

SPECIAL FOCUS

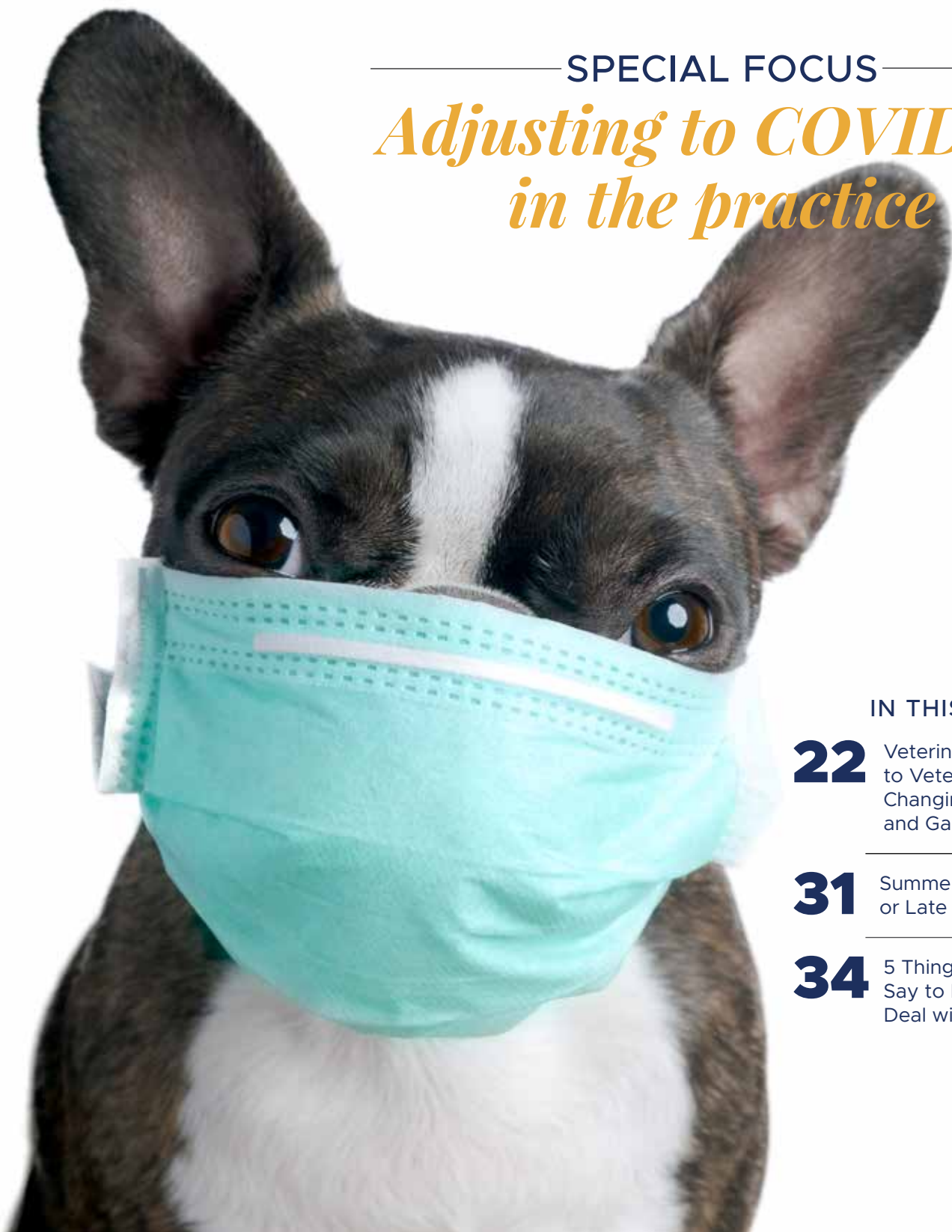
Adjusting to COVID-19 in the practice

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22 Veterinary Technician
to Veterinary Nurse:
Changing Assumptions
and Gaining Respect

31 Summer Organization
or Late Spring Cleaning

34 5 Things RVTs Can
Say to Help Clients
Deal with COVID-19



Heartgard®
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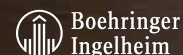
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- ✓ Is approved for puppies as young as 6 weeks of age
- ✓ Over 30 years of trusted prevention



¹ Freedom of Information: NADA140-971 (January 15, 1993).

² Data on file at Boehringer Ingelheim.

