (Scotland)
- Ashley Hennequin: Lincoln Memorial University
- Ava McPhail: University of Glasgow (Scotland)
- Brian Gleaves: University of Tennessee
- Britney Kilgore: St. George’s University (Grenada, West Indies)
- Carolynne Ricardo: University of Glasgow (Scotland)
- Catherine Walsh: Ross University (Basseterre, Saint Kitts, and Nevis)
- Chris Hollingsworth: Virginia-Maryland College of Veterinary Medicine
- Christian Capobianco: North Carolina State University
- Courtney Babcock Borden: Kansas State University
- Dana Tsuchida: Oregon State University
- Danielle Lancer: University of Sydney (Australia)
- Dave Reinniel Catolico: Central Luzon State University (Science City of Muñoz, Nueva Ecija, Philippines)
- De’Shonna Jones: University of Missouri
- Gabby Rands: Mississippi State University
- Grant Gilbert: University of Pennsylvania
- Harris Fitzgerald: Tufts University
- Hayley Hunt: Iowa State University
- Ioli Tzavara: University of Forestry (Sofia, Bulgaria)
- Indira Rojas Rivera: Ross University (Basseterre, Saint Kitts, and Nevis)
- Jeffrey Lowenthal: University of California, Davis
- Jessica Hirsch: Tufts University
- Jessica Im: University of Georgia
- John Delgado: Tuskegee University
- Jove Jacob: Rajasthan University of Veterinary and Animal Sciences (Bikaner, India)
- Juancho Orjuela: University of Illinois
- Kayla Bergeon: University of Minnesota
- Kellie Purucker: Michigan State University
- Laci Taylor: Cornell University
- Lianne Mellin: University of Queensland (Australia)
- Mahima Gulati: Mumbai Veterinary College (India)
- Marizza Kachelhoffer: University of Pretoria (South Africa)
- Megan Kuhreiber: University College Dublin (Ireland)
- Mehal Punjabi: Mumbai Veterinary College (India)
- Michele Munkhaugen-Reyes: Auburn University
- Muskaan Gumber: Kerala Veterinary and Animal Sciences University (Thrissur, India)
- Nada Blagojevic: University of Adelaide (Roseworthy, Australia)
- Nia Powell: North Carolina State University
- Rachel Ellerd: Texas A&M University
- Rachel Schneider: St. Matthew’s University (Grand Cayman)
- Sara Beth Speziok: University of Florida
- Seyit Islam Yilmaz: Bursa Uludag University (Bursa, Turkey)
- Simone Spence: The Royal Veterinary College (London, England)
- Stacey Thomas: University of Arizona
- Sudesh Thapa: Agriculture and Forestry University (Bharatpur, Nepal)
- Swarangee Chavan: Mumbai Veterinary College (India)
- Thomas Kile: Washington State University
- Victor Piceno: Universidad Nacional Autónoma de México (Mexico City)
- Zaida Gomez: Long Island University

“We have an incredible, diverse group of motivated veterinary students from around the world,” says Sack. “I am so proud of our student ambassadors and excited to see the amazing content these students produce as members of our inaugural class of dvm360® student representatives!”

dvm360®’s chief medical officer, Adam Christman, DVM, MBA agrees: “We are beyond thrilled and ecstatic to have such a talented group of diverse and inclusive professionals that can truly help pave the way for veterinary medicine,” he says. “Our profession is that much brighter with these rising doctors in it. We can’t wait for them to share their stories, insight, and experiences in this wonderful world of veterinary medicine!”

New graduates (2020) Trusten Moore, DVM (left), and Danny Sack, DVM (right), lead the Student Ambassador program.
Hill’s Prescription Diet Derm Complete is our masterpiece. The only clinically tested nutrition for both food and environmental allergies (among leading brands in North America).

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Reduce licking, scratching, head shaking and skin redness in dogs with environmental allergies

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1. Manage itching in dogs with food and/or environmental allergies
2. Reduce licking, scratching, head shaking and skin redness in dogs with environmental allergies

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The sound of music in veterinary medicine

Certainly musical tones and melodies have proven to elicit calming responses in animals. Learn how music therapy can benefit your pets and patients.

By Amanda Carrozza

Is it time to prescribe Mozart? According to veterinary neurologist Susan O. Wagner, DVM, MS, DACVIM, an adjunct faculty member at The Ohio State University College of Veterinary Medicine in Columbus and coauthor of Through a Dog’s Ear: Using Sound to Improve the Health & Behavior of Your Canine Companion, the answer is a resounding yes. At a recent Fetch dvm360® virtual conference, Wagner presented evidence that suggests sound affects animals on a psychological level. She encouraged attendees to use particular genres of music to create a more relaxed experience for their patients.

Before delving into the specific benefits of music therapy, Wagner provided a brief overview of some basic tenets of sound measurements, noise toxicity, and the study of bioacoustics versus psychoacoustics.

Acoustic effects

At the most elementary level, sound is waves of energy that affect the nervous system. The 2 terms used to categorize sound are frequency, which is measured in Hertz (Hz), and intensity, which is measured in decibels (dB). Humans hear frequencies of 20 to 20,000 Hz, whereas dogs can hear frequencies between 40 and 45,000 Hz and cats up to 64,000 Hz.

Part of understanding how sound can positively impact a species involves recognizing its adverse effects, Wagner said. For reference, a normal conversation occurs at 50 dB and a lawn mower generally operates at 90 dB. Animal laboratories routinely reach noise levels of 80 dB, with human activity transiently increasing intensity by as much as 40 dB. Hearing damage occurs instantly at 100 dB (think standing next to a jet engine) or when exposed to 80 dB for longer than 15 minutes, which happens more often than one might think, she said. “Researchers have examined the effects of noise toxicity in animals, which expands beyond hearing damage,” she said.

For instance, a study published in Applied Animal Behaviour Science found that dogs exposed to sound blasts of 85 dB experienced increased heart rates and salivary cortisol levels.1 The noise also elicited postural signs of anxiety. Birth defects have been documented in mice and rats when the mother was exposed to noise pollution during pregnancy.2 Behavioral changes were also detected in their offspring.3

While there is decades-old research on the effect of noise on animals, Wagner said the study of sound in animals historically was categorized through bioacoustics. This places an emphasis on how animals communicate and the positive and negative effects of their environments, but it does not account for psychoacoustics. Typically applied only to humans, psychoacoustics examines the perception of sound, psychological responses, and its impact on the nervous system.

Examining the physiologic effects of sound and music opens the door to understanding how certain melodies can be used to calm anxious pets.

Music and animal welfare

“Music therapy and sound enrichment are low-cost, easy modalities to enrich the lives of captive animals,” Wagner said. “Whether it be a short-term stay in a veterinary clinic or shelter, or long-term captivity in a sanctuary or zoo, sound can play a key role in enhancing the welfare of these animals.”

Sound therapy research has illustrated music’s influence on a variety of species. In 1 study, cows were more likely to come into the milking parlor if signaled by music.4 “Behaviorists might say that is classical conditioning, and some of it can be, but it has to start with a pleasant stimulus,” Wagner said. “You play pleasant music to the cows and then they are adapting to it. It is a combination of classical conditioning and sensory relaxation.”

In a separate study, when chickens listened to music, they had increased growth and reduced stress.4 There are also indications that animals may have musical preferences. In the same study, horses showed a decreased appetite when listening to jazz and an increased appetite with country music.5 “This is an example of going beyond bioacoustics into psychoacoustics. That makes perfect sense to me,” Wagner said. She surmised that the differing tempos and frequencies in jazz could become uncomfortable to the horses. Sorry, Miles Davis.

Through her research, which became the basis for Through a Dog’s Ear, Wagner and coauthor and sound researcher Joshua Leeds examined how music with varying tempos and instruments might elicit favorable responses. More than 150 dogs were observed in home environments and kennels to see if they would sit down, lie down, or even go to sleep when listening to certain music. “We found that the simple piano with low tones and a slow tempo is what made them most calm,” she said. When listening to the piano in the home environment, 85% of the dogs went to sleep, compared with 70% to 75% in a kennel setting.

Clinical applications

When presented with a patient that displays signs of general anxiety or pain, Wagner suggests creating a sound inventory of the home. She encouraged attendees to prompt clients to listen to all of the ambient noise in and around their homes to pinpoint overlooked stressors. This provides the veterinarian with pertinent information while also conditioning the client to become more perceptive to the noises their pet encounters. “Humans are good at tuning ambient sounds out, be it the TV or something happening outside,” she said. “But animals are not.”

A similar noise evaluation should be conducted in the veterinary hospital, too. “How loud is the conversation in the room? Are you drawing blood on a cat while someone is clipping a dog’s nails right next to it? It is not about you and your need to keep things moving or about convenience,” Wagner said. “What about the patient? Think about it from their perspective.”

Once possible noise toxicities are addressed, the right music can create an enhanced, stress-free experience. “To keep animals as calm as possible, instrumental music is best,” she said. Animals do not need the added stimulus of processing voices.

“Music reduces the complexity of the orienting response. As the patient hears the music, the sound will resonate with its brain waves and heart rate,” Wagner explained. “You get a physiologic effect that feeds back to the nervous system. It can be really helpful.”

A study published in the Journal of Feline Medicine and Surgery showed that respiratory rates and pupil diameters in cats changed depending on whether classical music, pop, or rock was played during spay procedures. Classical music had the most positive effect, whereas heavy metal caused increased respirations and pupil diameters, indicating a stress response. The response to pop was intermediate.6 Research has also shown that cats prefer music with frequencies and tempos similar to what is heard in feline communication.2

At home, Wagner said, hearing calming music for as little as 30 to 60 minutes a day will help reduce the sympathetic overdrive from the nervous system in pets. “We cannot teach our patients to meditate, but we can use music to do a very similar thing,” she said.7

References available online at dvm360.com
the virus that causes COVID-19) in pets as an emerging disease event, many questions were left unanswered. However, as time passes and more research becomes available, experts are gaining a clearer understanding of SARS-CoV-2, including how different animals can be affected or not by COVID-19, and the path ahead.

What we know
Although the initial infections were linked to the Huanan Seafood Wholesale Market in Wuhan, China, public health officials and partners continue to work on identifying the source of COVID-19 to better understand where the virus originated and how it spread across species into humans. Experts do suspect it originally came from animals, likely bats and pangolins.

Bats, rodents, pigs, and birds in general are considered high-risk viral reservoirs, a source for diseases that can jump to humans and sometimes lead to epidemics. Some scientists have argued that bats and rodents have certain traits that increase the likelihood of spillover events from animals to people, but evidence of this is inconclusive. Considering that bats harbor several viruses that cause severe disease in people, including rabies, it makes sense that they—along with other animal reservoirs—continue to be the focus of most viral-detection and surveillance efforts across the world.

SARS-CoV-2 is part of a large family of coronaviruses. Whereas some coronaviruses have the potential to cause disease in humans, others can cause illness in animals such as bats and cattle. Dogs and cats have their own species-specific coronaviruses, but they have not been shown to infect people.

In rare cases, animal coronaviruses jump across the species barrier into humans and then spread between people. Possible modes of transfer of zoonotic infections include aerosolization, droplet spray, ingestion (oral), direct contact (animal, bodily fluids), indirect contact (eg, fomite, contaminated tools and surfaces, or other objects in the environment), or vector-borne transmission of infectious agents. The genetic makeup of a virus is an important factor in how an infectious disease is transmitted from one species to another. SARS-CoV-2 uses a specific protein (angiotensin-converting enzyme 2 [ACE2] receptor) to attach to human cells and then cause an infection. If the gene that makes the ACE2 receptor protein is different in another species, attachment and infection cannot occur.

Zoonotic diseases
Zoonotic diseases are very common. In fact, 60% of existing human infectious diseases are zoonotic and 75% of emerging human diseases have an animal origin. Examples of diseases caused by coronaviruses that originated in animals and spread to humans are SARS virus and Middle East respiratory syndrome. Ebola virus disease, formerly known as Ebola hemorrhagic fever, is also zoonotic; however, the extent to which it affects animals is not well known. Scientists believe the first patient with Ebola became infected through contact with an infected animal, such as a fruit bat or primate. This is called a spillover event. Person-to-person transmission follows a spillover event and can lead to large numbers of affected persons. In the West African Ebola virus epidemic, animals were not found to be a factor in ongoing transmission. Although public health officials and other experts still do not know the exact source of SARS-CoV-2, as we already understand it, zoonotic transmission is suspected to have caused the human coronavirus outbreak of 2019.
COVID-19 and animals

Based on what we know now, and what is known about other coronaviruses, domestic dogs or cats are not considered to be a source of COVID-19 infection in humans or other animals, and there is limited evidence to support a risk of the virus spreading among pets in the home. Although there have been reports of human-to-animal transmission in pets belonging to people with COVID-19, they continue to be sporadic. Currently, the largest known SARS-CoV-2 transmission risk is from person to person through respiratory droplets from coughing, sneezing, and talking, not between pets or from people to pets.

A small number of animals worldwide have been reported to be infected with SARS-CoV-2, mostly after close contact with people diagnosed with COVID-19. Common during large-scale outbreaks such as COVID-19, spillback or "reverse" zoonotic transmission from human to animals is a risk. This phenomenon has been illustrated by 2 COVID-19 outbreaks in mink on farms in the Netherlands. Spillback of SARS-CoV-2 has also been observed from pet owners to domestic dogs and cats and from humans to tigers and lions in zoos.10,11 As of January 15, 2021, this number in the US was at 131 and consisted of cats (58), dogs (41), minks (16), tigers (7), lions (3), gorillas (3), and snow leopards (3).12 Of the animals reported to be positive, most showed mild signs of illness.

In the limited confirmed cases of SARS-CoV-2 in domestic dogs and cats, there have been reports of mild respiratory or gastrointestinal signs in about half of those cases, the other half being symptom free. Although there is still little evidence that pets can be a source of infection to other animals or to humans in a domestic environment, our current understanding is that cats have similar receptors to humans for SARS-CoV-2. To this point, laboratory results have shown that cats can transmit the virus to other cats. Like humans, though, cats may have differing responses to viral exposure, with some being more susceptible than others.

Mink and other weasels (mustelids) are also known to be easily infected by coronaviruses. Although mink are not commonly kept as pets, they are closely related to ferrets. We know that ferrets share similar ACE2 receptors to which the virus attaches, and therefore appear to be equally susceptible when exposed to the virus.

Ultimately, the risk for humans being infected by any means besides other humans is considered minimal. The key when managing pets with respiratory or gastrointestinal disease, particularly those with acute onset and who are owned by individuals diagnosed with COVID-19, is to take precautionary measures. Any surface with which a person infected with COVID-19 comes into contact, including pet fur or nasal secretions, may transfer the virus (viral RNA itself is not infectious). As animal handlers, we should keep all pets and other animals away from infected humans and continue to practice good hygiene.

COVID-19 testing and vaccines for pets

SARS-CoV-2 is an RNA virus, meaning the genetic material for SARS-CoV-2 is encoded in RNA. This viral RNA is clever in that its genetic makeup causes the protein synthesis mechanism in humans to detrimentally mistake it for RNA produced by our own DNA. Therefore, many COVID-19 vaccines and treatments are founded on RNA technologies. Although effective testing and human vaccines have become available, the CDC, US Department of Agriculture (USDA), AVMA, and other human and veterinary health organizations do not recommend vaccines for or routine testing of animals for the virus at this time.13-15 If a pet is showing signs of SARS-CoV-2 and/or the owner has tested positive for COVID-19, some veterinary hospitals may pursue testing for the pet; however, these instances are extremely rare. Experts maintain that SARS-CoV-2 is a human virus and, based on the limited information available to date, the threat to animals and risk of animals spreading COVID-19 to people is low. Based on a lack of data and clinical evidence of transmission and clinical disease in other species, the USDA is accepting applications for a SARS-CoV-2 vaccine in mink given the recent outbreaks, but is not yet accepting applications for one in dogs and cats.16 The USDA is closely monitoring the situation and may re-evaluate as more information becomes available.

The path forward is knowledge and prevention

Historic epidemics have taught us that federal- and state-mandated guidelines and protocols, including increased hand sanitation, mask wearing, and social distancing, as well as the swift development of vaccines, decrease (if not halt) virus transmission. As experts discover more about how this virus spreads, including virus variants, the essential workers who support public health through veterinary care will be better equipped to treat and combat the spread of SARS-CoV-2 among vulnerable populations. As we look to the future, the international research and global health community must also continue to consider how other factors, such as factory farming, wildlife trade, and environmental changes, may push animals into contact with more people and influence the emergence of viruses. Increased surveillance efforts directed at the “fault lines,” where there is high human-animal interaction, may be most beneficial in the prevention of a future spillover.

James Barr, DVM, DACVECC, is chief medical officer (CMO) for BluePearl Specialty and Emergency Pet Hospital. Barr obtained his veterinary degree from Louisiana State University in Baton Rouge. He was a criticalist at Florida Veterinary Specialists (BluePearl's original hospital), then left to teach at Texas A&M University in College Station, returning to BluePearl in 2017. As CMO, he oversees medical operations of BluePearl’s 100+ practices.

Christian M. Leutenegger, DrMedVet, PhD, BSc, FVH, is director of molecular diagnostics at Antech Diagnostics. He graduated from the University of Zurich Vetsuisse Faculty in Switzerland and completed a PhD on developing the first DNA vaccines in veterinary medicine. He established early protocols for DNA quantification and founded the Molecular Core Facility at the University of California, Davis, School of Veterinary Medicine. After 13 years at Idexx Laboratories, he joined Antech to expand the company’s infectious disease, cancer and genetic diseases molecular diagnosticians.
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- Dried Aspergillus oryzae fermentation extract ........ 1.89 mg
- Saccharomyces cerevisiae ............... 3.4 x 10^6 CFU
- Bacillus subtilis ............... 3.8 x 10^5 CFU

Moisture (max) .................. 5.1%
FOS (Fructooligosaccharides) ............. 200 mg
Total Microorganisms ............... 10 Billion CFU/gram

- Lactobacillus acidophilus
- Lactobacillus plantarum
- Lactobacillus casei
- Lactobacillus brevis
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Imagine, if you will, working as a veterinarian or technician in a specialty and emergency practice. The practice has been growing steadily for years, and the owner has added on space for the growing specialties little by little, as needed. The catch? Few of the spaces are under the same roof, sending staff members running back and forth from building to building all day.

Those additional spaces come in the form of pods in an older business park, forming what the medical director describes as “a rabbit warren, where staff members were jumping from hole to hole all day.” Even then, with 13,000 square feet to its name, the hospital was running out of space in which to expand.

