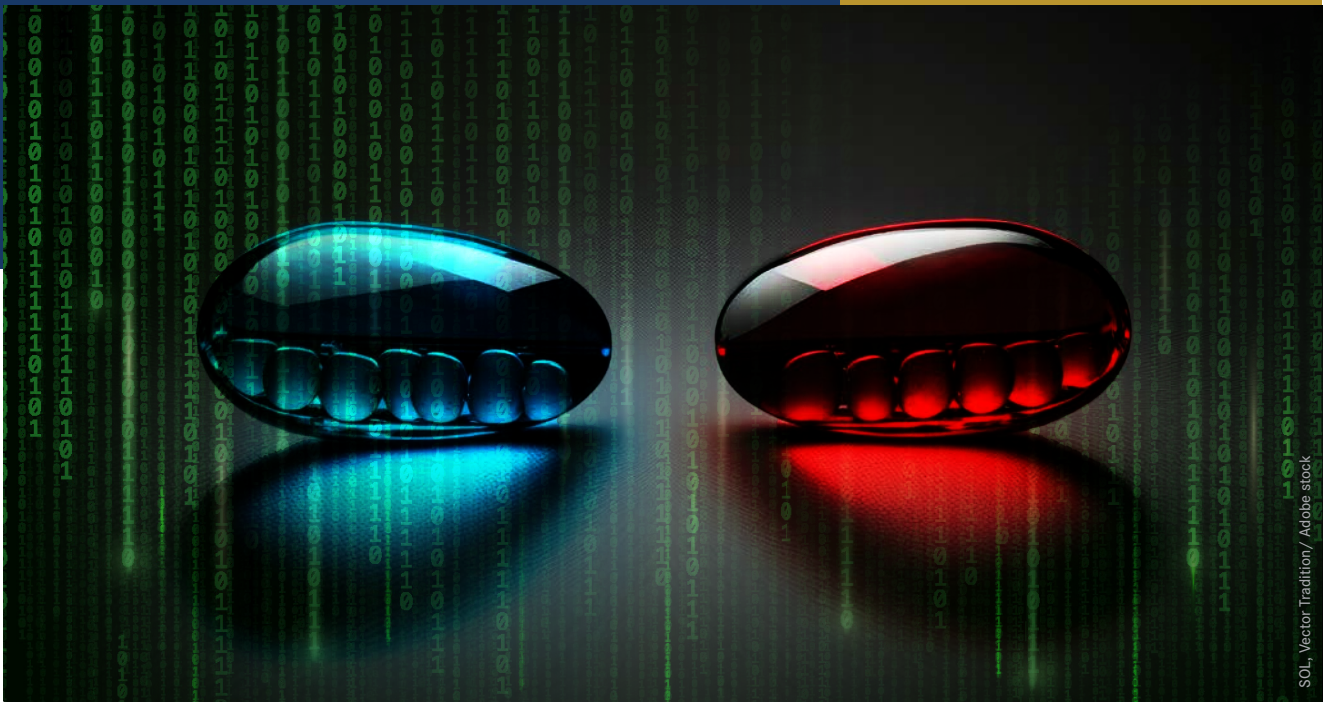


The color **blue** itself belies a state of mind: depression, numbed emotions, and melancholy. The **red** pill awakens the deeper crevices of the mind and removes the ill-tinted blue glasses that blind individuals to the invigorating, meaningful parts of life.



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It's time for veterinary professionals to take back veterinary medicine

PAMELAR HALE, DVM, MBA

The movie *The Matrix* presented the protagonist Neo with an option: He could continue to live in the world of a bland, warped nonreality by taking a blue pill or unveil the actual material world by taking a red pill. The latter choice would allow Neo to see the contorted reality of the world represented by the blue pill: distortions meant to keep the masses enslaved and shuffling through a veiled existence placated by placebo living.¹

The Matrix strives to share a message about the manipulation of the masses. The message of compliance propagated by the blue pill is of muted living and blind allegiance to perceived safety in opposition to the truth and critical thinking. The red pill pulls away the cloak of sedation and allows individual thought. The red pill is volatile and leads to the disorder of life, whereas the blue pill keeps individuals in a state of dull complacency. The blue pill creates a numbing facade that negates any desire except to live in the haze of whatever authorities want the masses to comprehend. The color blue itself belies a state of mind: depression,

numbed emotions, and melancholy. The red pill awakens the deeper crevices of the mind and removes the ill-tinted blue glasses that blind individuals to the invigorating, meaningful parts of life. That is the crux of the story.