³ Data on file at Boehringer Ingelheim.

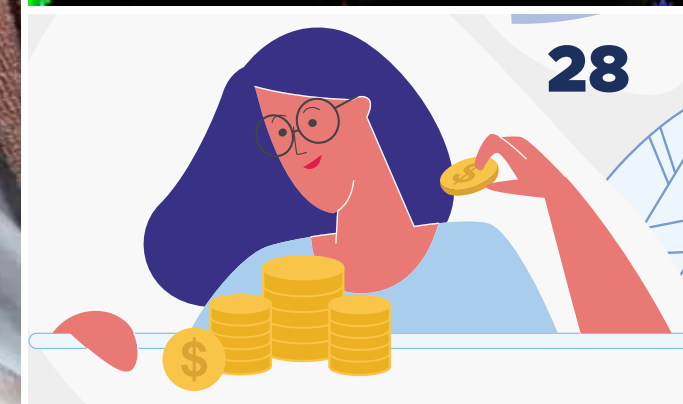


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IMPORTANT SAFETY INFORMATION: HEARTGARD® Plus (ivermectin/pyrantel) is well tolerated. All dogs should be tested for heartworm infection before starting a preventive program. Following the use of HEARTGARD Plus, digestive and neurological side effects have rarely been reported. For more information, please see full prescribing information or visit www.HEARTGARD.com.



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On the cover:

The COVID-19 pandemic is requiring Veterinary practices to make adjustments big and small. This issue, we examine how RVTs can help adjust within the practice to confront this new reality.



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FROM THE BOARD

And Now For Some Good News

With so much upheaval in the world, I am pleased to be able to share with you several very important bits of good news about NAVTA.

First, as noted in my last column here, the NAVTA Executive Board has been deeply involved in strategic planning since mid-May. The COVID-19 pandemic has proven to be an opportune time for us to discuss and plan—albeit through virtual meetings—NAVTA’s future.

We began the process by identifying and surveying nearly 40 stakeholders, associations and individuals, for their candid input. We supplemented that information with data from the December 2019 membership survey, as well as from our own environmental scans, and information supplied by outside groups. Over the course of several weeks, we reviewed all of that information and began asking questions about NAVTA’s future direction. The answers to those questions formed the basis of what will be NAVTA’s new strategic plan, which we hope to formally adopt in early Fall.

The Board’s intensive work included reviewing and updating, and in some cases completely revising, all of the elements of our strategic plan, including NAVTA’s Core Purpose, Value

Statements, Vision, Mission, and Goals. At hand now is the prioritization of the objectives and brainstorming strategies to accomplish those objectives. Once that work is complete, staff will develop action plans and tracking processes to ensure the work gets done in a timely manner. With that, we will enact a communications plan to share the plan with all of you.

Membership

My second bit of good news is that, despite the pandemic and all of its negative effects, NAVTA membership has grown over the first half of the year. As of this writing, total membership stands at 6,829 individuals, which is up nearly 18% from year-end 2019. If that weren’t impressive enough, membership grew by more than 5% from April to mid-June, at the height of the pandemic. I want to thank everyone for placing their trust in NAVTA by joining NAVTA and/or renewing your memberships.

Finances

Hand-in-hand with NAVTA’s fantastic membership growth, the association is also doing well financially over the first half of the year. Membership dues improved 27% over the same time



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Beth Skiles, BS; RVT; RLATG; VTS (LAM)

THE NAVTA JOURNAL

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period last year, allowing NAVTA to continue operating in a Net Gain or “black” budget. If this positive financial performance continues, NAVTA will be able to create a Reserve Fund at year’s end, which is one of our top priorities. Having a Reserve Fund is a must-have for any not-for-profit association; not only can it provide funding for many of the strategic planning initiatives, but, just as importantly, it provides a level of protection should the association face unexpected downturns in revenue.

NAVTA has received 100% of the funding pledged for the Veterinary Nurse Initiative (VNI). As promised when the VNI was launched, NAVTA has never used any of your dues or any other source of program-related revenue to fund VNI. NAVTA thanks our sponsors, Banfield, Blue Pearl, Royal Canin, VCA, Hill’s and Zoetis for their generosity and support of the VNI and our profession.