After years of serving their clients in this way, the owner of VCA West Coast Specialty and Emergency Animal Hospital in Fountain Valley, California, made it their mission to consolidate all the hospital’s services under 1 roof and expand the facility to house even more groups of doctors in a large, freestanding facility on 1 floor.

The result is a 25,000-square-foot hospital that checks all the boxes for a team of 28 full-time and 4 part-time doctors and their ever-growing support staff. The building originally housed a Staples store, but you’d never know it now by looking at the well-organized floor plan, abundance of natural light, high-tech equipment, and professional yet whimsical decor throughout. This attention to detail earned VCA West Coast Specialty and Emergency Animal Hospital top honors in the 2021 dvm360® Hospital Design Competition for practices larger than 8000 square feet.

Designing for success

J. Michael Walters, DVM, MS, DACVECC, came on board at the tail end of the design and construction process, after serving as a regional...
Inflammatory bowel disease (IBD) encompasses a spectrum of illnesses that result in gastrointestinal (GI) inflammation. Although the underlying cause is not fully understood, current research is focused on the role of the GI microbiome in local immune regulation.1-4 Various other diseases that result in cellular infiltration of the GI tract must be ruled out, including Helicobacter pylori infection, histoplasmosis, Pythium spp infection, heterobilharzia (shistosomes), toxoplasmosis, feline infectious peritonitis (FIP), and various neoplasms.

REACHING THE PRESUMPTIVE DIAGNOSIS
Typically, chronic GI tract diseases are slow and insidiously progressive, allowing time to perform diagnostics and evaluate treatment responses. When a definitive diagnosis is not possible, the goal should be to obtain a presumptive diagnosis after reasonably ruling out all other possibilities. When diagnosed in this way, IBD should always be referred to as presumptive IBD, suspected IBD, or non-biopsy confirmed IBD.

Workup
An individualized assessment of the pet’s signalment, history, and clinical signs should be combined with the results of a routine minimum database. Fecal ova and parasite testing is reasonable; however, given the possibility of false-negative results due to intermittent fecal shedding, I recommend broad-spectrum empiric deworming in all cases (cats and dogs).

After baseline information has been established and the pet is dewormed, a hydrolyzed protein diet trial is offered. Therapeutic trials with probiotics may also be considered next. If clinical signs are progressive or nonresponsive, then a full GI panel (plus resting cortisol in dogs) should be performed.

Abdominal ultrasonography can be pursued nearly any time during the workup. At a minimum, ultrasound should be completed before empiric immunosuppressive therapy. Additional testing might be recommended based on ultrasound and before immunosuppressive therapy.

Minimum Database
Little on routine lab work informs the clinician about GI tract health. Nevertheless, a complete blood cell count, complete serum chemistry with electrolytes, and urinalysis are suggested in the workup to evaluate for important comorbidities and assess overall health.

The finding of decreased albumin, cholesterol, and globulins is consistent with protein-losing enteropathy (PLE). Cholesterol is a main differentiator between PLE and protein-losing nephropathy and is often left out of partial chemistries. This highlights the importance of performing full diagnostics with complete serum chemistries in any ill pet.

PLE is a syndrome, not a diagnosis, and can be caused by any type of IBD or its differentials. Evidence of PLE on chemistry indicates GI tract disease chronicity. Diagnostic workup is the same as with non–protein wasting IBD, although the prognosis is more variable and has been historically considered guarded to poor.5

GI Panel
The IBD workup is not complete without a 12-hour fasted GI panel consisting of cobalamin, folate, pancreatic lipase immunoreactivity (PLI), and trypsin-like immunoreactivity (TLI). TLI must be performed to rule out exocrine pancreatic insufficiency (EPI), an extremely important differential for maldigestion and malabsorption in both cats and dogs that is likely far more common than recognized. A normal TLI at 1 point in time does not rule out the possibility of EPI developing at a later date in either species.
Spec PLI (Idexx) is the species-specific measurement of pancreatitis, which can be seen concurrently with IBD in both cats and dogs. A normal (negative) canine or feline SNAP test (Idexx) result rules pancreatitis out, but an abnormal result does not confirm it. The Precision PSL (Antech) has shown to correlate well with the Spec PLI, although both tests have only moderate sensitivity and specificity—meaning that a normal result does not rule pancreatitis out and false positives still occur.6 Cobalamin deficiency can result from decreased absorption from the ileum, a localizing finding. It will also be seen in both species secondary to EPI. Hypocobalaminemia (< 400 ng/dL) should be supplemented. Notably, this is still within the “normal” reference range. Cobalamin is not a specific treatment for IBD, although it may help with appetite. Folate deficiency results from failed absorption across the duodenum, making this another localizing finding. A folate low enough to require supplementation is relatively uncommon, but it should be supplemented if low. The combination of decreased cobalamin and elevated folate is most consistent with small bowel dysbiosis.

**Cortisol**
Addison’s disease (both typical and atypical) represents a major cause of intermittent waxing and waning GI tract signs in dogs. If the baseline cortisol level cannot exclude Addison’s disease, then an adenocorticotropin stimulation test is indicated before the next steps in diagnostic workup.

**Abdominal Ultrasound**
The main purpose of evaluating the GI tract via ultrasound is to rule out mass lesions and other comorbidities. Bowel wall thickening and layering changes such as muscularis hypertrophy and hyperechoic mucosal striations are not specific to IBD and can be seen with other causes of infiltrative bowel disease.7,9 Even a normal ultrasound cannot rule out clinically significant GI tract disease.

**Infectious Disease Testing**
Infiltrative infectious GI tract diseases may mimic other types of GI tract diseases on ultrasound. Depending on geographic area or ultrasound findings, additional infectious disease testing might be indicated. Examples include histoplasmosis urine antigen, *Pythium* serology, toxoplasmosis titers, FIP mRNA, and heterobilharzia feces polymerase chain reaction. Pets with infectious GI tract disease tend to respond favorably initially to immunosuppressive steroids before experiencing an abrupt clinical decline.

**TREATING PRESUMPTIVE IBD Therapeutic Diet Trials**
In nonurges cases, empiric trials are best done sequentially, allowing for a pause to monitor the effects. Typically, I recommend a period of 2 to 4 weeks to see an initial response, although it might take much longer for signs to resolve fully. In some cases of IBD, a change to a highly digestible diet may improve clinical signs. This is a reasonable first step, especially in younger patients being fed low-quality foods.

The first true feeding trial should be performed with a hydrolyzed protein diet. Due to the increased availability of boutique diets, the concept of “novel” protein is slowly being phased out of most prescription lines.

Diet changes should be made gradually by mixing together the new and old foods over several days. If a positive effect is not seen within 2 to 4 weeks of a strict diet trial, a benefit is not likely. A trial with a different brand of hydrolyzed protein diet may produce different results. Even a partial improvement in signs is an indication to continue the hydrolyzed feeding.

**Probiotics/Prebiotics/Synbiotics**
When diet alone does not control clinical signs, probiotics or synbiotics can be added. A probiotic is a live bacterial or yeast strain with potential health benefits. Prebiotics are food additives (typically various types of fiber) that provide selective support to beneficial members of the host microbiome. Synbiotics contain both.10

For the most part, probiotics are safe and affordable, and a positive response should be seen within 2 to 4 weeks. For animals that respond favorably, the treatment must be continued for life as the benefits will stop when supplementation is stopped. The unique effects of various probiotics and combinations are not interchangeable, and a failure to respond to 1 product does not mean the pet won’t respond to a different one.

Importantly, probiotics are not regulated by the FDA, and a large number are made without meeting minimum quality standards.11 High-quality probiotics contain bacterial strains normally found in the canine and feline gut, such as *Lactobacillus acidophilus*, *L plantarum*, *L casei*, *L brevis*, *L bulgaricus*, *L reuteri*, *Bifidobacterium bifidum*, and *B longum*. It’s best to check the expiration dates and buy from companies that provide laboratory assays proving the potency of their products.

**Antibiotics**
Historically speaking, the term “antibiotic-responsive enteropathy” has been used to describe chronic diarrhea that responds to antibiotic therapy. However, with increased understanding of the microbiome, researchers have discovered that antibiotic administration results in prolonged microbiota changes with potentially deleterious effects.3,4 Ultimately, this is causing a culture shift in which antibiotic trials and long-term use of low-dose or repeat courses of antibiotics are no longer recommended.

**Steroids/Immunosuppression**
Only after the patient has undergone a full workup, failed to respond to multiple empiric trials, and biopsies have been declined should the clinician reach for immunosuppression in the form of steroids. A positive and sustained improvement on steroids is consistent with the presumptive diagnosis of idiopathic IBD. Steroids are preferred in an empiric trial because they are cheap and available. After stabilization, the dose should be tapered to the lowest effective dose possible to manage clinical signs. This process often takes months. Following taper, some pets may be able to be maintained on diet alone, with or without probiotics.

References are available online at dvm360.com.

Heather L. Kvitko-White, DVM, DACVIM, is the founder of KW Veterinary Consulting. As an industry activist, writer, and national speaker, she promotes a creative and common-sense approach to caring for animals without sacrificing quality.
medical director for the hospital’s parent company. He may not have been there in the beginning, but he can confirm that the hospital needed to be under 1 roof, with room to grow their specialty and emergency services in a more convenient and productive space.

“As a growing practice, we knew we wanted to add specialties to better serve our clients,” says Walters. “In a lot of ways, we can be a one-stop-shop for patients that don’t have just a single problem. Many patients visiting a specialist need to see multiple specialists, so this eases the number of visits a client has to make.”

Determining how to arrange 25,000 square feet to house multiple specialties, an emergency suite, a treatment area, and a public space for current and future use was a big task. First, the design team, headed by architect Richard Renschen, founder and president of MD Architects in Indianapolis, Indiana, outlined all the specialties already in existence, as well as those the hospital knew they wanted to add in the coming years. For example, the hospital added radiation oncology, including a space the original building already had that was perfect for the vault for the linear accelerator and a space for minimally invasive or catheter-based surgery.

Next, they created space in the plan to go from 2 surgery suites to 6 and to include a larger, dedicated treatment and critical care area. Adding specialties is more than just making space for equipment and pets. As Walters puts it, “It’s not enough to just add space for the equipment. With expanded patient space you need more people space, including for doctors, technicians and, of course, clients.”

Wending your way through the different rooms and workspaces in a 25,000-square-foot space can be intimidating at first. But a smart design set out similarly to streets...
on a grid, with a hallway bisecting the public and private areas of the hospital and cross streets (hallways) running perpendicular to those connecting various work areas, making it simple.

“It is a relatively easy design that our new staff members can figure out in a day,” says Walters. “And the exam rooms are located more peripherally, making them even easier to find.”

As a 24-hour emergency clinic, the spacing of the entrance to the triage area was vitally important. “From the front door to the emergency triage area where nurses and doctors are 24/7 is only 40 yards—I counted it myself,” says Walters. This straight shot from the front doors to triage is vital, with no corners and only 1 door to go through.

“It’s all part of a smart design for efficiency,” he says. “If it’s hard to get to triage, you’re wasting time that could be used to save a pet.” To expedite emergencies further, they have a system that alerts the entire team that an emergency is on the way, and everyone scrambles to open doors and clear hallways for the fastest care possible.

Calm in the chaos

A bustling 24-hour specialty and emergency hospital could, by nature of its function, be a stress-inducing environment. But a smart design, with thoughtful decor, helps minimize the chaos. The color palette throughout is neutral, with deep, rich accent colors, which Walters says is soothing in such a busy, often-stressful environment. Loads of natural California sunlight shines throughout the hospital as well.

“Having been here almost 6 years, working in it daily, we don’t always recognize it, but our clients say the hospital design and decor are inviting,” says Walters. “We have a nice, clean facility with natural light and inviting colors. Of course, the building is augmented by good people who add on to the open, inviting feel of the hospital. That’s the winning combo.”

Doctors and staff enjoy access to a large break room throughout their busy shifts. A full kitchen, sitting area, and lockers allow for time away to recharge.

Anticipate the future

Lots of advice is thrown around for those who are looking to build or remodel. You might get concrete tips on how to get a loan, how big to build an exam room, or what flooring works best. But Walters recommends something that’s a bit harder to pinpoint: “Try to anticipate where you will be in 6 to 10 years,” he says.

“It’s hard to predict, but think about where you’d like to be, not just what fits for now. For example, if you’re growing and adding services, what other services might you add in the future? If you’ve added 1 specialist, will you add 2 or more eventually? Make room for that growth and design for it now. Use that crystal ball that no one has,” he jokes.

Of course, no one saw a pandemic coming or could anticipate its effect on veterinary hospitals. Walters says he is especially thankful they’ve had the extra space to work in so efficiently during this pandemic. It just adds to the daily challenge of working in a specialty and emergency hospital.

“We don’t see the routine here,” he says. “Every patient we see is sick, and every case is a challenge. But that’s the challenge we choose to meet, in a good environment designed to help us do our jobs.”

Sarah A. Moser is a freelance writer in Lenexa, Kansas.

By the numbers:

- **VCA West Coast Specialty and Emergency Animal Hospital**
- **Owner:** VCA
- **Number of doctors:** 28 full time, 4 part time
- **Structure type:** Renovation plus addition
- **Exam rooms:** 16
- **Total building cost:** $6,240,922
- **Cost per square foot (building only):** $248
- **Total square footage:** 25,232
- **Architect:** Richard Renschen, MD Architects, Indianapolis, IN

Sarah A. Moser is a freelance writer in Lenexa, Kansas.
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Have you ever been frustrated when a pathology report from a skin biopsy is not as helpful or definitive as you had hoped? Karen Trainor, DVM, MS, DACVP, owner of Innovative Vet Path in Leawood, Kansas, equates the biopsy evaluation to a microscopic physical examination. And to get the most information from a physical exam, a thorough and accurate history and knowledge of patient signalment must be gathered first. This helps the pathologist formulate a prioritized differential diagnosis, which is important because there is considerable overlap in the histopathologic appearance of certain diseases. Additionally, this ancillary information contributes to the pathologist’s ability to differentiate between diseases with similar pathologic appearances.

During a lecture at a recent Fetch dvm360® virtual conference, Trainor offered an in-depth look at how to get the most out of biopsy submissions. She discussed the role of a detailed history, the types of lesions encountered, and biopsy techniques and strategies to acquire the most diagnostic sample.

**Gathering the patient history**

Key points that are pertinent to patient history include any systemic signs of illness, such as fever or malaise. Additionally, it is important to describe lesion distribution: whether lesions are symmetrical; whether their distribution is diffuse, generalized, focal, multifocal, regional, localized, or patchy; and whether there is a seasonal component to the clinical signs. Note whether dark or light pigmented areas are affected preferentially, and whether any changes in coat color have occurred. Additional details include standard descriptors such as size, shape, color, consistency, and texture. Photographs of the lesions provide a visual to accompany these descriptions and are essential to help correlate the histopathology findings with the clinical appearance and increase confidence in the diagnosis or ranking of differentials (Figure 1).

Another significant element of the patient history is whether pruritis is present. Trainor noted that pruritis can be tricky to assess, as not all animals exhibit frank scratching behavior. In some cases, it manifests as rubbing, chewing, or licking. In cats, excessive grooming may be the only sign of pruritis, and to make things more difficult cats often perform this grooming in secret. Other clinical elements to share with your dermatopathologist include any previous treatments as well as the response to those treatments (no response, partial response, or worsening; Figure 2). These details can be very helpful to the dermatopathologist.

As with any examination, it is always helpful to know what your client’s goals are and what they hope to accomplish or learn from the visit. In this case, however, the client is you, and the exam is the biopsy evaluation. It is assumed that the goal is a diagnosis, but if there are any specific questions you wish to have answered or specific differentials ruled in or out, be sure to include those on your submission form so the dermatopathologist can address them in their report.

**When and how to biopsy**

Trainor offered suggestions for relevant and complete submission information, as well as advice for determining when skin biopsies are appropriate and which collection techniques best preserve important pathological characteristics. In many dermatology cases, these are critical to arriving at a definitive diagnosis.

**Indications and timing**

Biopsies are indicated for persistent ulcerations, vesicular dermatitis, neoplasia (overt or suspected), or when lesions only partially respond to treatment or do not respond at all. Submit at least 3 to 5 biopsy samples to get various stages of lesion maturity, with a focus on sampling pustules, vesicles, and crusts. Ideally, label each sample regarding its specific location and lesion type.

The timing of biopsy is also important, given that some treatments can interfere with pathologic findings. Shampoos, corticosteroids (topical, oral, or injectable), cyclosporine, antihistamines, antibiotics, and nonsteroidal anti-inflammatory drugs...
all have various washout periods, typically ranging from 1 to 6 weeks (Table). Although it is not always possible to accommodate washout periods in the real world, you should be aware of them. If any of these medications have been administered, inform your dermatopathologist and specify the length of time between the last administered dose and biopsy collection. This will allow them to interpret the lesions in the most appropriate context.

**Collecting the biopsy**

When preparing for the biopsy, avoid scrubbing any crusts on the skin because this is where key histopathologic features are often found, particularly in suspected cases of pemphigus foliaceus. Take care to preserve crusts when the prep includes trimming of hair as well. When sampling skin with hypotrichosis or alopecia, proper orientation of the biopsy specimen is critical. To aid the lab with optimal orientation during histologic processing, Trainor recommends drawing a line on the skin using a Sharpie to denote the normal direction of hair growth prior to collecting the biopsies. During biopsy collection, avoid pinching the specimen with forceps to prevent pinch artifact as this can impede interpretation (Figure 3). Judicious use of electrocautery is recommended because it can cause significant coagulation artifact at the margins of skin biopsies, particularly for small samples or where measured margins are needed for neoplastic lesions. Similarly, where tissue cultures are submitted, Trainor noted that preservatives used in lidocaine from local blocks can inhibit the growth of some bacteria, so use ring blocks in lieu of direct blocks in these circumstances.

The preferred collection technique depends on lesion type. Excisional biopsies are best for mass removal. Lesions of suspected vasculitis or lymphangitis require deeper tissue sampling than a typical punch biopsy can provide, so consider a deeper wedge or double punch technique. Elliptical techniques are most effective for biopsy of ulcers or bullae, and should include the edge of the lesion. A shave technique is commonly used on the nasal planum of cats with suspected squamous cell carcinoma. A shave technique may also be optimal for collecting intact pustules on the inner surface of the pinna because it helps to keep the pustule intact without causing damage to the underlying cartilage plate. Trainor emphasized that when using the punch biopsy technique, it is important to use a fresh biopsy punch and to rotate the punch in a single direction (clockwise or counterclockwise) rather than oscillating back and forth. Other than biopsies obtained near the eye, pinnae, nasal planum, or foot pad of small dogs and cats (in which a 4-mm punch may be most feasible), a 6- to 8-mm punch should be used to provide a sufficient number of follicles and enough surface area to be informative. Punch biopsies 2 mm in diameter are of negligible diagnostic value. Location also matters. Trainor noted that biopsies from the periphery of lesions are often more diagnostic than those from the center, which may be more necrotic. The edges of ulcers tend to include crusts (Figure 4). It is also important to biopsy areas on the nose showing loss of cobblestone appearance and areas of depigmentation where there is still some gray coloration. When sampling paw pads, the carpal pad is a good choice because it is not weight-bearing.