The veterinary profession has been given the blue pill

Veterinary professionals have enjoyed elevated status in many ways over the past 3 decades. There are a plethora of opportunities in veterinary medicine, and veterinary professionals don't necessarily have to become clinicians; they can pursue careers in research, food inspection or military service or work for a veterinary company. Still, most veterinarians work within the companion animal space in veterinary clinics or facilities, which include large animal care. The profession is expected to grow by approximately 19% between 2021 and 2031.² Even with this

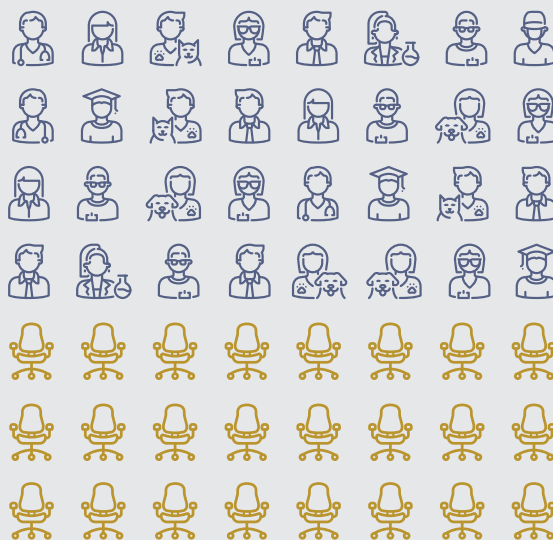
continue reading on the following page

Pamelar Hale, DVM, MBA, graduated from the Tuskegee University College of Veterinary Medicine in Alabama and earned her master of business administration from St. George's University in Grenada. She is a member of the American Veterinary Medical Association (AVMA) and the Georgia Veterinary Medical Association and serves on the Dean's Council for Tuskegee University College of Veterinary Medicine and the AVMA Professional Liability Insurance Trust. She joined the Wedgewood Pharmacy Veterinary Advisory Board in 2022. She shares a home with 5 dogs and her husband, Chuck.

2023 JULY

The profession is expected to grow by **19%** approximately between 2021 and 2031. Even with this projected growth of an additional **26,000** veterinary graduates by 2030, there is still an expected shortage of **15,000** veterinarians for the demand of care.

2021



2031

which results in fewer staff to assist the veterinarian. Inventory is managed to bare cupboards so that many prescriptions must be outsourced to online pharmacies, which decreases the ability of the veterinarian to achieve adequate production on medications prescribed. Veterinarian schedules are controlled with little regard to the mental health and wellness of the teams. The blue pill reality of this work environment has resulted in dissatisfied veterinary teams experiencing lack of fulfillment in their beloved profession, precipitated by less client interaction and constant oversight of their workday, which can lead to suicidal ideations because of the pressure to produce beyond personal and professional means.

Veterinary burnout is at an all-time high. It has been exacerbated by this standard, propagated under the guise of higher pay and the “don’t worry about managing” model within the veterinary medicine corporations.⁵ The blue pill seemed like a cure a few decades ago to free veterinarians to just be doctors. It has created an unsustainable trajectory affecting all professionals in veterinary medicine. This model of hyperscheduling, constant measurement, and increased scrutiny trickles into privately owned veterinary clinics, who believe this is how they must compete. This is unfeasible,

projected growth of an additional 26,000 veterinary graduates by 2030, there is still an expected shortage of 15,000 veterinarians for the demand of care.³ In addition, veterinary salaries have increased in the past 10 years as the need for veterinary talent increases because of client demand and increased pet ownership. Veterinary pay is expected to increase by 8% to 12% in 2023.⁴ The increase in veterinary compensation is long overdue. Despite the level of education required to be a veterinarian, the profession is not as well compensated compared with other similarly educated medical vocations, with the primary reason being that veterinary patients are nonhuman. We also subsist on a cash basis, and pet parents do not always invest in third-party payers such as pet insurance.