Leadership Symposium

I am happy to announce that NAVTA’s annual summer Leadership Symposium will take place virtually over the course of several weeks beginning in early Fall. The plan is to present one 60-minute, RACE-approved webinar every week through most of September. These webinars, which will be free to NAVTA members, will focus on topics such as:

- Understanding and Improving Leadership Styles and Skills
- Qualities of an Effective Leader
- Effective Decision-Making
- Wellbeing
- Career Enhancement
- Resiliency In Chaotic Times

Please watch your email for details on the dates and times for each of the Leadership Symposium sessions.

I hope all of this good news gives you reason to smile and provides a sense of hope for you as a Veterinary Technician.

The work you do is incredibly important; please know your NAVTA Board is working just as hard to continue to earn the trust you’ve placed in the association.

The Current World and Our Profession

The changes and challenges we have faced through the past several months have certainly been outside our imaginations. In it, we have endured uncertain job security or possibly an increased patient load in an environment where personal safety and health becomes a concern. For some, focus on family may have prevented them from being able to work. Stressed team members or pet owners may pose challenges in keeping a positive work environment. We have seen injustices, unrest, and debates on important civil issues. The year 2020 has brought on an added necessity for our profession to be aware of issues of a national scale.

Through it, NAVTA has been there for the members. The most recent effort in helping our profession through COVID-19 was our partnership with the American Veterinary Medical Foundation along with Hill’s and Zoetis to provide a Disaster Relief Grant that provided financial support. We also presented a webinar titled “The New Abnormal,” which focused on what we expect to face as the country reopens through COVID-19. We are incorporating a focus on diversity and inclusion within our renewed strategic plan following our statement issued regarding our stance on racism.

The common thread is that while our great profession is a resilient one, working toward improving the current situation will take additional effort to support each other through the current world. We are in it together and we will get through it together.

—Ken Yagi, MS, RVT, VTS (ECC, SAIM)
NAVTA 2020 President

Indiana Veterinary Technician Association (IVTA)

The Indiana Veterinary Medical Association has formed the Practice Act Task Force to review the current Indiana Veterinary Practice Act. Agenda items include reviews of:

- Veterinary-client-patient relationships,
- Registered Veterinary Technician scope of practice, as well as Registered Veterinary Nursing titles,
- Continuing education requirements during this time of social distancing, and
- Equine dentistry.

Registered Veterinary Technicians will be represented by Megan Brashear, CVT, VTS (ECC), and Kari Brubeck, RVT.

The now virtual Purdue Veterinary Medicine Fall Conference will be held September 22-25, 2020.

The Purdue Veterinary Medicine Fall Conference has been changed to a virtual event, to be held September 22-25, 2020. There are two Veterinary Nursing tracks this year, one for general practice, and one for specialty practice. More information can be found at <https://www.purdue.edu/vet/conference/>

Our first “Members Only” CE presentation was a success! Thanks again to Crystal Schaeffer, BS, RVT for her “Anesthesia Review” program. More information on upcoming CE events will be shared on the IVTA Facebook page, as well as on our website, <https://www.indianavta.com/>.

— Kari Brubeck, RVT





Massachusetts Veterinary Technician Association

Hello from Massachusetts!

I want to begin our update by saying that I have been so inspired by all of you around the country working with new COVID-19 protocols at your hospitals. These last few months have been trying on the veterinary world and I am so honored to be representing all the MVTA members. Your work does not go unnoticed, you all are amazing.

You know what they say, “the best-laid plans of mice and men often go awry”, and that is exactly what has happened since our last update. Our half day conference in March in Hyannis Massachusetts featuring lectures from Jaime Maher, CVT, VTS (ECC, anesthesia/analgesia) and a RECOVER lab with Erin Spencer, M.Ed, CVT, VTS (ECC) was cancelled. Luckily, Jaime Maher was able to provide a live webinar for attendees on the same day. The CE Committee and Erin Spencer have not forgotten about those that were signed up for the RECOVER lab and once it is safe to do so, we hope to reschedule.

As for the 2nd Annual New England Regional Veterinary Technician Conference, the CE Committee had to make the difficult decision to cancel ultimately for the safety of attendees and event personnel. We are excited to continue to work with the other New England associations to offer a conference in October 2021.

The MVTA Executive Board is excited to provide A Live Webinar Trilogy free* for members (*\$30 for non-members) since the NERVTC was cancelled. The live webinars will be held July, September, and November. Do not hesitate to sign up if interested! More information can be found on the MVTA Facebook page and www.massvta.org. Please continue to stay safe out there.