**Shipping the sample**

Trainor also presented some tips for shipping samples. When shipping in cold temperatures where freezing is a concern, add 1 part isopropyl alcohol to 9 parts 10% neutral buffered formalin to prevent freezing and its associated artifact. In some instances, freeze artifact can render a sample uninterpretable.

**Collaboration is key**

Be sure to reach out to your dermatopathologist if you have any questions about how best to approach the biopsy procedure. Remember that this is a collaborative effort, and pathologists are there to support you and help you help your patients. Because dermatopathology is a fairly nuanced subspecialty, submitting samples to pathologists with a specific expertise in dermatopathology will be an asset, particularly in those cases where there is overlap in the histopathologic appearance of competing diagnostic differentials.

Karen Trainor, DVM, MS, DACVP, is a dermpath detective at Innovative Vet Path (innovativevetpath.com) who helps veterinarians and dermatologists around the world diagnose skin conditions in animals. She is a dermpathology Veterinary Information Network consultant, teaches dermpathology to clinical dermatology residents, enjoys lecturing about all things dermpath, and is founder of the educational Facebook group Vet Dermpath Forum. Trainor can be reached at Hello@innovativevetpath.com or by calling 913-303-7717.

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.

**TABLE. Ideal recommended drug washout periods before diagnostic tests**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Cytology</th>
<th>Biopsy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shampoos</td>
<td>1 week</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Oral glucocorticoids</td>
<td>None</td>
<td>3 weeks</td>
</tr>
<tr>
<td>Injectable steroids</td>
<td>5 weeks</td>
<td>6 weeks</td>
</tr>
<tr>
<td>Topical steroids</td>
<td>2 weeks</td>
<td>3 weeks</td>
</tr>
<tr>
<td>Cyclosporine (Atopica, Elanco)</td>
<td>None</td>
<td>1 week</td>
</tr>
<tr>
<td>Antihistamines</td>
<td>None</td>
<td>1 week</td>
</tr>
<tr>
<td>Antibiotics</td>
<td>1 week</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Nonsteroidal anti-inflammatory</td>
<td>None</td>
<td>1 week</td>
</tr>
</tbody>
</table>

Light it up: Laser surgery in veterinary medicine

If you are looking to expand your service offerings and upgrade your surgical suite, look no further than the CO₂ laser.

By Caitlin McCafferty, Assistant Editor

Every veterinary practice wants to stand out from the competition, but doing so can be challenging. One option is to add a new service offering, such as grooming, massage, or acupuncture. According to Boaz Man, DVM, and medical director of Boca Midtowne Animal Hospital in Boca Raton, Florida, that differentiator could be a carbon dioxide (CO₂) laser.

Laser technology has been used in a variety of ways for many years, including in human medicine for the past quarter century. The CO₂ laser is becoming more popular in veterinary medicine because of its advantages in surgery for both veterinarians and patients. At a recent Fetch dvm360® virtual conference, Man outlined the benefits of this type of surgical laser.

CO₂ lasers today
First developed in the 1990s, the newest CO₂ lasers deliver a beam of light through a thin, flexible, hollow waveguide commonly known as a “fiber.” The beam exits through either a pencil-sized handpiece focused by interchangeable, reusable, and autoclavable tips, or through a slender, adjustable, tipless handpiece. Both tipped and tipless handpieces have focal lengths of 0.75 to 3 mm and are held very close to the tissue, enabling excellent precision and use in a wide variety of procedures.

“The flexible fiber is amazing because it’s very lightweight,” said Man, who likened using a laser handpiece to using a pen. “You can use a laser in any way you want at any angle without having to worry about any physical limitations.”

Man has used the same 20-W laser at his practice for the past 8 years and has applied it in thousands of surgeries, although he admits he is ready for an upgrade because he wants more power. “The 30-W laser is ideal for use in companion animals,” he says. “It feels just like you are using a scalpel.” Hollow waveguide lasers are available up to 40 W—the highest power commercially available for veterinary applications—but these are reserved for use in large animals such as horses.

Because CO₂ lasers generate minimal tissue trauma, postsurgical pain, bleeding, and swelling are all reduced, thus accelerating healing. The laser can be used to seal nerve endings, blood vessels, and lymphatics, giving veterinarians more control over the surgical field. The precision offered by CO₂ lasers makes many procedures easier and cleaner.

Laser hazards
It is precisely because of how well CO₂ lasers work that they are potentially dangerous. Therefore, it is vital that all personnel involved in laser procedures understand how the equipment works and comply with all associated safety guidelines, including personal protective equipment.

Hazards related to the use of CO₂ lasers can occur following direct contact with the laser beam as well as from environmental contamination when the laser comes into contact with tissue. Potentially serious skin and eye injuries can result from direct or reflected beams. “These [beams] can do damage if you are not careful,” said Man. “Just like you wouldn’t wave a scalpel around, you always need to make sure you are using the proper precautions when using a laser, including protecting your eyes.”

Environment-related hazards include the production of airborne contaminants and ignition of flammable substances in the surgical suite. The laser is equipped with an evacuator that is triggered each time the device is fired. “It’s a clean way to evacuate the smoke without contaminating the air,” Man said.


What makes a good surgical laser?
If you are in the market for a surgical laser, it is important to know what to look for. Man suggests answering these questions before making a purchase:

• Does the laser cut/vaporize cells efficiently?
• Does the laser help control bleeding while also helping to eliminate it?
• Is this the ideal laser to meet my patients’ needs?

He also recommends looking for positive testimonials and references for the company and equipment and avoiding vendors that do not have well-established service capabilities.

To learn more about surgical lasers, Man advises reviewing case studies, many of which can be found on the Aesculight website, aesculight.com/case-studies, and reading the special 2019 veterinary issue of The Journal of the American Laser Study Club. Visit americanlaserstudyclub.org/purchase/jalsc-2019-veterinary-issue.

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• Class II: Medical/surgical and industrial lasers (800-1000 nm wavelength)
• Class III: Laser light shows and some types of laser therapy (eg, superficial lesions and wounds); this class is subdivided into IIIa (visible light) and IIIb (nonvisible light)
• Class IV: Medical/surgical and industrial lasers (800-1000 nm wavelength)
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Equine influenza virus: a brief review

Although usually not fatal, this devastating respiratory virus causes substantial economic loss and performance impairment.

By Kate L. Hepworth-Warren, DVM, DACVIM

Equine influenza virus (EIV), caused by equine influenza A type 2, is an infectious condition of the upper respiratory tract that is endemic worldwide.1,2 It is an RNA virus in the Orthomyxoviridae family; the most commonly identified strain in recent history is H3N8.3,4 There are 3 separate American lineages, with the Florida lineage of most importance in recent outbreaks. Evolution of the virus has led to the classification of 2 Florida sublineages, clade 1 and clade 2.1,3

Pathogenesis and pathophysiology

Although EIV is rarely fatal, it is highly contagious and can lead to significant performance impairment and economic loss when outbreaks occur. Similar to influenza in other species, EIV is spread primarily via the respiratory route. Coughing and nasal discharge from affected animals can lead to transmission via aerosolized particles or direct contact.1 Following a short incubation period of 1 to 3 days, affected animals rapidly develop fever, serous nasal discharge that progresses to mucopurulent discharge, and coughing.1,3

Experimentally infected animals begin shedding the virus in nasal discharge within 24 to 48 hours of infection, and shedding generally persists for 6 to 7 days. Vaccination and partial immunity have been shown to decrease the duration and amount of viral shedding. The virus leads to destruction of ciliated respiratory epithelial cells and disrupts the function of the mucociliary apparatus in the trachea, both of which can predispose affected animals to secondary bacterial pneumonia. Uncomplicated cases last for about 1 to 2 weeks, although coughing can persist for weeks after this time.1

Diagnostics are aimed at identifying either viral antigen or antibodies directed at the virus. Virus isolation is used to identify the virus itself but can be time-consuming; often, results are not available for upwards of 3 weeks.2 Additional viral antigen testing includes antigen capture enzyme-linked immunosorbent assays and reverse transcription-polymerase chain reaction (RT-PCR) techniques. Both types of test have rapid turnaround times that can be useful in an outbreak situation.3,4 Nasal or deep pharyngeal swabs are the easiest samples to obtain for testing, although bronchoalveolar lavage fluid, fluid from a transtracheal aspirate, or lung tissue can also be used.7

Diagnoses aimed at identifying antibodies against EIV include the hemagglutination inhibition assay and single-radial-hemolysis assay.1,6 Although measuring antibody titers may be useful in disease surveillance and research, confirmation of active infection requires submission of acute and convalescent titers 10 to 21 days apart, which is generally too long to be of benefit when dealing with a potential outbreak.1,3 Many laboratories also offer real-time PCR panels that test for EIV pathogens in addition to other respiratory pathogens, including equine herpesvirus 1 and 4, Streptococcus equi subsp equi infection, equine rhinitis virus, equine adenovirus, and equine arteritis virus.7

Not a core vaccine

The American Association of Equine Practitioners (AAEP) does not consider EIV a core vaccine but instead considers it a risk-based vaccine that is not necessarily warranted for every horse.2 Although it is fairly well known that young horses in frequent contact with other horses are considered high risk, other risk factors that may justify EIV vaccination are less well known.

In addition to being 1 to 5 years of age, having frequent contact with other horses and low concentrations of viral-neutralizing antibodies are considered risk factors for EIV infection.3 It has been suggested that older animals may also be at higher risk for becoming infected than previously thought.2,7 Animals that fall into these categories should be vaccinated at least annually or more frequently, depending on the specific vaccine label.2

Preventive measures

Vaccination and biosecurity

At the time of publication, a plethora of available vaccines contain a number of different strains of H3N8. In addition to vaccination, biosecurity plays a major role in limiting spread during an outbreak.

The 2020 World Organisation for Animal Health (formerly Office International des Epizooties) Expert Surveillance Panel on Equine Influenza Vaccine Composition recommends that manufacturers adhere to previous guidelines for both clade 1 and clade 2 viruses of the Florida sublineage.4 A majority of available EIV vaccines are killed virus products administered intramuscularly.

In addition to killed virus vaccines, there is an intranasal modified-live vaccine. A canarypox-vectored vaccine was previously available but is no longer marketed in the United States.

Vaccine recommendations

The AAEP recommends that horses considered at risk be vaccinated at least annually.

Previously vaccinated at-risk adults should be vaccinated twice yearly. Unvaccinated adults, or horses with unknown vaccination histories, should receive either a single dose of an intranasal modified-live vaccine or a 3-dose series of the killed virus vaccine.2 Boosters should be administered every 6 to 12 months, depending on individual animal risk.2 Pregnant mares should be vaccinated on a similar plan, with the last booster administered no later than 4 weeks prior to parturition. Regardless of vaccine type, vaccination is not recommended before 6 months of age.7 After 6 months of age, they should receive a full 3-dose series of vaccines.2

Refer to the AAEP vaccination guidelines for a more detailed description of vaccine recommendations.2

References available online

Kate L. Hepworth-Warren, DVM, DACVIM, is an equine internal medicine specialist working as a clinical assistant professor of equine medicine at North Carolina State College of Veterinary Medicine in Raleigh. Outside of work, she enjoys traveling, reading, running, and the beach.
Management tips for constipated cats

Treating constipation in cats can frustrate many veterinarians owing to the chronic, recurrent nature of the condition. Developing an effective management strategy can improve outcomes for patients.

By Kate Boatright, VMD

Constipated cats are presented commonly to veterinary practices. They can vary from mildly constipated and uncomfortable to severely obstipated and systemically ill. Case management can be frustrating owing to the chronic nature of constipation and recurrent presentations. During a recent Fetch dvm360® virtual conference, Anthony Carr, DrMedVet, DACVIM, a professor in the Department of Small Animal Clinical Sciences at Western College of Veterinary Medicine at the University of Saskatchewan in Saskatoon, discussed an evidence-based, stepwise approach to managing these patients.

**Why is this cat constipated?**

Cats can present with constipation, obstipation, or megacolon, but each term’s specific definitions are not as clear-cut in feline medicine as in human medicine. Ultimately, Carr says, all these patients need both acute relief and a long-term management plan. The underlying etiology should be identified, if possible, although for over 60% of cats the condition is idiopathic.

Patients may present with vague clinical signs such as inappetence, diarrhea, and vomiting. Some owners may note a lack of stool in the litterbox or report that the pet is straining to defecate. Carr notes that many of these patients have some degree of dehydration, which often contributes to constipation as the colon performs its normal function of resorbing water from the feces. This results in small, firm fecal material that is more difficult to pass.

On physical examination, firm stool is often palpable, although this can sometimes be challenging to feel in obese cats. The patient should be evaluated for pain in the perineal area (eg, an abscess), pain that prevents appropriate posturing (eg, chronic osteoarthritis or fractures), rectal strictures, and neurologic impairment.

Radiographs can help evaluate the severity of constipation and assess for contributing factors such as osteoarthritis, pelvic fractures, extraluminal masses, and vertebral disease. Pelvic fractures and subsequent narrowing of the pelvis are often cited as predisposing to constipation. However, a study of cats with these injuries showed that only 20% had constipation and none had megacolon. Additionally, the study found that the degree of narrowing was not related to the severity of constipation.

Bloodwork is recommended in all patients presenting with constipation to assess for concurrent diseases and determine patient stability. Most cats presenting with constipation are older and have concurrent diseases that can contribute to the degree of dehydration, such as hyperthyroidism, renal disease, or diabetes mellitus. Severely affected patients may show changes in their complete blood cell count, including toxic changes, left shifts, and neutrophilia.

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**Management tips for constipated cats**

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Bloodwork is recommended in all patients presenting with constipation to assess for concurrent diseases and determine patient stability. Most cats presenting with constipation are older and have concurrent diseases that can contribute to the degree of dehydration, such as hyperthyroidism, renal disease, or diabetes mellitus. Severely affected patients may show changes in their complete blood cell count, including toxic changes, left shifts, and neutrophilia.
Management strategies for relieving fecal impaction

Because all constipated cats have some degree of dehydration, rehydration is the first step in treatment. Subcutaneous fluids may be sufficient in minor cases, but some cats may require hospitalization for intravenous fluids. As the patient is rehydrated, the fecal impaction can be relieved.

Another treatment option is enemas, as they aid in rehydrating feces. Carr recommends using warm water with nothing added but notes that if multiple enemes are repeated in a short period of time, the use of a balanced electrolyte solution such as lactated Ringer’s solution or Normosol may help prevent major electrolyte shifts in the body. In mild cases, rehydration and enemas alone are usually enough to relieve the constipation.

For severely impacted patients, additional treatment is usually required. Historically, manual disimpaction has been the next step, but Carr rarely resorts to this procedure. He has found that percutaneous endoscopic gastrostomy (PEG) solutions administered via nasoesophageal (NE) tube is highly effective and safe.

After the NE tube is placed and appropriate positioning is confirmed radiographically, the PEG solution is administered over several hours. Most cats defecate within 6 to 12 hours. Typical doses are 100 mL/kg over 10 hours and can be titrated up over time or given for longer time periods if needed. Carr noted that some veterinarians believe the use of PEG solutions is contraindicated.

“In humans, [the use of PEG solutions] has been well documented and, in my personal experience, is very effective,” said Carr.

Long-term treatment of constipation in cats

Once concurrent conditions have been addressed, constipation management starts with dietary therapy and can be augmented from there with laxatives, promotility agents, and probiotics.

Diet

Dietary management is the first line of treatment for constipated cats. The best diet for these cats varies by individual and is often based on preference. The most important component of dietary management is the presence of highly digestible fiber. In Carr’s opinion, Royal Canin Veterinary Gastrointestinal Fiber Response cat food has shown promising results anecdotally, but it lacks strong evidence-based medicine due to study design problems.

Laxatives

Several laxatives have been used in feline constipation cases, including lactulose, bisacodyl, and dioctyl sodium sulfosuccinate. Based on evidence from human medicine, laxatives that contain PEG 3350, such as MiraLAX, are preferred because they are more effective and better tolerated than other types. MiraLAX and related products are osmotic laxatives that bind water to keep it in the gastrointestinal tract instead of drawing water into the colon, which can result in dehydration of the body. These laxatives are well tolerated in cats. According to Carr, in a preliminary study of 6 cats using PEG 3350—containing laxatives, he did not observe adverse effects. Doses can vary greatly between patients and often need to be titrated up to reach the desired fecal consistency. Carr’s recommended starting dose is a quarter-teaspoon per meal. He notes that it can take up to 3 days to see the full effect, so titrating the dose slowly is recommended.

Promotility agents

For cats that are not responsive to diet and laxatives alone, promotility agents should be added. Cisapride (2.5-5 mg per cat every 8-12 hours) is the recommended promotility agent and can be compounded to appropriate doses.

Probiotics

Recent evidence has shown that a probiotic available for humans is efficacious for cats with chronic constipation and megacolon.1 Carr noted that this probiotic, which is currently not available in North America, improved clinically and showed improvements on histopathology and endoscopy compared with pretreatment evaluation. Carr stressed that while this particular probiotic was shown to be efficacious, it does not mean that other probiotic strains would show similar results.

Surgery

According to Carr, in end-stage cases, subtotal colectomy is an option. The surgery is not without risks but generally has decent outcomes, although avoiding surgery is possible for most patients, and medical management is preferred.

Take-home points

The cornerstones of treatment for all constipated cats, no matter the severity, are relieving the immediate fecal impaction and developing a long-term management strategy to minimize recurrence. Long-term management strategies are multimodal and may need to be adjusted or expanded over time. With appropriate medical management, most constipated cats can live a good life and avoid the need for surgical intervention.2

Kate Boatright, VMD, is a practicing veterinarian, speaker, and author in western Pennsylvania. She is passionate about mentorship, education, and addressing common sources of stress for veterinary teams and recent graduates. Outside of clinical practice, Boatright is actively involved in organized veterinary medicine at the local, state, and national levels.