So where is the blue pill in all this? The blue pill is easily hidden in pabulum concocted by a change in the culture of veterinary hospital management and operations. This is especially true for practices

no longer owned by local, independent veterinarians but by corporations. The same reasons for lower salaries in veterinary medicine, such as cash-based business, minimized regulatory oversight, no third-party pay administration to insurance companies or government agencies such as Medicare, and the fragmentation of businesses, make it easy for corporations to pick off privately owned veterinary practices. As private equity began to buy veterinary practices in the past 30 years, prices for veterinary practices were driven out of the realm for associate veterinarians to afford. These practices find it much easier to sell to corporations for an immediate lump sum of cash than to seller finance an associate for buy-in or share equity. Initially, this seemed like a win-win for everyone. The owners were now allowed an exit strategy with cash for their retirement and the ability to continue working without shouldering all the management. However, even with this windfall, many of these former owners privately

lamented that they had not sold to an associate to keep their practice and legacy in familiar veterinary hands. This process has ushered the veterinary profession into the blue pill era.

With the proliferation of corporatization in the veterinary profession, veterinarians are more often managed by nonveterinary professionals from other multiunit entities who come with no understanding or experience of the pet medical care world. With this new management comes the push for veterinarians to care for an excessive number of pets per shift with strict cost control,



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opening a chasm of despair in which the blue haze reveals not the utopia of “more money, less worry” but the golden handcuffs of anguish.

Time for the red pill

Our beloved veterinary profession has been hijacked, and many of us live in the blue-veiled world. We entered willingly, hoping this model would enable veterinarians to manage medical cases more efficiently with less worry of business management, but it has created distress. The red pill is the world in which we uncloak ourselves and retake the business from the veterinary practice to the board room. We once again become the subject matter experts of the profession we labored 8 years or more to master through education in addition to the countless hours spent perfecting the art of practice. Although we welcome business acumen from outside the profession, in the red world, veterinarians are the medical and business leaders. Veterinarians schedule their client interactions as they see fit and hire and use staff without fear of reprisal. Veterinarians hire other veterinarians and mentor and coach them to success.

In this world, we return to our business knowledge, enhanced by veterinarians and staff. Ownership of veterinary facilities is either the fully owned or hybrid partnership model. However, in a red pill world with hybrid partnership, which may include private equity funding, the veterinarians are the subject matter experts. Nonveterinary management is in support roles and does not represent sole executive leadership. Veterinarians are empowered to lead, nurture, and grow animal care businesses as they have done for decades. Don't be fooled;

the interest in our profession is predicated upon the wealth that veterinary medicine produces. It's our wealth. We need to step in and wrest it back from corporations and reclaim the joy and purpose of our profession. The rote, assembly-line practice that veterinarians have been shoehorned and blue-pillled into precipitates the sadness, weariness, and burnout that is too pervasive in our profession.

The blue specter permeates a veterinary profession co-opted by outside pillagers. So what will it be? The red pill or the blue pill? We get to decide, and the time is now. ●

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Study reveals most pet parents wouldn't leave home to escape disaster if they couldn't bring pets

DVM360 STAFF

A new nationwide survey by PetSmart Charities has discovered that most US pet owners are prepared to evacuate their homes with pets in case of an immediate disaster. However, “they wouldn't leave home if they couldn't take their pets to safety with them and would even give up their spot in a shelter if they couldn't stay there with their pets,” according to an organizational release.¹

More results found that pet parents, having information on what to do to evacuate with their pets and where they can go to stay together are a priority. Some of these items to keep in mind include¹:

- **KEEP A “GO BAG”** – Keep a pet carrier, harness or leash ready to go at a moment's notice and have a recent photo of pets handy
- **UPDATE INFORMATION** – Ensure pets are wearing a collar or tags and that microchip information is up to date
- **TAKE CARE** – Ensure pets are up to date on all vaccinations and carry a list of the pet's medications and their veterinarian's contact information

- **KNOW WHERE TO GO** – Make a list of pet-friendly sheltering options nearby

This survey came out in tandem with National Pet Preparedness Month and the beginning of hurricane and wildfire season. This is a reminder for all pet parents to create an emergency plan for the all family members, including pets. Find information on preparing to evacuate to safety with pets and download a pet preparedness checklist here: <https://petsmartcharities.org/our-stories/trending-tales/joining-forces-for-pets-the-american-red-cross-petsmart-charities> ●

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Pet parent survey¹

76%

If there was an evacuation order but they couldn't bring their pets with them, 76% of respondents said they would remain at home with their pet.