— Annmarie Morawiak, M.Ed., CVT
MVTA Vice President

New Jersey Veterinary Technicians and Assistants

These are challenging times for us all, but we are proud to continue to grow our NJVTA to support our many members!

We are excited to announce that the following new committees and chairs are officially in place! Committee descriptions, headshots and bios are on posted on www.njvta.com.

- **Legal and Governance** — Mike Azzarello, MBA, BS, LVT
- **Wellness** — Harriet Terodemos, MS, BS, CVT
- **PR** — Gina Caputo

Other committee news: our Education Committee chair has new committee chair, Karen Norton, CVT. We are excited to welcome a new member to our Credentialing Committee, Lindsey Derr, BS, CVT, Practice Manager at Banfield.

Continuing Education

We have established a partnership with NYVET’s online CE platform, Vet Show Academy, for NJVTA members to access CE from the 2019 global Veterinary Conferences. NJVTA members will receive \$25 towards any CE on the site using our membership code. This, in combination with our new NJVTA Vetbloom platform which offers 6 complimentary RACE approved credits, is a great benefit to NJVTA members.

We are excited that our new Wellness Committee Chair Harriet Terodemos, MS, BS, CVT, will be presenting a virtual presentation titled “Let’s Get Real About Burnout” to our NJVTA members as well as other technicians around the state in August. Harriett is also starting a Wellness NJVTA Facebook group to assist our members during these challenging times.

We are thrilled to offer a one-hour live RACE Approved webinar during National Vet Tech Week.

Thanks to the generous sponsorship from Boehringer Ingelheim, we are thrilled to offer a one-hour live RACE Approved webinar during National Vet Tech Week, Wednesday, October 14th at 8pm for our members. This presentation will be given by Kara Burns, MS, Med, LVT, VTS (Nutrition) and the presentation is titled “Discussing Diabetes — Empowering Technicians.”

Annual NJVTA Conference — “Tech Talks 2020”

After rescheduling our conference from April to September 20th, 2020, unfortunately we had to move it again, as we are not out of the woods with COVID-19. Our new date is April 11, 2021, and it will now be “Tech Talks 2021!” We hope third time is charm and this in person conference experience will take place — check our website and FB for updates.

Title Protection for CVTs in NJ

We have begun the process of changing our bylaws to protect the use of the CVT title NJ with the help of neighboring states. More soon on this important topic.

— Janet McConnell, CVT
President, NJVTA, NAVTA State Rep



The Tennessee Veterinary Technician Association

The Tennessee Veterinary Technician Association (TVTA) continues to adjust to the new normal of COVID-19. The TVTA presents a scholarship each year to a deserving student in each of the five veterinary technician/nursing programs in the state. We raise the money for the scholarships by fundraisers, such as the silent auction and sales of T-shirts. This year, because of COVID-19 and schools attending the last 2 months of the spring semester on-line, the names of the recipients was delayed.

2020 TVTA Veterinary Technology Scholarship winners

The following are the 2020 TVTA Veterinary Technology Scholarship winners from three of the five programs. They are chosen by the Veterinary Technology Program Directors, using criteria established by the TVTA as a guideline:

- **Columbia State** — Rebekah Potts, Shelbyville TN, grew up on a farm, where she participated in the 4H program and developed a love for animals. She received a BS in Animal Science from Middle Tennessee State University, where she was a member of the MTSU Equestrian Team. After working as a kennel assistant at Animal Care Veterinary Hospital, she entered CSCC Veterinary Technology Program and she graduated this year. She has accepted a position at Purdue University’s Veterinary Teaching Hospital in the Emergency and Critical Care department. Rebekah is excited to start her career as a licensed veterinary technician
- **University of Tennessee Martin** — Jamie Knox is from Crockett County, Tennessee. Jamie grew up in Crockett Mills, but now lives in Alamo. She is a senior Vet Tech major. After finishing her degree, she would love to work with horses, and is planning on working at an animal clinic where she can work with both large and small animals.
- **Chattanooga State Community College** — Jessie Babel is a 23-year-old Vet Tech student living in Chattanooga, Tennessee. Jessica has an Associate in Business prior to entering CSCC. After realizing she could have a career working in the veterinary medical field with animals without going to veterinary school, she entered CSCC Veterinary Technology Program. Her main interest is in Small Animal Medicine, and she would love to specialize in either Emergency and Critical Care or Surgery. She has always been obsessed with animals and this is the career she was meant to have. In her free time, she enjoys going to the gym, cooking, and watching all kinds of documentaries!