REFERENCES

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Diagnosis and treatment of dry eye in dogs

Keratoconjunctivitis sicca is among the more common ocular conditions seen in dogs. Here is a look at what causes dry eye and how to manage it.

By Ron Ofri, DVM, PhD, DECVO

Tears play an important role in maintaining the health of the ocular surfaces because they supply the metabolic requirements of the avascular cornea. Tears also contribute to ocular defenses, as they contain globulins and other antimicrobial factors, and wash away foreign bodies and dirt. Finally, tears contribute to lubrication of the ocular surfaces, and to the optical refraction of the eye. Although the tear film is rich in (outer) lipid and (inner) mucin, most of these physiologic functions are conducted through the aqueous layer.

In dogs, about two-thirds of the aqueous layer is produced in the main lacrimal gland, with the balance produced primarily by the lacrimal gland of the third eyelid. After washing over the ocular surfaces, tears flow through the puncta into the nasolacrimal system, draining into the nasal or oral cavity. Diseases of the lacrimal system may be roughly divided into problems of production (which may be insufficent or excessive) and problems of the immune-privileged lacrimal glands, allowing the immune-mediated destruction of these tissues. Indeed, some dogs with KCS have circulating autoantibodies against the orbital and nictitans lacrimal glands. This form of the disease most likely has a genetic component, as it is more prevalent in some breeds (ie, spaniels, bulldogs, and brachycephalic breeds).

Endocrinologic diseases
Lacrimal gland secretions are reduced in endocrinologic disorders, including diabetes, hyperadrenocorticism, and hypothyroidism. The clinical presentation is usually bilateral and there is no breed predisposition. Although KCS may be the only clinical sign observed by the owner, it usually appears concomitantly with other systemic signs of the endocrinologic disease. Dogs with diabetes have been shown to have alterations in the mucin component of tears and lower corneal sensitivity in addition to reduced Schirmer tear test 1 (STT-1) values.

Systemic infectious diseases
Some infectious diseases may induce KCS in the dog and cat, as the infectious agent causes lacrimal gland adenitis. Distemper and leishmaniasis are the 2 most common infectious causes in dogs, and feline herpesvirus is the most common infectious cause in cats.

Neurogenic KCS
A primary loss of parasympathetic innervation to the lacrimal gland (cranial nerve [CN] VII) can lead to quantitative KCS. Some affected animals may have a history of unilateral orbital traumatic or inflammatory disease, whereas otitis media/interna may be the primary cause in others. Because the parasympathetic branch of CN VII innervates the lateral nasal glands, dogs with neurogenic KCS may also present with dryness and crustng of the ipsilateral nostril (xeromycetria) if the lesion is proximal to the pterygopalatine ganglion.

Diagnosing dry eye

Clinical signs
Quantitative KCS is typically manifested by several clinical signs: mucoid or mucopurulent ocular discharge, blepharospasm, conjunctival hyperemia, corneal vascularization and pigmentation, a dry and lusterless cornea, and corneal ulceration. Mucoid or mucopurulent ocular discharge is the most consistent clinical sign in canine KCS. In quantitative KCS, the reduction in the aqueous component of the tear film may result in compensatory conjunctival cell hyperplasia and increased mucin production, thus inducing a thick serous or seromucoid discharge that often sticks to the cornea and conjunctiva asropy strands. With time, this discharge will become mucopurulent due to inflammatory cell infiltration of the ocular surface, or it may become septic if secondary infection has occurred (Figures 1-3).

Blepharospasm is a sign of marked discomfort induced by frictional irritation as the eyelids move over a dryer ocular surface. Severe signs of discomfort more often accompany acute and severe cases of KCS, whereas blepharospasm and pain are very subtle in chronic cases. Eyes with reduced tear production often appear red and irritated. Conjunctival hyperemia usually involves both the palpebral and bulbar conjunctiva, although the former is commonly affected first. Varying degrees of conjunctival thickening and chemosis may also be seen.

Because the superficial cornea receives most of its metabolic support from the tear film, reduced tear production leads to superficial corneal vascularization aimed at replacing the lost metabolic support. Along with vascularization, inflammatory cells, edema, pigment (melanin), lipids, and calcium may be secondarily deposited in the cornea, inducing, in very chronic cases, severe corneal opacity leading to reduced vision. Over time, the corneal epithelium thickens due to (Continues on page 49).
INDICATIONS
Control of pruritus associated with allergic dermatitis and control of atopic dermatitis in dogs at least 12 months of age.

IMPORTANT SAFETY INFORMATION
Do not use APOQUEL in dogs less than 12 months of age or those with serious infections. APOQUEL may increase the chances of developing serious infections, and may cause existing parasitic skin infestations or pre-existing cancers to get worse. Consider the risks and benefits of treatment in dogs with a history of recurrence of these conditions. New neoplastic conditions (benign and malignant) were observed in clinical studies and post-approval. APOQUEL has not been tested in dogs receiving some medications including some commonly used to treat skin conditions such as corticosteroids and cyclosporines. Do not use in breeding, pregnant, or lactating dogs. Most common side effects are vomiting and diarrhea. APOQUEL has been used safely with many common medications including parasiticides, antibiotics and vaccines.

See accompanying Brief Summary of Prescribing Information.

*Based on survey data from veterinarians (n=250) and pet owners (n=150).

**Animal Safety**

**Warnings:**

APOQUEL is not for use in dogs less than 12 months of age (see Animal Safety). APOQUEL modulates the immune system. APOQUEL is not for use in dogs with serious infections. APOQUEL may increase susceptibility to infection, including demodecosis, and exacerbation of neoplastic conditions (see Precautions, Adverse Reactions, Post-Approval Experience and Animal Safety).

New neoplastic conditions (benign and malignant) were observed in dogs treated with APOQUEL during clinical studies and have been reported in the post-approval period (see Adverse Reactions, Post-Approval Experience, and Animal Safety).

Keep APOQUEL in a secure location out of reach of dogs, cats, and other animals to prevent accidental ingestion or overdose.

**Human Warnings:**

This product is not for human use. Keep this and all drugs out of reach of children. For use in dogs only. Wash hands immediately after handling the tablets. In case of accidental eye contact, flush immediately with water or saline for at least 15 minutes and then seek medical attention. In case of accidental ingestion, seek medical attention immediately.

**Precautions:**

Dogs receiving APOQUEL should be monitored for the development of infections, including demodicosis, and neoplasia. The use of APOQUEL has not been evaluated in combination with glucocorticoids, cyclosporine, or other systemic immunosuppressive agents. APOQUEL is not for use in breeding dogs, or pregnant or lactating bitches. The use of APOQUEL has not been evaluated in combination with other systemic immunosuppressive agents.

**Animal Safety**

**Indications:**

Control of Atopic Dermatitis

In a masked field study to assess the effectiveness and safety of oclacitinib for the control of pruritus associated with allergic dermatitis in dogs, 216 dogs treated with APOQUEL and 220 dogs treated with placebo (vehicle control) were evaluated for safety. During the 30-day study, there were no fatalities and no adverse reactions requiring hospital care. Adverse reactions reported (and percent of dogs affected) during Days 0-7 included diarrhea (2.3% APOQUEL, 0.9% placebo), vomiting (2.3% APOQUEL, 1.8% placebo), lethargy (1.8% APOQUEL, 1.4% placebo), anorexia (1.4% APOQUEL, 0% placebo), and polydipsia (1.4% APOQUEL, 0% placebo). In most of these cases, signs spontaneously resolved with continued dosing. Five APOQUEL group dogs were withdrawn from study because of: darkening areas of skin and fur (1 dog); diarrhea, vomiting and lethargy (1 dog). Dogs in the APOQUEL group had a slight decrease in mean white blood cell counts (neutrophil, eosinophil, and monocyte counts) that remained within the normal reference range. Mean lymphocyte count for dogs in the APOQUEL group increased at Day 7, but returned to pretreatment levels by study end without a break in APOQUEL administration. Serum cholesterol increased in 25% of APOQUEL group dogs, but mean cholesterol remained within the reference range.

**Continuation Field Study**

After completing APOQUEL field studies, 239 dogs enrolled in an unmasked (no placebo control), continuation therapy study receiving APOQUEL for an unrestricted period of time. Mean time on this study was 372 days (range 1 to 610 days). Of these 239 dogs, one dog developed demodicosis following 273 days of APOQUEL administration. One dog developed dermal pigmentary viral plaques following 266 days of APOQUEL administration. One dog developed a moderately severe bronchopneumonia after 272 days of APOQUEL administration; this infection resolved with antimicrobial treatment and temporary discontinuation of APOQUEL. One dog was euthanized after developing abdominal ascites and pleural effusion of unknown etiology after 450 days of APOQUEL administration. Six dogs were euthanized because of suspected malignant neoplasms; including thoracic metastatic, abdominal metastatic, splenic, frontal sinus, and intracranial neoplasms, and transitional cell carcinoma among 17, 120, 175, 49, 141, and 296 days of APOQUEL administration, respectively. Two dogs each developed an apocrine gland adenocarcinoma (one dermal, one anal sac) after approximately 219 and 320 days of APOQUEL administration, respectively. One dog developed a low grade oral spindle cell sarcoma after 320 days of APOQUEL administration.

**Post-Approval Experience** (2020):

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

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

Vomiting, lethargy, anorexia, diarrhea, elevated liver enzymes, demodectic (i.e. crusts, pododermatitis, pyoderma), seizures, polydipsia, and demodicosis.

Benign, malignant, and unclassified neoplasms, dental masses (including papillomas and histiocytomas), lymphoma and other cancers have been reported.

Death (including euthanasia) has been reported.

**Contact Information:**

To report suspected adverse events, for technical assistance or to obtain a copy of the Safety Data Sheet, contact Zoetis Inc. at 1-888-963-8471 or www.zoetis.com.

For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS or online at www.fda.gov/reportanimalae.

**Storage Conditions:**

APOQUEL should be stored at controlled room temperature between 20° to 25°C (68° to 77°F) with excursions between 15° to 40°C (59° to 104°F).

**How Supplied:**

APOQUEL tablets contain 3.6 mg, 5.4 mg, or 16 mg of oclacitinib as oclacitinib maleate per tablet. Each strength tablets are packaged in 100 and 250 count bottles. Each tablet is scored and marked with AQ and either an S, M, or L that correspond to the different tablet strengths on both sides.

Approved by FDA under NADA # 141-345

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Revised: December 2020

400331880AP
Clinical signs are pathognomonic of KCS in dogs presenting with characteristic symptoms. Common is the STT-1 (Schirmer tear test 1) with values of less than 15 mm/minute wetting of the filter paper. Although there are a number of ways to treat KCS, medically, this is often straightforward. The initial choice of treatment should be based on the severity of the disease.

When the tear film is deficient, the cornea loses its clarity, and brightness appears dull and lusterless. Dry eyes are prone to corneal ulceration because corneal epithelial cells are more readily exfoliated by the greater friction associated with blinking over the roughened, keratinized epithelium of the palpebral conjunctiva. Additionally, in the acute phase of the disease, the tear film becomes hypertonic, leading to dehydration of the corneal surface epithelium and resulting in generalized thinning of the corneal epithelium (Figure 4).

These ulcers can become complicated (melting ulcers or perforations) because the ocular surface immunity and antiprotease levels are severely reduced. Central corneal ulceration or perforation is more often seen in acute and severe cases of KCS. Conversely, eyes suffering from more chronic KCS show an insidious onset of disease and present with an accumulation of thick mucoid to mucopurulent discharge, pigmentary keratitis, corneal vascularization, and secondary to keratoconjunctivitis sicca. Note the lackluster appearance, based on the dull reflection of the camera flash.

Tear film's aqueous component is seen in Figures 1 through 4, are pathognomonic of the disease.

### Schirmer tear test 1

The diagnosis of canine quantitative KCS is relatively straightforward. Although there are a number of ways to diagnose the disorder, the most common is the STT-1 (Figure 5). Readings of less than 15 mm/minute on dogs presenting with characteristic clinical signs are pathognomonic of the disease.

**Medical treatment dry eye**

**Principles of treatment**

KCS treatment has 3 main objectives: restoring natural tear production, maintaining hydration and lubrication of the ocular surface while lacrimal stimulants achieve their effect, and restoring or maintaining corneal transparency. These aims should be achieved using medical therapy; surgery should be recommended only if medical treatment fails. Owners should be aware that in most cases treatment must be lifelong.

Although the response to medical treatment is often positive, in some patients (usually those with very low pretreatment STT-1 values) treatment may not be entirely successful. However, even if treatment does not restore normal tear production, patient comfort and vision can often be maintained using topical treatment.

Broadly, medical management of KCS consists of nonspecific drugs (eg, artificial tears, or lacrimomimetics) and specific medications aimed at treating the underlying primary cause (eg, lacrimal stimulants). Supporting treatments include eye wash and removal of excess mucus, as well as artificial tears. The latter play an important role in improving ocular health while waiting for lacrimal-stimulating treatment to achieve its effect, or when such treatment fails to raise tear production to adequate levels. In general, artificial tears need to be viscous to reduce friction and secondary ocular surface inflammation.

Topical anti-inflammatory and antibiotics may be prescribed, if needed. In most cases, multiple topical medications are needed initially, and these must be administered 5 minutes apart, in order of density. Ointments must be given last, because they are oily and can inhibit the penetration of other topical drugs.

**Lacrimalstimulating therapy**

Lacrimalstimulants are divided into immunomodulating and cholinergic agents. Immunomodulating agents are commonly used and can be extremely effective in treating and controlling immune-mediated KCS by stimulating the natural production of the tear film’s aqueous component.

Topical cyclosporine and tacrolimus are the cornerstone of KCS immunomodulating therapy. Their exact mechanism of action is not fully understood, but both are calcineurin inhibitors that reversibly inhibit the proliferation of T-helper cells and prevent the release of proinflammatory cytokines. These cells and their associated mediators appear to play a role in the immune-mediated suppression of lacrimal gland function. Topical cyclosporine is commercially available as 0.2% ointment and in concentrations of 0.5% to 2% in compounded solutions in an olive or corn oil base. However, the compounded formulations may be more irritating, and 2% cyclosporine may suppress systemic lymphocytes in small dogs, especially following long-term use.

Tacrolimus has been reported to have a 10- to 100-fold higher potency than cyclosporine. It is available as a 0.02% and 0.03% compounded suspension in an aqueous or olive oil base. Compared with cyclosporine, tacrolimus shows a slightly higher efficacy, which is why some study authors recommend tacrolimus as the drug of choice in advanced canine KCS cases.

Pimecrolimus is another immunomodulating lacrimal stimulant drug that has recently demonstrated encouraging results in canine KCS with a 1% formulation used 3 times daily. However, it should be noted that dermal preparations containing tacrolimus and pimecrolimus and intended for humans come with an FDA warning stating that “although a causal relationship has not been established, rare cases of malignancy (eg, skin and lymphoma) have been reported in patients” using these drugs, and the creams are not indicated for use in children younger than 2 years.

The most commonly used cholinergic agent is pilocarpine. It is a direct-acting parasympathomimetic drug commonly used in cases of neurogenic KCS. Because topical administration of pilocarpine is irritating due to its acidic pH, oral administration of the ophthalmic formulation is generally preferred. The initial dose applied to food is 1 drop of 2% pilocarpine per 10 kg of body weight twice daily. The drug may be unpalatable, and the dose is rather small, therefore owners should be instructed to apply the drops to a spoonful of tasty moist food and feed that to the patient. The dose is increased in 1-drop increments every 2 to 3 days until tear production increases or signs of systemic toxicity (including inappetence, hypersalivation, vomiting, diarrhea, or bradycardia) develop.

If systemic adverse effects are observed, pilocarpine should be discontinued for 2 to 3 days until systemic signs abate, and then renewed at a lower dose. Some patients tolerate the drug better if the total daily dose is divided into 3 treatments rather than 2. In my experience, the drug is effective in about 90% of patients with unilateral neurogenic KCS and ipsilateral xeromyceria. Treatment duration is variable (from 3 to 5 months), but in some cases long-term administration may be needed. Topical immunomodulating agents may be prescribed simultaneously to reduce ocular surface inflammation.

References available online at dvm360.com.
Radiography has long been the staple imaging modality in veterinary medicine. Although CT and magnetic resonance imaging (MRI) have been available in large specialty and teaching hospitals for decades, the decreasing cost of ownership has recently made them more readily available in smaller settings. In addition, improved technology, with a decreased need for radiation shielding, has allowed for a small number of mobile CT practices to spring up throughout the country. Although radiography will always have a place in veterinary medicine, increased access to advanced imaging modalities allows for better diagnosis and treatment of common diseases. In particular, many diseases of the head, brain, spine, vasculature, and musculoskeletal system are more readily diagnosed with these advanced modalities.

### Head

Compact anatomy and superimposition make CT the ideal modality for imaging of the head. One of the most common clinical complaints seen by our internal medicine service is chronic nasal discharge in geriatric patients. Skull radiographs are limited in their ability to contribute significant information toward a diagnosis, are technically difficult, and require heavy sedation or anesthesia for well-positioned images. Although radiographs can help the clinician assess for increased or decreased opacity within the nasal cavity, as well as regional osteolysis, subtle disease is often missed. Important aspects of disease such as cribriform plate lysis, nasopharyngeal polyps, or intranasal foreign bodies can be difficult to diagnose with radiography. CT is not only useful for assessing the nasal cavity in these patients but provides additional information on disease of the regional lymph nodes (Figure 1). In these cases, CT is best used as a complimentary modality to rhinoscopy with biopsy sampling, with both performed during the same anesthetic event.

Similarly, in the case of head trauma, subtle and nondisplaced fractures can be missed due to the summation of multiple bones. In addition, appropriate skull radiographs require heavy sedation or anesthesia with numerous oblique views obtained. Although CT also requires sedation, images are captured quickly in all planes, with the ability to reconstruct images into oblique planes, as well as 3-dimensional volumes.

### Brain

Both MRI and CT can be used in patients in whom clinical signs refer to the brain. Radiography has very limited use in these cases, with findings such as hyperostosis of the calvarium reported in cases of meningiomas. MRI is traditionally

---

**Figure 1.** On CT, a large nasal adenocarcinoma is noted within the right nasal cavity, causing both paranasal bone lysis and subtle cribriform plate lysis.
more expensive and less readily available than CT, but its superior soft tissue contrast and detail make it the ideal modality for most neurologic patients.

CT is particularly useful in trauma patients, as the quick image acquisition can minimize sedation. CT can be used to easily identify skull fractures, evaluate for cerebellar herniation, and assess for intracranial hemorrhage (Figure 2). When the cost of MRI is prohibitive, CT can also be used to assess for brain neoplasms, especially those that typically contrast enhance, such as meningiomas.