80%

If they evacuate but their pets can't stay with them at the shelter, 80% said they would give up their spot in the shelter.

86%

Strong emotional bonds are keeping pets and their owners together, as 86% of respondents said the emotional support of their pet would be critical to them enduring a disaster.

63%

More than half (63%) had doubts whether adjacent pet-friendly shelters were available to them in case of emergency.

New study finds that slow walking could be a sign of dementia

DVM360 STAFF



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A new study from North Carolina State University College of Veterinary Medicine measured gait speed in senior dogs to find a correlation with a decline in their neurological function as they age. The researchers on this study measured gait speed off leash in 46 adult and 49 senior dogs.¹ The adult dogs (older than 1 year and

younger than 75% of their expected lifespan),² who served as a control group, only had their gait speed measured. Individual gait speed was measured first by walking them over a 5-meter distance on a leash with a handler, then by offering a treat the same distance away from the dogs, and calling them to retrieve it off leash. The senior dogs (older than 75% of

their expected lifespan)² did some additional cognitive testing and their owners filled out a cognitive assessment questionnaire, called the CADES questionnaire. A higher CADES score indicates more severe cognitive decline.¹

“Walking speed in people is strongly associated with cognitive decline,” said Natasha Olby, Dr Kady M. Gjessing and Rahna M. Davidson Distinguished Chair in gerontology at NC State and corresponding author of the study. “We hypothesized that the same might be true in dogs.”¹

To rule out other factors, dogs had to be free of co-morbidities that could impede their ability to perform the tests such as inability to walk or blindness. The dogs selected ranged from different breeds and sizes.²

To further evaluate cognitive function beyond the CADES questionnaire, testing was performed to evaluate attention (sustained gaze test), social cues (pointing test), working memory, executive control (inhibitory control cylinder task) and problem solving (detour cylinder task).²

The researchers found that in the senior dogs, size didn't matter when it came to speed; in other words, dogs in the last 25% of their

Understanding mRNA and DNA vaccines in veterinary medicine

KRISTEN COPPOCK, MA,
ASSOCIATE EDITORIAL DIRECTOR

Inoculations developed to combat COVID-19 in humans brought forth greater awareness for messenger RNA (mRNA) vaccines. Although mRNA vaccines were already in clinical trials for other diseases, its use for COVID-19 tested the technology and proved it was ready. “They were most efficacious, and they were the fastest to the finish line,” said Deborah Fuller, PhD, a professor at the University of Washington in Seattle.¹

In her lecture at the American College of Veterinary Internal Medicine (ACVIM) Forum in Philadelphia, Pennsylvania, Fuller provided an overview of mRNA and DNA vaccines and discussed their value to the future of veterinary medicine. “mRNA vaccines were long in development, over 30 years, before COVID-19,” she said.

According to Fuller, nucleic acid vaccines induce 2 immune defenses to protect against infection and disease by essentially instructing the body to make

When you have less mobility, the amount of input your nervous system gets is also reduced. It's not surprising that walking speed and dementia are correlated.

expected life span moved more slowly than adult dogs, regardless of relative size. “Just as in humans, our walking speed is pretty stable through most of our lives, then it declines as we enter the last quarter or so of our lifespan,” Olby said in the release.¹

Senior dogs who moved more slowly had more severe levels of cognitive decline based on the

More details on the study can be found here: “Winning the race with aging: age-related changes in gait speed and its association with cognitive performance in dogs.” DOI: 10.3389/fvets.2023.1150590

microbial proteins. “They both induce antibody and T-cell responses,” she said.

The antibodies from mRNA and DNA inoculation types can block a virus from infecting a cell or clear a virus from the blood, and T cells in these vaccines can destroy cells that become infected. mRNA and DNA vaccines are also developed quicker, more efficiently, and less expensively on a large scale than traditional and viral vectored inoculation types.¹ “There are a lot of veterinary vaccines based on that traditional technology,” Fuller said.