MRI offers superiority in the diagnosis of brain neoplasms, inflammatory disease, and ischemic infarctions. Its main drawbacks are cost and the lack of availability (Figure 3).

**Spine**

Similar to imaging of the brain, MRI and CT are both useful for imaging the spine (Figure 4). When particular focus is needed on the bony structures, such as with trauma, CT is superior. CT is also beneficial when there is concern for a pathologic fracture, osteolytic lesions such as diskospondylitis, or osteoproliferative lesions such as osseous-associated caudal cervical spondylomyelopathy. In addition to standard imaging, CT myelography can improve the conspicuity of compression lesions and increase diagnostic accuracy in many cases.

Although radiographic myelography remains a commonly used modality for patients with intervertebral disk degeneration, its strength is in quickly identifying the site of spinal cord compression, rather than assessing for spinal cord disease. In clinics where it is available, MRI allows for evaluation of the spinal cord at the site of compression. Additionally, it can assist in diagnosing neoplasms of the spinal cord, ischemic myelopathy, acute hydrated nucleus pulposus extrusions, and congenital abnormalities.

**Vasculature**

Ultrasound has long been the most common modality for assessing abdominal and limb vasculature.
Although ultrasound is a noninvasive, point-of-care tool for assessing for thrombi in the large vasculature (Figure 5), such as the abdominal aorta, its use in diagnosing anomalous vessels, such as portosystemic shunts, is limited by operator experience. Additionally, gastrointestinal gas and noncompliant patients can further hinder identification of anomalous vasculature.

CT angiography (CTA) has largely supplanted ultrasonography in academic institutions for diagnosing portosystemic shunts (Figure 6). In 1 study, the sensitivity of CTA in diagnosing portosystemic shunts was 96% compared with just 68% for ultrasound. In addition to providing better characterization of shunt morphology, CTA was 5.5 times more likely to discern whether a patient had a portosystemic shunt.2 In the past, the need for anesthesia may have deterred clinicians from choosing CTA as a first imaging step, but the speed of image acquisition with newer machines allows for the use of heavy sedation instead.

**Musculoskeletal system**

Patients with traumatic fractures, especially following vehicular trauma, commonly present to our emergency service. Radiographs are a first-line imaging modality in these cases, but patients often have complex fractures or luxations, especially of the pelvis. Summation can complicate the accurate diagnosis of these fractures, especially in small bones such as the carpal bones. CT not only allows for an increased conspicuity of fractures, but 3-dimensional models can be produced to facilitate surgical planning.

In addition to traumatic cases, common disease processes such as medial coronoid fragmentation, pathologic fractures, and angular limb deformities can be diagnosed with much more sensitivity and accuracy using CT compared with radiography (Figure 7).

MRI is not yet widely used for musculoskeletal imaging in veterinary medicine, but its ability to diagnose tendinopathies and desmopathies is unmatched by other modalities. Although MRI lacks the portability and cost-effectiveness of musculoskeletal ultrasound, it allows for imaging of some deeper structures that cannot be otherwise assessed (Figure 8).

References available online at dvm360.com

Eric Van Eerde, DVM, DACVR, is a 2012 graduate of the University of Florida College of Veterinary Medicine in Gainesville. He has worked as an associate radiologist and as director of radiology at BluePearl Specialty and Emergency Pet Hospital in Tampa, Florida.
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Creative veterinary clinic sale terms: Risks vs benefits

Not all veterinary practice sellers are ready for retirement. Here’s a look at several creative practice buyout options that allow the owner to stay on.

By Christopher J. Allen, DVM, JD

Veterinarians sell their practices for a variety of reasons. It’s logical to think that the owner is getting ready to retire, but that’s certainly not always the case. Some sellers are simply anxious to take advantage of the frothy prices currently being paid by corporate consolidators. Others are fairly young but just need a break— temporary or permanent—from the many management headaches involved in practice ownership, especially keeping their hospital fully staffed in a tight labor market. Other sellers just want to cash out so they can wait out their noncompete period and open up another practice in hopes of selling it into an even loftier market.

In an apparent effort to satisfy the myriad goals of veterinary practice sellers, many national and regional consolidators have developed creative buyout scenarios, providing a number of nonretirement options for the selling practice owner. Let’s look at the risks and benefits of some of these emerging programs.

Long-term medical director appointment

Sellers who are relatively young (and some who are older but not yet ready to quit clinical practice) might seek out a corporate buyer that encourages their sellers to remain on staff as medical director. By accepting that position, the seller can continue to have a say in how the clinic that they spent years developing will be operated in the future.

The benefit for the seller can be financial as well. In a market in which it can be very difficult to hire experienced veterinarians, seasoned practice owners can ask the acquiring corporation for a number of solid incentives to go with their salary or ProSal compensation percentage. These can include full health insurance, extra weeks of paid time off, or perhaps an extended continuing education hiatus at a learning program in Hawaii.

Partnering with your corporation

Some consolidators are rolling out a strategy by which a seller can continue to operate the hospital in conjunction with the corporate purchaser. In this scheme, the seller retains just under half of the practice in exchange for the right to participate in the profitability of the clinic being sold. For example, 55% of a clinic with a mutually agreed value of $1 million would be sold to a consolidator for $550,000. A prearranged buyout of the seller would be established based on one of a number of pricing formulas. The seller stays on for years, hopefully reaping the financial benefits of increases in the practice’s growth and profitability.

There are 2 main downsides for the seller in this scenario. First, the seller only gets half their money for the clinic at the closing; and second, the practice could do worse after the partnership begins owing to the consolidator’s management. If that occurs, both the buyer and seller take a substantial financial hit.

Investing back into the practice

A similar program is sometimes offered by consolidators without the degree of risk involved with partnering. A corporation may agree to buy a clinic at a solid price but allow the owner (and possibly some key associates) to retain a small but significant minority share of the practice. This allows the seller, who may or may not work at the hospital after the traditional mandatory year or two of “prior owner retention” at the facility, to keep getting profit distributions from the practice for a defined period of time. If the clinic thrives, this can be a good investment. If the consolidator does a lousy job running the place, the former owner can’t get hurt too badly.

Owner accepts equity in acquiring corporation

Some consolidators offer practice sellers (and sometimes encourage them to take) a small ownership position in the acquiring corporation instead of all cash for the purchase price. Whether this is suitable for any individual seller must be determined through substantial due diligence and by enlisting savvy professional advice.

It works like this: Dr Smith is offered 2 options by a potential corporate suitor. He may sell the whole practice to DogCorp for $3 million, or he could sell to DogCo for $2 million cash and $1 million in DogCo stock (or LLC membership if appropriate).

Unlike the previously described owner-participation schemes, Smith is risking $1 million not only on the skill of the acquirer in running veterinary clinics but also on the perception of 2 other big financial players with respect to how well the company’s other hospitals are being run.

In this “stock in lieu of closing funds” approach, the owner is hoping for 1 of 2 things to happen. One is that the consolidator will soon be “recapitalized” by Wall Street and in so doing the value of the shares accepted in lieu will be priced much higher than the price assigned to the equity at the sale of the Smith clinic.

The other is that the consolidator will take DogCo to a securities exchange as an initial public offering (IPO). This sounds awesome, but keep in mind that IPOs do not always mean that the price of the offered security rises. Many promising IPOs of yore are now bankrupt. Of course, many have also flourished after obtaining massive influxes of capital, which is ultimately the objective of going public.

Do your homework

Each of the clinic purchase scenarios described here has dramatically different tax implications. Prior to choosing a sellout plan, make absolutely sure that you discuss the various options with a certified public accountant who is experienced in such transactions. And in the case of taking equity in lieu, learn as much as is humanly possible about the acquirer and its historical success (or lack thereof) in managing veterinary hospitals.

Christopher J. Allen, DVM, JD, is president of Associates in Veterinary Law PC, which provides legal and consulting services exclusively to veterinarians. He can be reached via email at info@veterinarylaw.com.
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Is presented in Table 1.

ADVERSE REACTIONS:
In a 6-month US field study, the 120 dogs enrolled in the study receiving a minimum of one dose of ThyroKare were evaluated for safety. The percentage of dogs experiencing adverse reactions were 16.7% (20.0 mg) and 18.7% (16 mg). The mean (± standard deviation) terminal phase half-life was 9.6 (±3.4) hours. Administration of levothyroxine sodium with food reduces oral bioavailability. Administration of ThyroKare as a single oral dose of 0.1 mg/10 lb (0.022 mg/kg) to 7 thyroidectomized, fasted Beagles, the absolute bioavailability of levothyroxine sodium was low (19%). After 7 days of twice daily dosing, peak serum concentrations of total thyroxine were reached within 1.3 to 4 hours. The mean (± standard deviation) terminal phase half-life was 9.6 (±3.4) hours. Administration of levothyroxine sodium with food reduces oral bioavailability.5

Anxiety 5.8
Aggression 3.3
Anemia 1.7
Hyperactivity 8.3
Increased ALP and 4 of 5 dogs with increased ALT, respectively. Liver enzyme elevations associated with replacement therapy with ThyroKare. However, hematocrit and red blood cell counts exceeded the upper reference limit at the end of the study. 3 of these dogs also had elevated reticulocyte counts. Nine (9) dogs had transient elevations in neutrophil counts exceeding the reference range at Day 28 that resolved by Day 56. Liver enzyme elevations associated with ThyroKare returned to the reference range by Day 168 in 2 of 4 dogs with increased ALP and 4 of 5 dogs with increased ALT, respectively.

One dog was withdrawn from the study at the owner's request because of an elevated T4 concentration and abnormal behavior. A second dog was removed from the study by request of the investigator due to anesthesia.

A dog with preexisting hypoalbuminemia exhibited declining serum albumin and total protein concentrations concurrently with prolonged elevated serum T4 concentrations. Although reducing the ThyroKare dose resulted in serum T4 levels in the therapeutic range, the dog experienced a serious adverse event that included marked weight loss, hypoalbuminemia, hypoproteinemia, elevated ALT, and hypoglycemia. The dog received supportive veterinary care and completed the study while remaining on the same ThyroKare dose. Serum albumin returned to near baseline and total protein normalized by the end of the study.

Twenty-two (22) individual case reports describing 42 adverse reactions related to the clinical use of ThyroKare in dogs were reported voluntarily to Neogen Corporation (as of 2020). The following adverse events were reported: panting, anxiety, elevated or low serum T4 concentrations, vomiting, diarrhea, lethargy, unspecified skin issues, folliculitis, hyperpigmentation, hair loss, hiding, polyuria, polydipsia, tachycardia, masseter and temporal muscle atrophy, appetite reduced, polydipsia, and polyuria.

User Safety Warnings:
For a copy of the Safety Data Sheet (SDS) or to report suspected adverse drug events, contact Neogen Corporation at 800.525.2022. For additional information about adverse drug events reporting for animal drugs, contact FDA at 1.888.FDAVETS or www.fda.gov/reportanimalads.

CLINICAL PHARMACOLOGY:
Synthetic levothyroxine (T4) is chemically identical to the naturally-occurring thyroid hormone. Levothyroxine sodium acts, as does endogenous thyroxine, to stimulate metabolism, growth, development, and differentiation of tissues. Levothyroxine sodium is absorbed rapidly from the gastrointestinal tract after oral administration. When ThyroKare (levothyroxine sodium tablets), USP was administered as a single oral dose of 0.1 mg/10 lb (0.022 mg/kg) body weight twice daily. The initial dose is 0.1 mg/10 lb (0.01 mg/lb, 0.022 mg/kg) body weight twice daily. To minimize day-to-day variations in serum total thyroxine concentrations (see CLINICAL PHARMACOLOGY), owners should consistently administer ThyroKare either with or without food. To maintain serum levothyroxine sodium concentrations over time, therapeutic monitoring should be conducted every 4 weeks until an adequate maintenance dose is established and then as needed for continued maintenance.

When switching from another levothyroxine sodium formulation to ThyroKare, monitor serum T4 concentrations and clinical response due to potential differences in recommended starting doses and potential differences in bioavailability.

CONTRAINDICATIONS: Do not use in dogs with thyrotoxicosis, acute mycotic infection, or uncorrected adrenal insufficiency.

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

REFERENCES:

Table 1. Percentage of dogs experiencing adverse reactions

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<td>Polyuria</td>
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<th>Adverse Reaction</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Otitis externa and otitis interna</td>
<td>4.2</td>
</tr>
<tr>
<td>Increased serum alanine aminotransferase (ALT)</td>
<td>4.2</td>
</tr>
<tr>
<td>Increased serum alkaline phosphatase (ALP)</td>
<td>3.3</td>
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<tr>
<td>Pruritus, including pruritus, alopecia, tachycardia, dermatitis and eczema, lymphopenia</td>
<td>3.3</td>
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<tr>
<td>Aggression</td>
<td>1.7</td>
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<tr>
<td>Dermatitis and eczema</td>
<td>1.7</td>
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<tr>
<td>Lymphopenia</td>
<td>1.7</td>
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<td>Temporal muscle atrophy</td>
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<tr>
<td>Weight loss</td>
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<tr>
<td>Adipsia</td>
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<tr>
<td>Hypersalivation</td>
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<tr>
<td>Sensory reaction</td>
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Adverse Reaction Percent
Pros and cons of selling to a corporation

Before you say “no” to selling your veterinary practice to a corporate entity, here’s why it worked for me—plus a few things to consider if you walk down this path.

By Shawn P. Messonnier, DVM

I recently sold my practice, but not to another veterinarian. I sold it to a corporation, something I swore I would never do. In this article, I’ll explain what motivated my decision and highlight some of the potential obstacles my wife and I discussed before the sale. My goal is to help you grasp the many issues sellers face and provide some crucial but not-so-obvious selling information.

Why sell?
I was burning out as an owner and employer. I love being the doctor, but the added stressors of ownership suck the life out of you. I was ready to let someone else take the reins so I could focus on what I do well—helping pets stay healthy and live longer.

Although I’m still a few years away from retirement, I decided to sell my practice to provide for my wife. That way, if I died suddenly, I wouldn’t leave her with a practically worthless investment to sell during her grieving process. Now, if I suddenly pass away, that burden of selling the practice has been removed.

Why a corporate buyer?
Truthfully, I never thought I would sell to a corporate buyer. I saw firsthand the corporate intrusion in our industry and how my colleagues would often quit after the owner “sold out” to corporate America. The new corporate owner would change policies and payrolls and make the once independent practice fall under the corporate umbrella. I certainly wanted no part of that. However, over the past 5 years, I’ve been solicited regularly by various corporate buyers, especially those new to the veterinary field and smaller in size. I initially ignored their requests, thinking these corporations would come in and overtake my autonomy as a doctor.

Last year, I finally decided to give some of these corporations an objective look, and I’m glad I did. I discovered that smaller players in the game didn’t want to “corporatize” my practice but rather turn it into an investment opportunity. They would take over the management issues that many of us want to give up, but doctors would still run their practices without changing medical protocols or remaking the practice.

After investigating several of these groups, I decided Heartland Veterinary Partners was the best choice. I knew the founder and former CEO, George Robinson, DVM, a well-respected man in the industry. We had both served on the editorial board of Veterinary Forum years ago. Additionally, Heartland allowed me to continue running the medical side of my practice the way I wanted. The buyout offer was also higher than I would have received had I sold to another solo veterinarian, and I can continue to work at the practice for as long as I’d like.

The contract we negotiated was fair to both parties, and Heartland was receptive to my specific needs. (This is not true of every corporate buyer.) Finally, the company has enhanced my practice by upgrading equipment and providing an office manager to take over the “business stuff” I no longer wish to perform. So yes, corporate ownership turned out to be a positive decision for my wife and me.

Selling concerns
My wife’s main issue with selling my practice was a decrease in salary. Before the sale, my monthly take-home pay included a salary plus distributions (since I was an S corporation). Technically, my salary didn’t change after the sale, but my take-home pay decreased by about 50% because the distributions (profit) now go to Heartland. Our main concern was that my salary might not be sufficient for us. To help assuage my wife’s concerns, we decided to do 3 things with the money we received from the practice sale:
1. We devoted a portion of the money to retirement funds as the majority of our distributions or profits from our S corporation also went to retirement before the sale.
2. We wanted to share a financial gift with our church and other charities, so we started a charitable trust. This accomplished 2 goals: We were able to distribute some of our windfall to those in need and set aside money for future gifts. Our trust also allowed us to decrease our huge tax bill from the practice sale by almost 50%. We could be charitable with our money and give less to the government to waste—our decision was a win-win for everyone.
3. To address my wife’s concern about our decreased take-home pay, we set aside part of the money in a market fund to make up for any financial shortfall. The money is there if we need it and, when it’s not, we can invest it and/or enjoy some of it.

I advise you to consider doing something similar when you sell your practice.

Final thoughts
Whether you sell to a corporation or to an individual veterinarian, you must assemble a team of experts to help, and this excellent team doesn’t come cheap. My current certified public accountant (CPA), who’s familiar with the accounting practices of my S corporation, helped me to structure the deal in a tax-friendly way. I also assembled a crack team of attorneys and another CPA and practice evaluator. Although fees may vary, be prepared to spend $30,000, $40,000, or even more on this team. The costs were well worth it as I would not have wanted to navigate (or known how to negotiate) through more than 100 pages of legal documents.

The team pointed out possible pitfalls and ensured every detail of the sale. For example, Heartland, like other corporations, pays part of the selling price up front and the rest over the term of your contract as you hit certain reasonable (and negotiable) goals. My advisory team also made sure I understood that if I didn’t hit my goals (which I expect to and am working to hit) I would only receive the amount of cash given to me at closing. If you plan to sell to a corporation, go into the deal as if you won’t hit your goals and make sure you’re comfortable with the cash in your hand. Your team will help you understand this and other items that you may not think about due to everything else on your mind (such as running your practice).

By the way, get ready for a heart attack once you see the estimated tax bill your CPA prepares for you, as the Internal Revenue Service wants to ensure you’re not living off your newfound wealth.

Wrapping it up
There’s no question that selling was probably the biggest and most important decision I’ve made in my almost 30 years of practice ownership. Although it was extremely stressful at times, I have no regrets. My overall practice stress levels have decreased, especially after 2 challenging employees left shortly after the sale. Additionally, my wife is taken care of in the event of my untimely death, and we can look forward to the next chapter of our lives.

Shawn P. Messonnier, DVM, owns Paws & Claws Holistic Animal Hospital in Plano, Texas, and serves on the dvm360 Editorial Advisory Board.

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Here to stay: Why telemedicine is integral to the future of veterinary medicine

Telemedicine has become a hallmark of positive change for the veterinary profession. Here’s how (and why) to use telemedicine at your practice, and tips for getting started.

By Kelsey Gustafson, Associate Editor

To adhere to the social-distancing guidelines brought about by the coronavirus disease 2019 (COVID-19) pandemic, many veterinary hospitals have been relying on technology and innovation to preserve their standard of patient and client care. According to telehealth expert Aaron Smiley, DVM, chief of staff at 2 Indiana veterinary hospitals and immediate past president of the Indiana Veterinary Medical Association, the initial allure of telemedicine for promoting COVID-19 safety protocols has evolved into a discussion about how veterinary medicine will be offered in the future. During a recent Fetch dvm360® virtual conference, Smiley outlined the benefits of telemedicine and offered tips for converting to paid virtual care.

“Telemedicine has been integral in the veterinary sector for more than a century. Increased public awareness and use of telemedicine is allowing us to monetize the professional service that we have offered for so long,” he said, adding that telemedicine has always been deeply married with physical exams and veterinarians are very good at it. “We have stayed in close communication with our clients and that has allowed us to become very effective in offering telemedicine.”

**Why telemedicine?**

When Smiley converted from free to paid telemedicine 5 years ago, he feared it would be unpopular among clients. Fortunately, he received the opposite response. “I’ve come to find out [that clients] love the service and are more than willing to pay for it,” he said. Here’s why.

**Better customer service**

Telemedicine offers excellent customer service by providing easy and convenient communication with the doctor. Clients who are strapped for time have the option to send photos, videos, or texts with medical questions that a professional can assess appropriately and answer. For example, Smiley explains that for routine spay and neuter appointments a client can send a short video of the incision if there is a question about how the suture line is healing. Telemedicine provides a lot of peace of mind because clients have the ability to reach out to the medical team and get advice on next steps.

Still, Smiley acknowledges the importance of physical medicine: “Telemedicine will never replace in-clinic care, but telemedicine married with physical exams improves the level of care drastically,” he said.

**Asynchronous telemedicine**

Many veterinary professionals don’t appreciate the distinction between asynchronous and synchronous telemedicine. Synchronous telemedicine is often used by medical professionals for humans, largely due to the demands of insurance reimbursement, and entails live video calls between the doctor and the patient.

In veterinary medicine, getting the patient to show clinical signs during a scheduled phone appointment can prove challenging, ultimately restricting the level and standard of care provided. Asynchronous telemedicine, on the other hand, allows the client to send text messages, pictures, or videos when it is convenient for them. The doctor in turn can review the messages and videos at and respond at their convenience. This provides a lot of schedule flexibility for owner and veterinarian it also revives the patient from having to “perform” on demand.

“[Asynchronous telemedicine] is preferred by doctors and clients and, although I can’t communicate with patients, I like to think it’s preferred by them too,” said Smiley.

**Monitoring and diagnosis**

Smiley identified several conditions in companion animals that can be diagnosed successfully via telemedicine. These include uncomplicated diarrhea or vomiting (the patient is bright and alert, mucous membranes are pink and moist, and the owner has a history of feeding the patient food they aren’t supposed to eat), uncomplicated otitis (a video with the flash on typically allows good visualization of the vertical ear canal), and flea infestations (a picture of caudal dorsal alopecia or a video of a flea crawling on a dog are hallmark signs). He suggests creating a list of diseases that you currently diagnose remotely as a guide to know what cases would be best to diagnose via telemedicine. “Each veterinarian will have a different list of diseases that they feel comfortable diagnosing remotely and the best guide is past clinical experience,” Smiley said.

Some conditions that are easily monitored via telemedicine are diabetes, seizures, arthritis, heart failure, allergies, and deep pyoderma.

**Converting your practice**

Implementing a new routine takes time and can initially slow down a clinic’s efficiency before speeding it up. Smiley offered advice for making a smooth transition. First, use telemedicine technology that has the ability to connect the client to the entire medical team at the same time. Having asynchronous exchanges between receptionist, technician, and veterinarian provides clarity for team members and can be more efficient than having the veterinarian return calls or relay verbal instructions back and forth.

Next, ensure that the technology notifies clients when the doctor or staff is unavailable for telemedicine consults. This is crucial because it lets the client know how to proceed remotely when a team member is away.

**Many veterinary professionals don’t appreciate the distinction between asynchronous and synchronous telemedicine.**

Finally, understand how the technology incorporates the virtual exam into medical records. Telemedicine technology does not have to be fully integrated with your medical record software, according to Smiley, but it should provide you with an easy way to preserve telemedicine records within your in-clinic records.

**What to consider before making the switch**

Overall, Smiley says his experience has been a positive one and urges other veterinary practices to give it a go. But before converting to paid virtual care, there are 2 roadblocks to be aware of: clinic workflow and the conversion from free to paid telemedicine.

“Paid telemedicine requires new clinical routines, and even the slightest change in routine can be disorienting,” Smiley said. “Because most of us already offer free telemedicine, it is worth the short-term pain of transitioning to paid telemedicine for the reward of better customer service and better patient care—and a reduced risk for burnout.”

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Why you should say "yes" to wellness plans

If you’re hesitant about offering wellness plans at your veterinary practice, here are a few benefits to consider, plus tips for selecting the best plans.

By Caitlin McCafferty, Assistant Editor

We live in a subscription society. From Netflix to Amazon Prime, today’s consumers crave convenience. Many pet owners—especially millennials, who now make up the largest cohort of pet owners—are willing to make long-term commitments to what matters most to them. According to Jeff Rothstein, DVM, MBA, founder and co-president of Mission Veterinary Partners, those commitments include wellness plans for their fur babies.

At a recent Fetch dvm360® virtual conference, Rothstein highlighted the benefits of offering wellness plans and shared tips for selecting the best ones for your veterinary hospital. Like other types of subscription services, wellness plans are offered at several levels and price points, allowing clients to budget appropriately for pet care, said Rothstein.

Improved compliance and better care

Wellness plans can boost client adherence to your recommendations, said Rothstein, who has had wellness plans in place at his clinics for the past 25 years. When pet owners come in for an appointment, they are often bombarded with multiple options for wellness care. From vaccines to health screens to fecal testing, clients can become overwhelmed and start to tune out your recommendations, he explained.

Wellness plans offer clients access to comprehensive care that they may not have considered otherwise. Rothstein says he’s been able to convert C and D clients—the ones who often disregard your expert opinion—to A clients because of wellness plans. “Now, all of sudden, the [patients] are getting what we recommend for the year,” he said.

Overall, wellness plans elevate the quality of medicine you provide your patients, said Rothstein. They’re especially good for puppies and kittens, giving them access to comprehensive care from birth.

Client loyalty and dental benefits

Wellness plans also increase your number of womb-to-tomb clients, said Rothstein. These long-term relationships are extra special because you build strong bonds with these clients and their pets, he explained.

Additionally, wellness plans allow you to convert your clinic into a dental practice, said Rothstein. Many clients balk at $300 to $500 estimates for dental cleanings, so budgeting for these expenses makes a significant difference, he added. When clients don’t have to worry about dental cleaning fees, they’re more likely to accept your recommendations.

Better cash flow and the “yes” factor

Wellness plans can enhance your practice’s cash flow, especially during slower months. For Rothstein, the period from November through February is traditionally slower at his practice, but the plans help to even out the cash flow.

Wellness plans also can help simplify client education. All you need is one “yes,” he explained. “So, we take a little time and educate them on the wellness plan, they enroll, and you save a lot of time on that whole educational piece,” he said.

How to select plans that work

Before adding wellness plans to your clinic, fully commit to the process, said Rothstein. Take time to research plans and look for practices that have successfully implemented them. “There are many wellness plans out there, so there’s no need to reinvent the wheel,” he said. “You can customize them to meet your hospital’s needs.”

Additionally, decide how many options or levels you want to offer (basic, standard, comprehensive, etc), then select the specific services you wish to include. Finally, develop a pricing strategy. Will you charge a membership fee? Will you offer unlimited free exams? What kind of discounts will you provide?

Here are 4 more things to keep in mind when selecting your wellness plans:

• Keep them simple. Don’t confuse owners with too many add-ons.
• Have fun. Try offering perks.
• Customize them for the future. Consider including virtual exams, for example.

The bottom line

When it comes to wellness plans, the pros certainly outweigh the cons, said Rothstein. With veterinary costs increasing during the coronavirus disease 2019 pandemic, now is a great time to start offering budgeted care, he added. When clients purchase wellness plans, not only do their pets benefit from better care, but you often gain life-long customers.
Is relief veterinary medicine for you?

For some practitioners, the allure of relief work is great. Here’s what to consider before making the transition from associate to relief veterinarian.

By Kelsey Gustafson, Associate Editor

According to the American Veterinary Medical Association, the proportion of relief veterinarians in the workforce increased by 30% in the decade preceding 2018, concomitant with the increase in the number of actively working veterinarians. Today more than 2300 relief veterinarians are practicing in hospitals across the United States.

For many veterinarians, relief work offers the potential for better pay, less stress, and improved work-life balance. It also allows individuals to explore new opportunities and part ways with a toxic workplace at their discretion. At a recent Fetch dvm360® virtual conference, Indiana relief veterinarian Tai Ogg, DVM, MPH, shared her thoughts on what to consider before making a transition.

Before you commit

Before making the leap to relief work, ask yourself these questions, which will serve as a guideline for the next steps for your career shift:

- Do you want to work full time or part time?
- In what type of practice(s) do you want to work (general practice, emergency medicine, shelter, or a combination)?
- Do you want to perform surgery or only see appointments?
- Do you have any special skills?

“Do you do ultrasounds, endoscopies, or acupuncture, or are you certified in rehabilitation? These are all marketable skills that can certainly provide you with a niche market when moving forward as a relief veterinarian,” said Ogg.

Being an independent contractor

Most relief veterinarians are considered independent contractors. However, for those who are wary of managing the business aspects of relief work, there are companies that hire relief veterinarians, find local jobs for them, and handle the business side of things. But for those who want full control, becoming an independent contractor is the way to go.

“As an independent contractor, you determine the outcome of your work,” Ogg said. “You are being hired as a veterinarian, but you still get to choose how you practice medicine.” In other words, the practice can tell you what needs to be done but not how to do it.

One thing to keep in mind: Independent contractors must file a 1099 rather than a W-2 at tax time. Form W-2 establishes you as a practice employee, Ogg explained, and all necessary taxes (eg, Social Security, income tax) are deducted automatically from your pay; whereas 1099 employees must pay their own taxes. However, 1099 employees can write off several work-related expenses, from mileage to meals to business cards.

“Anything that you’re buying specifically for work you can write off,” she said. “This is a nice advantage come tax season, as these are things that you can’t deduct as a W-2 employee.” Ogg also recommends finding a certified public accountant who specializes in small businesses to help provide estimates for quarterly taxes. They can also help you decide whether to set yourself up as a limited liability corporation (LLC) or an S-corporation (S-corp). (Most states allow self-employed individuals to establish an LLC, but if this isn’t the case in your state then an S-corp may be your next best option.)

Setting boundaries

Setting boundaries is crucial for everyone involved, and both associate and relief veterinarians should establish them from the start, Ogg said. “This is especially important for relief veterinarians, so that they don’t end up in a situation that is either uncomfortable or ethically and morally compromised,” she said.

Veterinarians should consider the hours they want to work, the procedures they want to perform, when they want to take lunch, how much time they need for appointments, and their protocol if they need to stay later than planned.

For individuals who have a hard time setting boundaries, Ogg recommends having a contract in place that outlines your relationship with each clinic. Contracts make it easier to enforce your rate, cancellation policy, overtime policy, and other requirements, and ideally should be in place for all relief veterinarians.

Choose your rate

One of the other major considerations is determining your rate, which is based on both geography and personal preference. Consider your monthly expenses, including health insurance, licensure fees, liability insurance, disability insurance, and business expenses, and desired disposable income. Next, determine whether you’re going to charge per diem or hourly rates. Ogg advises seeking out other local relief veterinarians to see what they earn; most are more than willing to share their experiences. She also recommends charging different rates for weekends, holidays, overnights, and emergency department shifts.

The bottom line

Relief veterinary work can be very rewarding. “Before I transitioned to relief, I was ready to leave the profession. I had that feeling of never really fitting in, like [I was] a square peg trying to fit into a round hole,” Ogg said. “I don’t have that feeling anymore as a relief veterinarian. It’s nice being able to help practices out that really need it.”

Ogg’s final piece of advice: “Most veterinary practices just want you to fit in with their staff. If you work to fit in, the rest will follow. You will get repeat bookings, the practice’s clients and staff will be happy, and you will enjoy the work.”

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DESCRIPTION:
Revolt Topical Parasiticide is available as a solution for use in one single tube for topical (dermal) treatment of dogs or cats against infestations due to fleas or heartworm. It also has been used against sarcoptic mange, ear mites, and intestinal worms. Selamectin, the active ingredient in Revolt, is a macrocyclic lactone compound. These compounds effectively prevent the development of organisms in the dermal or subcutaneous tissues.

INDICATIONS:
Revolt is recommended for use in dogs six weeks of age or older and cats eight weeks of age and older for the following parasitic and infectious conditions:

- **Dogs:**
  - Ticks and fleas: Revolt topical application should be administered 7 to 14 days after the initial dose.
  - Heartworm: Revolt must be administered monthly to maintain control of heartworm disease in dogs.

- **Cats:**
  - Ticks and fleas: Revolt topical application should be administered 7 to 14 days after the initial dose.
  - Ear mites: Revolt should be administered once as a single topical dose.

DOGS:
- Oral anthelmintics: The product was administered safely at oral dosages up to 4 times the topical dose, given within a month of the last dose of the former medication.

WARNINGs:
- Not for human use. Keep out of the reach of children.
- In humans, Revolt may irritate skin and eyes. Reactions such as stinging, itching, and skin rashes have been reported in humans in rare instances. Individuals with known hypersensitivity reaction to selamectin should use the product with caution or consult a health care professional. Revolt contains isopropyl alcohol and the preservative benzyl alcohol.
- Drug reactions such as hives, itching, and skin redness have been reported in humans in rare instances.
- Adverse reactions to selamectin have been observed in dogs with skin reactions even in dogs with a history of skin disorders. In general, the incidence of adverse reactions with selamectin in dogs has been lower than that of other topical ectoparasiticides.

DOsAGE:
- Topical application: Dose of selamectin was not effective in the treatment of a cat with pre-existing heartworm infestation before beginning treatment with Revolt.
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SAFETY:
- Selamectin has been tested safely at oral dosages up to 4 times the topical dose, given within a month of the last dose of the former medication.

STORAGE CONDITIONS:
- Store below 30°C (86°F).
- HOW SUPPLIED: Available in eight separate dose strengths for dogs and cats of different weights (see DOSAGE). Revolt for puppies and kittens is available in cartons containing 1 single dose tube. Revolt for cats and dogs is available in cartons containing 1 single dose tube. Approved by FDA under ANDA 200-673

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Promoting consistency at your veterinary practice

Help your team go from frazzled to focused with step-by-step operational processes and task checklists. Here’s why, plus how to get started.

By Peter Weinstein, DVM, MBA

Do you get frustrated when you open a surgical pack to find that it doesn’t look the same as the last one you opened? How about when someone answers the phone differently each time it rings? The end-of-day report is not in the safe when you arrive in the morning, and no one put the lab work out for overnight pickup. Do these situations make you want to punch the nearest wall, or at least utter some 4-letter words?

These types of mistakes result from inconsistencies in practice protocols and procedures. The good news? Creating operational processes and task checklists can help stop this unproductive cycle (and protect your walls).

Processes as recipes
Think of a process as a recipe. Each time you cook using a recipe, you may make minor adjustments but the basic recipe remains the same. If you follow the instructions step by step—you have the correct ingredients and tools, the oven is at the right temperature, and you complete the steps in order—the food will taste essentially the same every time without fail.

Shouldn’t you be able to say the same thing for spay pack preparation, end-of-day balancing out, urinalysis, and in-house laboratory testing? Not to mention phone answering, credit card processing, client greetings, cage cleanings, and the rest?

Delineating and documenting your processes increases efficiency, saves time, and brings peace of mind. So, where do you start? Document your processes either by creating instructive videos of the tasks demonstrating how each should be completed and storing those videos in folders on your server, or by writing down each step and keeping the documents in 1 or more easily accessible binders.

Veterinary practices could benefit from documented processes for any number of routine tasks:
- Answering the phone for a new client
- Cleaning a litter box
- Running a complete blood count
- Balancing out at the end of a shift
- Processing credit card payments

You can organize processes by hospital zone. For example, create separate operations manuals—or separate sections within a single manual—for reception and client services, technical and animal care, and management. Add additional zones if needed, or create chapters for exam room, radiology, pharmacy, boarding, bathing, grooming, and so on. How you organize the manuals is up to you. What is important is that all common processes are documented and easily accessible to all employees.

Why checklists work
Remember the game “telephone”? You whisper a few sentences into one kid’s ears, they repeat it to the next kid, and it continues around the circle. Then, the last child repeats out loud what they heard. Most of the time, what the last child heard is nothing like the originally whispered statement. This game parallels how most veterinary hospitals train new hires. Detailed and documented instructions in the form of operations manuals, processes, and checklists will allow you to equip new associates well, setting them up for success.

I first saw an operational checklist on the back of the door of a McDonald’s bathroom. The laminated list included key tasks and who performed them, plus a time chart to sign off on upon task completion.

In veterinary practices, checklists are memory-jogging tools that ensure proper questions are asked (history), information is shared (release instructions), details are provided (new client appointments), and services are performed completely and thoroughly. Practices could benefit from checklists to help team members remember to put out lab work for pickup, open the anesthetic pop-off valve, add fluoride to cleaned teeth, send out client reminders, and medicate boarding animals.

We are so accustomed to being busy that it’s easy to forget things. So, also consider checklists for these tasks:
- New client appointments
- Surgical patient check-ins
- Surgical patient releases
- End-of-day receptionist duties
- End-of-day technician duties
- Beginning-of-day animal caretaker duties
- Bathing
- Dentistry (one checklist for each grade of dental disease)
- Anesthetic machine preparation

Type up your checklists, then laminate and post them on the wall in an appropriate area of the hospital. Doing so can help you avoid mistakes that could cause harm (or death) to a patient or damage a relationship with a client. The bottom line? Most errors are avoidable if we focus on consistently performing tasks accurately and thoroughly.

Most errors are avoidable if we focus on consistently performing tasks accurately and thoroughly.