However, mRNA and DNA vaccines are different in genetic material and in other ways. For example, in their immunization delivery, mRNA must enter only the cytoplasm to produce microbial protein while DNA needs to enter the cell’s nucleus.¹

Additionally, DNA vaccines are more stable at room temperature. That benefit may lead to DNA vaccines being more widely distributed and used on a global scale, according to Fuller.

These nucleic acid vaccines have the potential to be even more advantageous to veterinary medicine. RNA and DNA inoculations are currently being developed to prevent or treat infectious diseases such as rabies, influenza, zoonotic mosquito-borne flaviviruses, coronaviruses, and foot-and-mouth as well as multiple swine viruses. Veterinary RNA and DNA vaccines are also under development to address certain types of cancers in animals such

as mammary tumors in dogs, according to Fuller.¹

In concluding her presentation, Fuller surmised that mRNA and DNA vaccines could potentially prevent a future pandemic of a coronavirus, which originates with bats, on the scale of COVID-19 with help from a human ring immunity. These vaccines could potentially be used for universal inoculations with advantages that include rapid discovery of new antigens, combining multiple antigens in a single vaccine, and the ability to induce both antibody and T cell responses.

Fuller cited viral vectored vaccines in humans as a comparative example. “The current inactivated vaccines take 9 months, once you define the new variant to produce, and get that into people. In a pandemic, deaths will occur in the first 3 to 6 months,” she said.

Alternative vaccine delivery methods including spraying and oral administration are also being studied for veterinary use and may have benefit for wildlife and livestock populations. A spray vaccine could quickly inoculate a flock of chickens, Fuller noted.¹

“You can take the current flu vaccine and inject 1 chicken at a time, which is a lot of work and a lot of time to do that,” she said. ●

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Cybrain / Adobe stock

owner-completed questionnaires and also did worse on the cognitive testing. The researchers also found that joint pain did not seem to correlate with walking speed, although they note that there were no dogs with severe osteoarthritis in the program. They hope to address this issue in future work.¹

“When you look at functional aging, the two most important

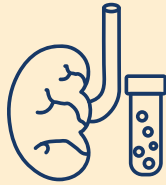
predictors of morbidity are mobility and cognition,” Olby said. “Mobility relies heavily on sensory input, central processing, and motor output – in other words, the nervous system – as a result, mobility and cognition are super interconnected. When you have less mobility, the amount of input your nervous system gets is also reduced. It’s not surprising that

walking speed and dementia are correlated. For me, the exciting part of the study is not only that we show gait speed correlates with dementia in dogs as in people, but also that the method of testing we used is easy to replicate, since it’s food motivated and over a short distance. It could become a simple screening test for any veterinarian to perform on aging patients.”¹ ●

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Renal testing portfolio includes:¹



IDEXX Cystatin B Test, detecting kidney injury with or without changes in kidney function, providing valuable insights in cases such as early toxin exposure.

IDEXX SDMA Test and creatinine, helping to establish a baseline for kidney function for monitoring and early kidney disease detection.

IDEXX FGF-23 Test, allowing for more confident recommendations of targeted therapy for cats diagnosed with chronic kidney disease (CKD) by monitoring phosphorous overload.

Urine testing, providing a deeper understanding of total kidney health by examining the physical and chemical properties of urine.

New diagnostic test for kidney injury

DVM360 STAFF

IDEXX Laboratories, Inc announced in a company release,¹ the launch of the first veterinary diagnostic test for detecting kidney injury in cats and dogs. The IDEXX Cystatin B Test will be included in test panels assessing renal health, uncovering new clinical insights for an estimated 2 million patient visits annually. These tests will be run at IDEXX Reference Laboratories starting later this year in the US and Canada, with plans to introduce the test in Europe in 2024.