Peter Weinstein, DVM, MBA, is executive director of the Southern California Veterinary Medical Association, coauthor of The E-Myth Veterinarian with Michael E. Gerber, and a veterinary coach at simplesolutionsforvets.com.

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Comparing pet health insurances in 2021

If 2020 taught us anything, it’s to be prepared for the unexpected. For your clients, that’s where pet insurance comes in.

By Caitlin McCafferty, Assistant Editor

For many veterinary clients, unexpected pet care costs due to accidents or illnesses present a serious dilemma, one for which they are not prepared.

According to data collected by Pawlicy Advisor between July 2019 and May 2020, less than 20% of pet owners in the United States would be able to pay out of pocket for an unexpected $5000 veterinary bill. Although about 30% of owners would seek financing to help pay for the care, nearly 50% said they would not be able to cover the cost by any means. As the pandemic has worn on into 2021, those findings may be tilting in an even more dismal direction. Many financially insecure pet owners opt for economic euthanasia, which hurts all parties involved.

Pet health insurance can provide owners with peace of mind in knowing that should the unexpected happen, the cost of their pet’s care will be largely covered. Without having to worry about money, clients are more involved in their pet’s care and more willing to opt for the gold standard diagnostics and treatments you recommend.

But choosing a pet insurance company can be very confusing. How much coverage do they need? How much will it cost each month? How does reimbursement work? Are there annual deductibles? And what counts as a pre-existing condition?

To increase your understanding of today’s pet insurance offerings—and help you frame the conversation with clients—dvm360® invited both large and small, new and old insurance companies to share details about their coverages and policies.

Your clients look to you and your staff not only for education about their pet’s health and well-being, but also to seek your expert opinion about what is best for their pet. By understanding and endorsing it, you tell clients that you believe pet insurance is well worth the investment. Many experts recommend that practices select up to 3 insurance companies, get to know them, and initiate the pet insurance conversation from multiple angles, including on your website and in your reception area and exam rooms.

What follows is only a portion of the information we gathered. Due to space constraints, we were unable to include the answers to all of our questions. For the complete picture, including many more questions and answers, check out the online version of this article at dvm360.com/view/comparing-pet-health-insurances-in-2021.

<table>
<thead>
<tr>
<th>What species do you provide coverage for?</th>
<th>Dogs and cats of all ages and breeds</th>
</tr>
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</table>
| What types of plans do you offer? | • Accident + Illness  
• Accident Only  
• Endorsements can be added to both types for coverage for wellness care, exam fees, inherited and congenital conditions, and memorial coverage |
| What is the average monthly premium for each type of plan? | Basic plan starts at about $15 for cats and $22 for dogs (plus endorsements) |
| What are the annual deductibles? | Policyholders can choose ($100-$1000)  
Policyholders choose their own reimbursement percentage (70% to 90%) and annual limit ($2500 to unlimited) |
| What is the reimbursement percentage after the deductible is met? | Any illness or injury that occurred, recurrent, existed, or showed signs, whether or not diagnosed by a veterinarian, prior to the pet’s original start date, coverage period, or during the waiting period |
| What is considered a preexisting condition? | Any illness or injury that occurred, recurrent, existed, or showed signs, whether or not diagnosed by a veterinarian, prior to the pet’s original start date, coverage period, or during the waiting period |
| How does reimbursement work? What is the average time for reimbursement? | Policyholders submit a claim form and invoice from their veterinary visit and are reimbursed for eligible conditions (usually within 3 to 5 days after submission) either by check or direct deposit |
| Do you offer a trial period to pet owners? | In most states, if a policyholder is not completely satisfied within the first 30 days of a full-term policy, we will refund 100% of the premium as long as no claims have been filed |
| Do plans use a benefit schedule? When are records required from the veterinary practice? | Yes, for Wellness  
We do not require patient records at enrollment |
| What are your customer service hours and formats? | Monday-Friday 8:30 AM to 8 PM EDT and Saturday 10 AM to 3 PM EDT via phone; anytime via email |
| Does your company cover virtual appointments? | No, except for our 24/7 Vet Helpline that is included with every policy |

REFERENCE
The story of pet insurance is often one of happiness or sadness. The happy stories are those that involve pets that were able to receive life-saving treatments only because their owners had pet insurance. The sad stories, of course, are those in which potentially life-saving diagnostics or treatments are not administered because the owner cannot afford them—potentially leading to economic euthanasia at worst or poor quality of life at best.

We asked veterinary professionals to share personal anecdotes in which pet insurance, or the lack thereof, was instrumental in the health of a patient (or their own pet) in need. Here are their stories, plus tips for getting more of your patients insured.

**PUPPY PROBLEMS**

I recently saw a young dog that was adopted from a North Carolina rescue. The dog came up heartworm positive and had hookworms, whipworms, the whole gamut. The local shelter took care of those issues and neutered the dog, and the owners purchased pet insurance, which was a very positive thing. The dog ended up needing knee surgery to correct a damaged cranial cruciate ligament, at which time it was discovered that his hips were dysplastic. He was later sent for hip surgery and extensive physical therapy. I don’t know how far these owners would have gone to care for this dog if they hadn’t had pet insurance in place.

**Pro Tip:** Assign one or more staff members to lead the charge for pet insurance. They can gather information for clients from recommended insurers, answer questions, and oversee efforts to increase insurance uptake.

**THE POWER OF PET INSURANCE**

When a young bulldog was presented for vomiting, radiography revealed a foreign body and bladder stones. Both issues were corrected during a single surgery, resulting in a bill totaling about $5000. The dog’s owners had pet insurance so they gave us carte blanche to do what we needed to, and they got reimbursed for all but about $100 of what they spent.

Six months later we diagnosed lymphoma, and the owners agreed to proceed with chemotherapy. About a month into the treatment course, the skin on the dog’s leg started sloughing off due to a vicious infection that we attributed to a spider bite. We stopped chemotherapy to potentially treat this wound, but the dog died at home soon afterward.

This admittedly terrible story clearly shows the power of pet insurance. These owners may not have been able to pursue the initial surgery, let alone chemotherapy, if they had not had insurance.

**Pro Tip:** Place signs around your practice highlighting the importance of pet insurance.

Michele Leso, VMD, is a staff veterinarian at VCA Maple Shade Animal Hospital in New Jersey.

**A STARK DIFFERENCE**

I see a lot of geriatric patients with degenerative myelopathy, and many of their owners want acupuncture and herbas for their pet. One such patient, a German shepherd, had some pretty severe conscious proprioception deficits in its back end that were causing leg dragging and tripping. At the initial consult, I asked whether the owner had pet insurance and if they could check to see whether it covers acupuncture. Happily, both answers were yes, which allowed the dog to come in twice a week for electroacupuncture. The insurance also covered the Chinese herbal formulations that I prescribed.

I saw a fairly rapid return to normal movement after implementing these treatment strategies. If we didn’t have that opportunity to use the insurance and have the patient come in more frequently, that may not have been the case.

**Pro Tip:** Include links on your practice website to the pet insurance companies you prefer. Besides affirming that your website is a go-to resource for clients, this communicates to owners that you endorse the idea of pet insurance.

Christopher Shapley, DVM, CVA, specializes in veterinary acupuncture and herbal medicine at Brick Town Veterinary Hospital in Brick Township, New Jersey.

Suzanne Ellis, DVM, is a New Jersey veterinarian who works for Lap of Love Veterinary Hospice.
HOLISTIC HEALING

One of my clients had an older cat with early renal disease and a younger cat with a thoracic tumor. Both were receiving some ongoing care, but the cat with the thoracic tumor needed to see a specialist, who offered a grave prognosis: The cat was likely to die within 24 hours. Rather than euthanize her cat, the client and I laid out a treatment plan using functional medicine.

That cat lived another year with our holistic approach, which was really good considering the specialist’s prognosis. Because this owner had pet insurance, she let us do anything we needed to do. In fact, she was coming in with both of her cats 3 times a week for ongoing care, with a bill totaling about $10,000 a month.

Clients whose pets are insured are more willing to accept gold standard recommendations than those whose pets aren't insured.

Pro Tip: Clients faced with a mountain of pet insurance options may feel overwhelmed. To prevent information overload and improve pet insurance uptake, share details about just a few companies.

LESSON LEARNED

About 4 years ago during a summer in Colorado, my dog Casey was bitten by a recluse spider. Within days, the dog’s skin started sloughing off his back, first in patches then in large swaths becoming an overwhelming Pseudomonas infection. My son, also a veterinarian, and the office manager from my Florida practice flew to Colorado, picked up the dog, and drove back about 30 hours to the University of Florida for intensive care. We told the doctors to do whatever they needed to do. I did not have pet insurance. The dog died after 3 weeks at the University of Florida hospital, and I paid a $35,000 veterinary bill.

Needless to say, I got pet insurance for my other dogs, and I’m very happy I did. Like our clients, we want everything possible done when our pets are suffering, and being on the other side of the table was an eye opener for me. When your pet needs help, having pet insurance takes one negative out of the whole experience.

Pro Tip: To keep pet insurance top of mind for clients, include a column on the sign-in sheet at your front desk where owners indicate which pet insurance they have. This may prompt clients who have never considered insurance to ask about it, or at least start thinking about how their pet could benefit.

MAKING CHOICES

On Christmas Eve many years ago I thought my dog was obstructed. I did not have pet insurance, so at the emergency hospital I put $2500 on my credit card to cover the estimate for diagnostics. It was a terrible place to be—on Christmas Eve trying to decide whether to spend $2500 dollars I didn't have on a diagnosis, put my dog to sleep, or just go home and hope for the best.

Pro Tip: Let insurance company reps help. They are happy to educate clients directly and willing to provide trinkets to be used as incentives for team members or clients alike.

YORKIE WITH A SHUNT

A few months ago, the owner of a 4-year-old Yorkie that was having urinary accidents came to see me for a second opinion on a suspected urinary tract infection. The previous veterinarian had prescribed conservative treatment without testing the patient.

Upon evaluation, the dog's blood work, complete blood count, and chemistry profile were normal. X-rays revealed some poorly visible tiny bladder stones, which were surgically removed and analyzed to be urate stones. The discovery of these rare bladder stones led us in the direction of a suspected liver shunt, which led to bile acids testing, the results of which suggested a shunt.

CT confirmed that this asymptomatic dog had a single liver shunt which we corrected surgically with an amyloid constrictor, and a liver biopsy revealed microvascular dysplasia. The dog continued to have urinary issues a few months after surgery, and a repeat CT confirmed another liver shunt, which was corrected with a second amyloid constrictor.

The second amyloid constrictor failed, so a third procedure was needed to correct this surgical nightmare. The patient is now doing well at home but requires long-term medications.

Fortunately, this client had pet insurance and 90% of everything was covered. Without a doubt, this dog would not have received the type of care it did had the owner not had the forethought to purchase pet insurance.
### ASPCA
- Dogs, cats, and, in some states, companion horses
- • Accident Only and Accident + Illness for dogs and cats
- • Colic + Accident and Colic + Accident + Illness for horses (coverage not available in all states)
- • Wellness coverage can be added on to any plan for an additional cost.

### Liberty Mutual
- Dogs and cats
- • Accident Only
- • Accident + Illness
- • Accident, Illness + Wellness

### Lemonade
- Dogs and cats
- • Preventative + Wellness
- • Extended Accident + Illness

### Nationwide
- Dogs, cats, birds, and exotic pets
- • Accident + Illness
- • Wellness (alone or as a rider)
- • Accident + Illness + Wellness (Whole Pet)

### Premiums

<table>
<thead>
<tr>
<th>ASPCA</th>
<th>Liberty Mutual</th>
<th>Lemonade</th>
<th>Nationwide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dogs, cats, and, in some states, companion horses</td>
<td>Dogs and cats</td>
<td>Dogs and cats</td>
<td>Dogs, cats, birds, and exotic pets</td>
</tr>
<tr>
<td>$100, $250, or $500</td>
<td>$250, $500, or $1000</td>
<td>$100, $250, or $500</td>
<td>$100 or $250</td>
</tr>
<tr>
<td>• 90%, 80%, or 70%</td>
<td>Policyholders choose their own reimbursement percentage (70%, 80%, or 90%) and annual maximum ($5000, $10,000, or $15,000).</td>
<td>• Policyholders choose their own reimbursement percentage (70%, 80%, or 90%).</td>
<td>• 100% of benefit schedule allowance (Major Medical)</td>
</tr>
<tr>
<td>• Coverage is capped only once per policy year at the customer’s selected annual limit amount.</td>
<td>Policyholders can cancel at any time, and we send the updated medical record</td>
<td>Reimbursement is sent directly to the policyholder once a claim form and invoice are submitted and processed. Policyholder can request direct reimbursement to the practice.</td>
<td>For Whole Pet with Wellness, policyholders choose their own reimbursement percentage (90%, 70%, or 50%).</td>
</tr>
<tr>
<td>Any illness, disease, injury, or change to the pet’s health that first occurred or showed signs before coverage was effective or during the waiting period</td>
<td>Any illness or injury that occurred or existed, whether or not diagnosed by a veterinarian, prior to the endorsement effective date or during the waiting period</td>
<td>Reimbursement is sent via direct deposit or check to the policyholder, usually within 5 days.</td>
<td>There is no coverage cap.</td>
</tr>
<tr>
<td>Unless otherwise specified by the policyholder, reimbursement is directly to the policyholder once a completed claim form and invoice are submitted and processed. Policyholder can request direct reimbursement to the practice.</td>
<td>Reimbursement is sent via direct deposit or check to the policyholder (usually within 10 days).</td>
<td>Any condition for which a veterinarian provided medical advice, the pet received treatment, or the pet displayed signs consistent with the condition prior to the effective policy date or during any waiting period</td>
<td></td>
</tr>
<tr>
<td>What species do you provide coverage for?</td>
<td>PetPartners</td>
<td>Prudent</td>
<td>Pumpkin</td>
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<td>-----------------------------------------</td>
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<tr>
<td>Dogs and cats of all ages and breeds</td>
<td>Dogs and cats (all breeds)</td>
<td>Dogs and cats 8 weeks and older</td>
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<table>
<thead>
<tr>
<th>What types of plans do you offer?</th>
<th>PetPartners</th>
<th>Prudent</th>
<th>Pumpkin</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Accident + Illness (includes certain alternative and holistic treatments)</td>
<td>• Accident Only</td>
<td>• Accident + Illness with optional wellness add-on plan</td>
<td></td>
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<tr>
<td>• Accident Only</td>
<td></td>
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<tr>
<td>• Endorsements can be added to both types for coverage for wellness care, exam fees, inherited and congenital conditions, and memorial coverage.</td>
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<thead>
<tr>
<th>What is the average monthly premium for each type of plan?</th>
<th>PetPartners</th>
<th>Prudent</th>
<th>Pumpkin</th>
</tr>
</thead>
<tbody>
<tr>
<td>A basic plan starts around $15 for cats and $22 for dogs.</td>
<td>• Varies based on pet breed and age, as well as owner’s zip code</td>
<td>Varies based on pet breed and age, as well as owner’s zip code</td>
<td></td>
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<tr>
<td></td>
<td>• Accident-only plans start at $5/month; Accident + Illness plans start at $10/month</td>
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<thead>
<tr>
<th>What are the annual deductibles?</th>
<th>PetPartners</th>
<th>Prudent</th>
<th>Pumpkin</th>
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</thead>
<tbody>
<tr>
<td>Policyholders can choose ($100-$1000)</td>
<td>Policyholders can choose ($100, $250, $500, or $1000); other options also available through our agents</td>
<td>$100, $250, or $500</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>What is the reimbursement percentage after the deductible is met?</th>
<th>PetPartners</th>
<th>Prudent</th>
<th>Pumpkin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policyholders choose their own reimbursement percentage (70% to 90%) and annual limit ($2500 to unlimited).</td>
<td>• Policyholders choose their own reimbursement percentage (70%, 80%, or 90%); other options also available through our agents.</td>
<td>90% on all policies with an annual reimbursement limit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Annual limits range from $10,000 to unlimited depending on the plan.</td>
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<thead>
<tr>
<th>What is considered a preexisting condition?</th>
<th>PetPartners</th>
<th>Prudent</th>
<th>Pumpkin</th>
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</thead>
<tbody>
<tr>
<td>Any illness or injury that occurred, recurred, existed, or shaved signs, whether or not diagnosed by a veterinarian, prior to the pet’s original start date, coverage period, or during the waiting period.</td>
<td>Any condition that occurred before the end of the waiting period</td>
<td>Any condition that occurred on or before the first effective date of the applicable coverage or during a waiting period; “occurrence” is defined as the date the signs of the condition first began, not when the condition is diagnosed</td>
<td></td>
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<table>
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<tr>
<th>How does reimbursement work? What is the average time for reimbursement?</th>
<th>PetPartners</th>
<th>Prudent</th>
<th>Pumpkin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policyholders submit a claim form and invoice from their veterinary visit and are reimbursed for eligible conditions (usually within 3 to 5 days after submission) either by check or direct deposit.</td>
<td>Reimbursement is sent to policyholder via direct deposit or check. Reimbursement averages around 2 business days as long as any necessary medical records have been received and the claim is straightforward.</td>
<td>Reimbursement is sent via direct deposit or check to the policyholder. Policyholder can request direct reimbursement to the practice.</td>
<td></td>
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<table>
<thead>
<tr>
<th>Do you offer a trial period to pet owners?</th>
<th>PetPartners</th>
<th>Prudent</th>
<th>Pumpkin</th>
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</thead>
<tbody>
<tr>
<td>In most states, if a policyholder is not completely satisfied within the first 30 days of a full-term policy, we will refund 100% of the premium as long as no claims have been filed.</td>
<td>30-day money-back guarantee as long as no claims have been made</td>
<td>Except in New York, policyholders can cancel within the first 30 days for a full refund as long as no claims have been paid.</td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Do plans use a benefit schedule?</th>
<th>PetPartners</th>
<th>Prudent</th>
<th>Pumpkin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, for Wellness</td>
<td>Yes, for behavioral treatments and wellness</td>
<td>No</td>
<td></td>
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</table>

<table>
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<tr>
<th>When are records required from the veterinary practice?</th>
<th>PetPartners</th>
<th>Prudent</th>
<th>Pumpkin</th>
</tr>
</thead>
<tbody>
<tr>
<td>We do not require records at enrollment.</td>
<td>We don’t require records upon enrollment. When there is a claim, we obtain patient records on behalf of the client.</td>
<td>When a claim is filed, but we recommend and help customers upload their pet’s medical history if they have it ahead of time and upon enrollment.</td>
<td></td>
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<table>
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<tr>
<th>What are your customer service hours and formats?</th>
<th>PetPartners</th>
<th>Prudent</th>
<th>Pumpkin</th>
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<tbody>
<tr>
<td>Monday-Friday 8:30 AM to 8 PM EDT and Saturday 10 AM to 3 PM EDT for phone calls; anytime via email</td>
<td>Monday-Friday 8 AM to 5 PM CDT and Saturday 8 AM to 4 PM CDT by phone, email, text/chat</td>
<td>Monday-Friday 8 AM to 8 PM EDT for phone calls, email, text, and Facebook; limited coverage during weekend hours via email, text, and Facebook</td>
<td></td>
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<thead>
<tr>
<th>Does your company cover virtual appointments?</th>
<th>PetPartners</th>
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<th>Pumpkin</th>
</tr>
</thead>
<tbody>
<tr>
<td>No, except for our 24/7 Vet Helpline that is included with every policy.</td>
<td>We offer unlimited 24/7 vet chat as a benefit to all policyholders. Virtual appointments are also covered during the pandemic.</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>
More than 50% of pet owners say they would purchase pet insurance if their veterinary practice recommended it. Your clients want and need your recommendations on pet health insurance. Having a conversation is the first step to ensuring better care, and Nationwide® is here to help you get started.