IDEXX saw the need for this new test after the company conducted a survey and found that one-third of kidney cases seen by veterinarians are related to kidney injury. According to IDEXX, kidney injury is a diagnosis can be challenging due to subtle or nonspecific signs.²

“With the addition of the IDEXX Cystatin B Test, we are pleased to offer the industry’s first biomarker for kidney injury,” said Jay Mazelsky, IDEXX President and CEO, in the release. “The IDEXX portfolio of tests and technologies enables veterinarians to intervene earlier, advance treatment, and now detect kidney injury, resulting in better outcomes throughout the lives of their patients.”¹

The complete IDEXX expanded A joint statement from Gilad Segev, DVM, Dip. ECVIM-CA (Internal

Medicine); Shelly Vaden, DVM, PhD, DACVIM (SAIM); and Larry D. Cowgill, DVM, PhD, Dipl. ACVIM (SAIM) said in the release: “The advent of diagnostic biomarkers capable to detect the presence of acute kidney injury as well as active and ongoing kidney injury in advance of or in the absence of changes in conventional markers of kidney function forecast an important advance in the evaluation of acute and chronic kidney disease in dogs. The development and validation of Cystatin-B as an active kidney injury biomarker in dogs that will be readily available to veterinarians has the potential to reshape the future diagnostic and therapeutic directions of kidney disease. As nephrologists, we anxiously await this new era of early disease discovery and management.”¹ ●

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Combining the best of private practice with clinic spay/neuter care

LORI COBB, VMD

Shelters provide spay/neuter clinics to end pet overpopulation. With this mission, they strive to economically alter as many pets as possible in the shortest time frame possible. Their incredible need for speed has effectively provided our profession with unsung heroes; high-volume spay/neuter veterinarians.

Although these individuals may lack the board certification to call themselves specialists, what they do is extraordinary. An experienced high-volume veterinarian can easily and safely spay a cat or neuter a dog about

every 3-4 minutes, with a large, deep-chested, obese dog spay taking 10-20 minutes.

Though sometimes unnoticed, these surgeons are also highly skilled. They have experienced every anatomical anomaly out there. They have repaired every kind of mishap. They face the large obese dog spay with confidence. The more experienced the surgeon, the safer the surgery. And while in private practice, the shorter the surgery, the safer the anesthesia, this is not so at shelters.

Most spay/neuter candidates are young and healthy, so

shelters are able to safely dismiss expensive and time-consuming protocols in favor of those that increase efficiency of numbers. Down time between pets is eliminated by choosing anesthetics that reliably and rapidly induce a long-acting and deep plane of anesthesia. Reversal agents, costly in terms of both time and money, are rarely used. Though surgery is short, anesthetic time is not.

When speed is the kingpin, overall care, although adequate, is never going to be ideal. High-volume techniques spare staff

Study shows increased cardiovascular risks associated with canine heartworm infection

JULIA BURKE, ASSOCIATE EDITOR

Heartworm is a widespread disease with cases continuously increasing in number and geographic distribution, according to the Companion Animal Parasite Council.¹ “While we consider this a very preventable disease, the rates of infection continue to increase,” said JoAnn Morrison, DVM, MS, DACVIM (SAIM), director of veterinary science at Banfield Pet Hospital, at the 2023 American College of Veterinary Internal Medicine (ACVIM) Forum in Philadelphia, Pennsylvania.²

To address this epidemic, Morrison presented a research abstract entitled “Outcomes of Naturally Occurring Canine Heartworm Infection”,² a co-investigation between Banfield and Zoetis that focused on longitudinal outcomes in dogs

that tested positive for heartworm disease via an antigen test. Dogs included in the study were older than 1 year, privately owned, and were presented at Banfield Pet Hospital. Along with a population of heartworm positive dogs, there were negative controls.

The dogs with heartworm infection received adulticide therapy in primary care hospitals. “We wanted them to have a negative heartworm test 6 to 12 months after the last adulticide treatment to help ensure that they cleared the infection,” Morrison said.

Dogs were identified in this retrospective, case-control study through a search of medical records, allowing access to longitudinal data for long-term analysis with each dog, which was a major strength of the study. “We did have a large dataset that’s in a consistent

data structure, which helps. We have a single hospital operating system and operational models,” explained Morrison, adding that licensed veterinarians made the medical diagnoses and there was robust criteria surrounding inclusion to ensure the cleanest dataset possible. Meanwhile, some drawbacks of the study were that there was no boarded cardiologist or internist involved and the necropsy findings were not available.

Analysis on structured diagnostic codes corresponding to right- and left-sided cardiac disease and relative risk of outcomes were performed. The results found heartworm positive dogs had an increased relative risk (RR) for right heart failure (RR 3.59, 95% confidence interval (CI) 2.64–4.86), left heart failure (1.83, 95% CI 1.51–2.22), and cardiomyopathy (2.79, 95% CI 1.71–4.57) in comparison to negative controls. All *P* values were significant at $P < 0.0001$.²

This research demonstrates the potentially devastating cardiovascular effects of heartworm disease and consequently, reiterates the importance of parasite

prevention. “Even if we have all the evidence that we can gather that pets are successfully treated and there’s no long-term implications, there are increased risks of negative cardiac outcomes. And that is likely indicating to us that even with successful therapy, prevention is a superior approach to this condition,” Morrison said.

Based on this study, further measures to take when presented with a heartworm positive patient can include incorporating a routine follow-up, along with taking an individual approach to monitoring and treating the pet. Morrison added that future research can focus on the reasons for the relative risk increase and looking into if it’s from the live infection, the impact of the treatment itself, or something else. ●

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time so they can keep up with a rate of pets per hour. One technique involves using the same anesthetic agents in all pets of the same species. Another is to dose by volume instead of mg/kg. Sometimes, pets are not weighed. Cats are often sorted into small, medium, and large sizes. Drugs are pre-drawn into separate containers for each size category and the staff pulls from the appropriate container. It works, it is safe for the healthy young pet, and it is definitely affordable.

Meanwhile, at the private practice, a less-experienced

veterinarian may be taking the time to individualize care and tweak anesthesia to maintain the lightest effective plane. Pets are weighed and examined. Individualized protocols are based on health status, temperament, and physical attributes. Drug doses are calculated in mg/kg and given only to effect where possible. More attention is paid to perioperative monitoring and communication is individualized and stellar.

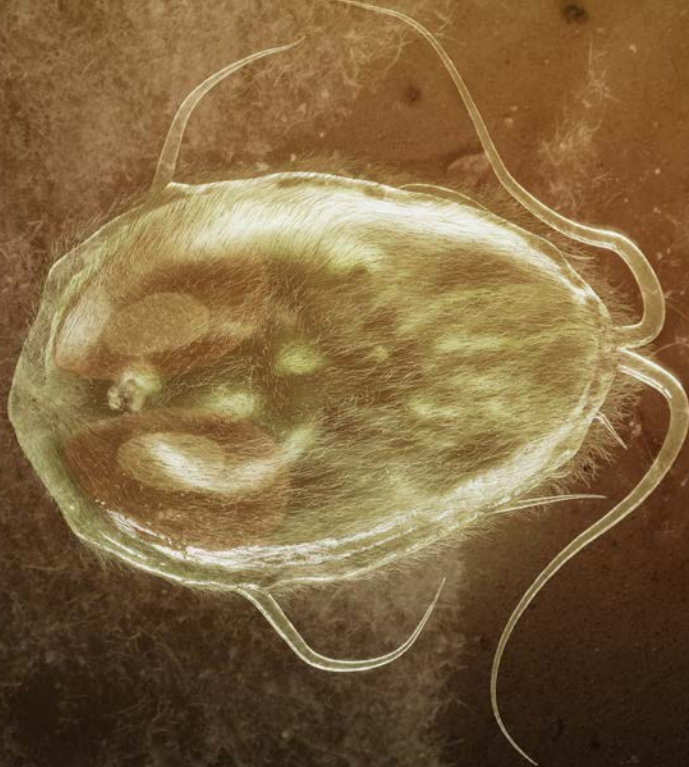
Currently, the skill of the high-volume surgeon is essentially an undervalued benign side-effect of

speed. Imagine a world where the thought process is reversed. With the goal of optimal care instead of volume, the primary value of the surgeon is in their vast experience. Their speed, though secondary, is no less significant. In this world, speed is combined with shorter acting anesthetics, quality reversal agents, and quality monitoring to optimize safety instead of hindering it.