Have the conversation, share the smiles. Learn more or request materials for your practice.

petinsurance.com/veterinarians • 866-838-4874
<table>
<thead>
<tr>
<th><strong>What species do you provide coverage for?</strong></th>
<th>SPOT</th>
<th>Trupanion</th>
<th>Wagmo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dogs and cats</td>
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<th>Wagmo</th>
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<tbody>
<tr>
<td>• Accident Only</td>
<td></td>
<td>Accident + Illness</td>
<td>Accident + Illness</td>
</tr>
<tr>
<td>• Accident + Illness</td>
<td></td>
<td>Accident + Illness</td>
<td>Accident + Illness</td>
</tr>
<tr>
<td>• Wellness coverage can be added on to any plan for an additional cost.</td>
<td></td>
<td>Accident + Illness</td>
<td>Wellness (alone or as a rider)</td>
</tr>
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<tr>
<th><strong>What is the average monthly premium for each type of plan?</strong></th>
<th>SPOT</th>
<th>Trupanion</th>
<th>Wagmo</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Accident Only: $16 for cats, $25 for dogs</td>
<td></td>
<td>Domestic shorthair cat age 8 weeks to 12 months: $24.62 ($250 deductible)</td>
<td>Accident + Illness: Starts at $9 for cats and $13 for dogs</td>
</tr>
<tr>
<td>• Accident + Illness: $32 for cats, $56 for dogs</td>
<td></td>
<td>Medium-size mixed-breed dog age 8 weeks to 12 months: $43.10 ($250 deductible)</td>
<td>Wellness: Value plan $20, Classic plan $36, a Deluxe plan $59</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>What are the annual deductibles?</strong></th>
<th>SPOT</th>
<th>Trupanion</th>
<th>Wagmo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policyholders can choose ($100, $250, $500, $750, or $1000)</td>
<td>$0 to $1000 per condition, for the life of the pet. When the deductible is met once for a specific condition, no more deductibles will be required for that condition for the rest of the pet’s life.</td>
<td>$500, $750, or $1000; no deductible for Wellness</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>What is the reimbursement percentage after the deductible is met?</strong></th>
<th>SPOT</th>
<th>Trupanion</th>
<th>Wagmo</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 90%, 80%, or 70%</td>
<td></td>
<td>90%</td>
<td>100%, with an annual maximum reimbursement of $20,000</td>
</tr>
<tr>
<td>• Coverage is capped only once per policy year at the customer’s selected annual limit amount.</td>
<td></td>
<td>No incident or lifetime payout limits</td>
<td></td>
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<thead>
<tr>
<th><strong>What is considered a preexisting condition?</strong></th>
<th>SPOT</th>
<th>Trupanion</th>
<th>Wagmo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any illness, disease, injury, or change to the pet’s health that first occurred or showed signs before coverage was effective or during the waiting period</td>
<td>Any illness, condition, or injury for which signs or evidence of their potential manifestation existed within the 18 months prior to the policy enrollment date, or during applicable waiting periods</td>
<td>Any injury, congenital disorder, or illness that is prominent and/or identified by a veterinarian before the end of the waiting period</td>
<td></td>
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</tbody>
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<thead>
<tr>
<th><strong>How does reimbursement work?</strong></th>
<th>SPOT</th>
<th>Trupanion</th>
<th>Wagmo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reimbursement is directly to the policyholder once a completed claim form and invoice are submitted and processed. Policyholder can request direct reimbursement to the practice.</td>
<td>The Trupanion policy works in every hospital across North America. If visiting one of the thousands of veterinary practices with Trupanion’s patented software, reimbursement is made directly to that practice at the time of checkout (typically in less than 5 minutes).</td>
<td>Reimbursement is to policyholder through bank transfer, instant card payment, or check (usually within 1 week). Wellness claims are processed in 24 hours with reimbursements made via Venmo, PayPal, or bank transfer.</td>
<td></td>
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</tbody>
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<tr>
<th><strong>Do you offer a trial period to pet owners?</strong></th>
<th>SPOT</th>
<th>Trupanion</th>
<th>Wagmo</th>
</tr>
</thead>
<tbody>
<tr>
<td>No, but we do offer a 30-day money back guarantee if no claims have been filed. (Not available in NY)</td>
<td>Yes, when a pet owner activates an Exam Day Offer within 24 hours after their pet’s exam, they receive immediate coverage with all waiting periods waived. When activated, pet owners can use it for 30 days of coverage under our standard policy. The Exam Day Offer varies by state.</td>
<td>• Accident + Illness: 30-day trial period in states that allow it and a 30-day money-back guarantee where applicable • Wellness plans may be canceled for a full refund within 24 hours</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Do plans use a benefit schedule?</strong></th>
<th>SPOT</th>
<th>Trupanion</th>
<th>Wagmo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only for Wellness coverage</td>
<td>No</td>
<td>Yes, for Wellness</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>When are records required from the veterinary practice?</strong></th>
<th>SPOT</th>
<th>Trupanion</th>
<th>Wagmo</th>
</tr>
</thead>
<tbody>
<tr>
<td>At the time of the first claim and possibly for subsequent claims.</td>
<td>When a pet is first enrolled</td>
<td>No records are required up front. Records may be requested directly from the veterinarian by our claims team to facilitate processing.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>What are your customer service hours and formats?</strong></th>
<th>SPOT</th>
<th>Trupanion</th>
<th>Wagmo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday–Friday 8 AM to 8 PM EDT; phone 866-853-7240; email <a href="mailto:service@customer.spotpetins.com">service@customer.spotpetins.com</a></td>
<td>Our member services team is available 24 hours, 7 days a week, 365 days a year. Policyholders can contact us anytime via phone and webchat through our website.</td>
<td>Monday–Friday 9 AM to 6 PM EDT and Saturday 11 AM to 7 PM EDT. We can be contacted via email, web form, live chat during business hours, and Facebook Messenger.</td>
<td></td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th><strong>Does your company cover virtual appointments?</strong></th>
<th>SPOT</th>
<th>Trupanion</th>
<th>Wagmo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
<td>Virtual exam is viewed the same as an in-person exam, which is not eligible for coverage. Telemedicine behavior consults, however, are eligible.</td>
<td>Virtual emergency appointments are not covered, but Wagmo Wellness covers virtual routine appointments.</td>
</tr>
</tbody>
</table>
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No shot for me

What would you do if 1 or more of your staff members refused to get the COVID-19 vaccine?

Creek Animal Hospital is a well-respected midsize animal hospital in the northeastern United States. Like many veterinary hospitals across the nation, it has strictly enforced CDC guidelines and implemented curbside protocols to help maintain healthy staff, clients, and patients during the coronavirus disease 2019 (COVID-19) pandemic.

Staff are double-masked at all times and diligent about handwashing. Instead of sharing phones, they use work cell phones for client and intraoffice communication. Although certainly not perfect, the system has protected staff, maintained morale, and prevented the clinic from losing staff members.

After rigorously following pandemic protocols for nearly a year, the staff saw light at the end of the tunnel. In the clinic’s state, veterinarians and staff members are classified as essential health care workers in the “1B” category, granting them access to the COVID-19 vaccine.

Dr Creek, the hospital owner, issued a memo alerting staff about vaccine availability and encouraging them to get vaccinated. The message also assisted team members with advice on navigating the challenging scheduling procedures.

Most staff members were ecstatic about vaccination, but 3 opted against it. Creek was shocked. How could anyone not want this medical marvel? He was determined to find out why these select team members refused to be vaccinated.

Before approaching the staff members, he called a meeting with his 2 administrators to formulate a plan to address his concerns.

He decided to set up individual meetings to ask each staff member why they opted against vaccination. He would also advise them that if their responses involved private medical information or spiritual or moral objections, he would not pursue any further explanation.

Barring these reasons, he would strongly encourage them to get vaccinated for the good of their coworkers and staff morale.

The first staff member cited medical confidentiality and chose not to continue the conversation. The remaining 2 staff members expressed their distrust of the new vaccine and their desire not to proceed with immunization at this point. Creek encouraged them to consult their health care providers to further discuss their concerns. After these meetings, Creek had a decision to make.

He concluded that his staff’s attitude toward the COVID-19 vaccine mirrored that of much of the country, and that it was unrealistic for him to expect 100% vaccination compliance. The fact that the majority of his staff chose to be vaccinated would ultimately provide additional protection for the team.

Curbside care, masks, hand washing, and social distancing, when possible, would continue even after the staff had been vaccinated. Creek felt this approach would ultimately lead them out of the pandemic and back to normalcy.

Do you agree with the medical director’s decision? How would you have handled the situation? Let us know your thoughts by emailing dvm360news@mmhgroup.com.

Rosenberg’s response:

The situation described here occurs once every 100 years. Chaos, confusion, and fear are only a few of the many emotions encountered by our profession over the past year. Federal and state government health agencies have issued directives; some were better than others but all were well intentioned. These directives ultimately acted as guidelines to help ensure that veterinary medicine is practiced safely. Creek, like many clinic administrators, had to consider his team’s concerns about vaccination. Perhaps, in the future, we may look back and criticize him and other veterinary clinic decision-makers. For now, we are winning the battle against a formidable viral enemy. As in the past, the veterinary profession will not accept defeat.
Why doggies in a window should be a thing of the past

Veterinarians should discourage prospective pet owners from purchasing puppies and kittens from retail stores.

With pet adoption rates skyrocketing during the coronavirus disease 2019 (COVID-19) pandemic,1 you are likely fielding more questions from pet owners about where to acquire a new furry family member. For me, the answer is abundantly clear: Do not shop at retail pet stores.

Most retail pet stores—not to be confused with national pet superstores that offer pet adoption through legitimate shelters and rescues—purchase dogs and cats from large-scale producers, including puppy mills. No responsible breeders sell to pet stores.

“I think it’s really important to communicate to clients the truth about where [pet stores] are getting that dog or cat from,” says Jane Lohmar, DVM, cofounder of Veterinary Professionals Against Puppy Mills.

To be fair, some pet store dogs and cats are sourced from large-scale breeding facilities that are kept tidy, suggest they socialize dogs, and are by all accounts not puppy mills. Still, experts advise against purchasing dogs, cats, or rabbits from pet stores. Unfortunately, it’s nearly impossible to find out where these animals are sourced. Various brokers typically participate in the process, but it’s a difficult trail to follow.

Taking a stand

Nearly a decade ago, fed-up pet owners started an online movement to ban the retail sale of dogs and cats. The first municipality to do so was Albuquerque, New Mexico, in 2006. It took a few years to catch on, but nonprofit organizations devoted to the cause sprouted up, including the Puppy Mill Project and Bailing Out Benji. Eventually, some big players joined the fight, including the Humane Society of the United States and Best Friends Animal Society.

Nearly 400 cities have now banned the retail sale of dogs and cats in pet stores, as have several counties and entire states (California, Maine, and Maryland). If it wasn’t for the pandemic slowing down nontessential legislation, several additional states would appear on the list, including New Jersey.

Although state veterinary medical associations differ in their position on the matter, many oppose legislation to limit pet store sales. “Absolutely, the associations don’t represent colleagues I know,” Lohmar says. “If you’re in the trenches, you clearly see those pet store animals and realize just how bad the problem is.”

Adam Christman, DVM, chief veterinary officer at MJH Life SciencesTM (parent company of dvm360®) and a New Jersey practitioner, agrees. “Even if the legislation doesn’t end [puppy mills], why would our profession demonstrate the perception of support?” he asks. “We were seeing so many sick puppies and kittens coming through. In one New Jersey pet store, 16 out of 24 newly purchased dogs had pneumonia. And aside from health issues, we see so many behavioral problems.”

How it started

Much of today’s gospel regarding how to purchase pets was influenced by the American Kennel Club (AKC), a primary opponent of legislation banning the retail sale of dogs and cats. Ironically, purchasing a dog from a pet store is entirely contradictory to the AKC’s own advice in the 22nd edition of The New Complete Dog Book.2 The book recommends purchasing pets from a responsible breeder, carefully defining “responsible” in several ways that are inconsistent with the pet store purchasing experience.

The AKC’s book advises that prospective owners meet the breeder and find out where the dog was bred, noting that a responsible breeder “will also want to get a look at you, how you behave, and sometimes how the dogs react to you, to see whether or not you are the right fit for one of his or her puppies.” The fact is that individuals who purchase that doggie in the window will never be asked about being a “good fit.” Instead, the question will be, “Will that be cash or credit?”

“I think it’s really important to communicate to clients the truth about where [pet stores] are getting that dog or cat from.”

—Jane Lohmar, DVM, cofounder of Veterinary Professionals Against Puppy Mills

A red flag breeder, according to the AKC, is one “who will not show you any health-screening results, talk about health issues encountered, or says he or she does not conduct any health or genetic tests because he or she has ‘never had a problem.’” Clearly, pet stores have no clue about the genetic history of the pets they are selling. In fact, it’s safe to be skeptical even about what they are selling. That Cava-poo may have no Cavalier King Charles and/or no “poo,” and that is consumer fraud.

Pet stores often claim that their dogs come from US Department of Agriculture (USDA)—inspected facilities. Although some mills miraculously have passed state or USDA inspections, many inspection standards are outdated and the time between inspections is often far longer than recommended. There is also the lemon law argument, in which customers can—in some states, under some circumstances—return their purchase (including pets) for a refund. But dogs, cats, and rabbits aren’t like toaster ovens. Supporting lemon laws devalues companion animals and damages the human-animal bond.

I’m perplexed by how many veterinary associations oppose restrictions on pet store sales, arguing that closing off the puppy mill supply at stores will cause more people to flock to the internet to buy puppies. Despite pet stores in many areas being restricted from selling dogs and cats, there is no evidence supporting this claim, and many prospective pet parents already go online anyway.

Where do we go from here?

According to Mark Cushing, founder and managing partner of the Animal Policy Group, the answer is breeder certification. “We need to bring everyone to the table, the animal rights and animal welfare groups, hobby breeders, shelters and rescues, and the pet store industry,” he says.

“We need to certify breeders and get the departments of agriculture out of the picture, and bring in 76 land grant universities, which study breeding, and even animal shelters to inspect. There is a path forward which requires transparency.”

REFERENCES


Steve Dale, CABC, writes for veterinary professionals and pet owners, hosts 2 national radio programs, and has appeared on TV shows ranging from Good Morning America to Oprah. He is on the dvm360® Editorial Advisory Board as well as the boards of the Human Animal Bond Association and EveryCat Health Foundation. He appears at conferences around the world. Visit stevedale.tv.
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Grandmothers can make some strange noises

As a newly minted on-call veterinarian, I made a fateful decision to bring my family along on a farm call. What they saw will stay with them forever.

The first Thanksgiving after I graduated from veterinary school brought together my sister, mother, brother, and 2 grandmothers for a visit. My grandmothers were just “so proud” of their grandson. No one in my family had ever finished college, much less gone for 8 years. They thought I could do no wrong and wanted to go with me on every call.

No pressure

When you are the new kid on the block, you are on call every weekend and holiday because everyone else is tired of not being home enough. As is always the case when you have special plans for a holiday, the phone rang at 8 pm. It was a woman from a town about 45 minutes away with a gilt whose EMT garb included a stethoscope and a pocket protector with all sorts of medical equipment. She was all business.

With my grandmothers right by my side, trying to assist in any way they could, I reached into the pig and realized there was no way those piglets were coming out the normal way. I told the client we were going to have to do a C-section. She got even more serious and reminded me that her world-famous boar hog had died.

No pressure at all

My grandmothers, one of whom was about 6 feet tall and 180 lb, were both in the background saying, “He can do it. He’s the best doctor in the world.” Eh, no pressure at all.

I prepared the gilt and cut her open. Once inside, I could tell that there were only 3 babies, and I conveyed that information. “Well, one of ’em better be a live boy,” the EMT said.

I cut open the uterus and pulled out a dead female. The next piglet was another female, and she was not doing very well. One pig left. One chance at a boy. The tension mounted as I struggled to extract the last piglet. Finally, it arrived and, much to my relief, was a boy. But he was not doing well either.

Piggy in the piehole

Suddenly, my EMT client came swooping across the room and grabbed the piglet from my shaking hands. She rushed it over to the counter and started cardiopulmonary resuscitation (CPR) as my entire family watched intently.

As she began giving chest compressions with her first 2 fingers, she counted “a 1, and a 2, and a 3.” Then, as if in a CPR instructional video, the client picked up the piglet, stuck his entire head in her mouth, and began blowing.

This was more than my outspoken grandmothers could stand. They made that grandmother noise—a kind of a cross between a high-pitched yodel and Tarzan’s call. You’ve heard it. It was the same noise your grandmother may have made when you were a kid and did something gross like pick your nose or spit ice back into your drink.

The next few moments happened in slow motion for me. My sister was retching over the sink holding her hair so as not to get anything in it, my mother was repeating, “Oh my goodness,” over and over, and my brother was laughing riotously. My grandmothers were simply aghast.

When the client slapped the piglet back onto the counter and began chest compressions again, my grandmothers performed as a team. One wiped afterbirth off the woman’s cheek while the other said, “You shouldn’t put a pig in your mouth!”

When the client’s face was just about cleaned up, she picked the piglet back up and put him back in her mouth again, eliciting another harmonious grandma Tarzan call.

I could hear them saying, together this time, “Oh, honey, you just shouldn’t put a pig in your mouth!” They offered to go to the store and get her a toothbrush.

The pig lived. The EMT client was happy with her healthy male piglet. But my grandmothers would never be the same.
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