In this world, we up the game for the well-loved family pet. We also offer the skill of the experienced surgeon without the price tag of board certification. ●



Lori Cobb, VMD, opened Ace of Spays in 2005 as an experiment to test the viability of the model offered in this article. Though she was gratified over the many years she travelled from shelter to shelter to perform spay/neuter surgeries, she yearned for the opportunity to increase quality of care without financial constraints. Ace of Spays remains a successful and popular part of the community. More information on high volume techniques can be found on the practice web site at njace.org



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Integrative approach to treating *Giardia lamblia* infections

JULIA BURKE, ASSOCIATE EDITOR

G*iardia lamblia* is a tiny parasite that lives freely in the environment and is spread through fecal-contaminated water, soil, and food.¹ It attacks the intestine of various hosts, including dogs, cats, and even humans, causing gastrointestinal distress such as diarrhea, abdominal discomfort, flatulence, vomiting, and nausea. Younger dogs and cats tend to be at greater risk of infection.²

Treating a *G lamblia* infection can be challenging. In a *dvm360*[®] interview, Brian Herrin, DVM, PhD, DACVM, an assistant professor at Kansas State University College of Veterinary Medicine in Manhattan, Kansas, explained, “These protozoa organisms, they can kind of asexually reproduce. If you kill 98% of them, you leave 2 or 3

of them in there, [and] they just reproduce and make more. And so it’s really easy to have continued infections.”

To completely clear animals of the parasite, the best approach is coupling traditional and holistic treatments that support gut and immune health.

Traditional treatments

Historically, the antibiotic metronidazole has been used to treat *G lamblia*. Today, however, veterinarians tend to use this drug with fenbendazole, which is a benzimidazole antiparasitic medication.³ Herrin noted that although metronidazole works to clear up clinical symptoms and kill bacteria in the intestines, it’s not known whether this antibiotic has a mechanism of action on *G lamblia* itself.

“So [metronidazole] may be calming things down so that the immune system can kind of take control of [*G lamblia*],” he said, explaining that fenbendazole does have a mechanism of action on *G lamblia* and adding, “We do want to try to make sure that we’re putting fenbendazole first and then plus or minus adding metronidazole, rather than trying to treat solely with metronidazole now.”

Some challenges of treating *G lamblia* with these drugs include cost, dosage (tailoring to the pet’s species and size), and patient adherence. “The fact that [metronidazole] is so horrible tasting makes it hard to get into the patient. You must have compliance with the patient, compliance with the owner, and have the appropriate size so it’s a safe treatment,” said Patrick Mahaney, VMD, CVA, CVJ, president and medical director of California Pet Acupuncture and Wellness Inc in Los Angeles, in an interview with *dvm360*.

Holistic treatments

When it comes to holistic treatments for *G lamblia*, Mahaney noted, “These are just practical things that support animals on a general day-to-day basis.” He recommended a higher fiber diet that promotes more bowel movements for general digestive tract support and to push *G lamblia* out. Probiotics and prebiotics can also support gut health.

Prebiotics are nondigestible food ingredients that help healthy bacteria grow in the gut, whereas probiotics are the beneficial bacteria that promote normal function of the digestive tract and help balance out the effects of antibiotics. “[Dogs] want to have a healthy microbiome so that hopefully [their] gut will be more resistant to [*G lamblia*] in the first place. And then also the effects of the [*G lamblia*] won’t overly damage the inside of the intestines,” Mahaney explained.

Probiotics and prebiotics are available in capsule and powder forms and can also be found in food. If clients are giving their pets food-based probiotics and prebiotics, it’s important to ensure they know to avoid those with artificial flavors, sweeteners, or other ingredients harmful to dogs and flavors pets are averse to such as lemon or citrus.

Supplements can help ease a dog’s digestive tract as well. Beneficial ingredients include ginger, aloe vera leaf, cat’s claw, and glutamine.

Integrative approach

Herrin and Mahaney emphasized that holistic methods shouldn’t solely be used in animals with *G lamblia* and that an integrative approach proves most effective. For example, although higher fiber diets keep stools firmer, probiotics help reduce the negative effects of antibiotics on gut flora, and other supplements and nutrients can ease the digestive tract so the immune system can focus on fighting off future infections.

Mahaney said that he is a “big believer” in combining traditional and holistic treatment methods. “I do that all the time in practice, and I feel as you treat [*G lamblia*]... sometimes the [adverse effects from the medication can worsen clinical signs], so we have to be able to support the digestive tract and support the overall body health and immune health so that the treatment can be effective.” ●

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