Changes to CE Requirements

The Tennessee Board of Veterinary Medical Examiners met in June, to determine possible changes to continuing education requirements for veterinary technicians, due to the COVID-19 pandemic. The current veterinary technician CE requirement is 12 credit hours per year, 8 hours live real time and 4 in multi-media format. The decision was made to allow all 12 credit hours to be in multi-media format. The formal announcement will be made when the legal department approves it. Consequently, the TVTA has cancelled the Fall Veterinary Technician conference in Gatlinburg and the conference at University of Tennessee at Martin. This decision was made with safety for attendees, as our highest priority. At our venues, it would be impossible to practice social distancing.

The TVTA has sent out a survey via our Facebook page to determine if there is a need to offer 1-2 hour CE topics in multimedia format, at an affordable price. The survey results appear to be in favor. Please continue to monitor the TVTA web site and the Facebook page for further information about possible on-line continuing education.

TVTA Promotional Items

The profit from sales of promotional items, such as T-shirts, jackets, and other items, provides the funds to support our scholarships and other community service programs. Since we are not going to have face-to-face contact with our membership, we are offering our T-shirts on-line. We have 2 designs and we are working on more. The link for these awesome shirts is: <https://www.bonfire.com/store/tennessee-veterinary-technicians-association/>. Check it out and support your state association and vet tech students.

TVTA 2021 Board Elections

There will be an election of officers for 2021. The offices which need to be filled are President, Secretary and Treasurer. We also have 2 Member at Large positions to fill and a middle Tennessee area representative. If you are interested in running for any of these positions or know someone who is, send your nomination to tvta.secretary@gmail.com beginning on September 1 through November 1, 2020. Go to www.tntvta.org for descriptions of requirements for the office positions.

We hope everyone stays safe in these uncertain times.

— Mary M. Hatfield, AS, BS, M.Ed., LVMT, LAT
Tennessee State Representative



Vermont Veterinary
Technicians Association

Greetings from Vermont.
Our little state has been working hard at keeping everyone safe.
We have cancelled our live CE in November and are working hard to provide live webinars and quality online CE for our members.



We're working hard to provide live webinars and quality online CE for our members.

This is such a trying time for all of us and patience has a whole new meaning. We all hope the future holds some normalcy. The board looks forward to seeing our members in person in the spring.
Be well and stay safe fellow nurses.

— Deb Glottmann, CVT



The Academy of Veterinary Surgical
Technicians

The Academy of Veterinary Surgical Technicians (AVST) has some exciting new changes! We hope to have a large animal skills list on our website in 2021 - 2022! We want to provide the best skills list for small and large animal applicants. The AVST committees are working hard to have this out next year.
Please check our website for all updates on CE requirement changes and application submission changes. The AVST board continues to monitor and evaluate the pandemic and its effects on applicants.

The American College of Veterinary Surgeons (ACVS) Summit is cancelled for 2020. The AVST is exploring online options for continuing education.

— Cherie Murphy, LVT, VTS (Surgery), President-Elect

VISIT AVST ONLINE FOR UPDATES ON APPLICATIONS, PROCESS, AND CE OPPORTUNITIES.

• Website: www.avst-vts.org
• Facebook: [@academyofveterinarsurgicaltechnicians](https://www.facebook.com/academyofveterinarsurgicaltechnicians)

Heartgard® (ivermectin/pyrantel) Plus

Dog Weight	Chewables Per Month	Ivermectin Content	Pyrantel Content	Color Coding On Foil Backing and Carton
Up to 25 lb	1	68 mcg	57 mg	Blue
26 to 50 lb	1	136 mcg	114 mg	Green
51 to 100 lb	1	272 mcg	227 mg	Brown

CAUTION: Federal (U.S.A.) law restricts this drug to use by or on the order of a licensed veterinarian.

INDICATIONS: For use in dogs to prevent canine heartworm disease by eliminating the tissue stage of heartworm larvae (*Dirofilaria immitis*) for a month (30 days) after infection and for the treatment and control of ascarids (*Toxocara canis*, *Toxascaris leonina*) and hookworms (*Ancylostoma caninum*, *Uncinaria stenocephala*, *Ancylostoma braziliense*).

DOSAGE: HEARTGARD® Plus (ivermectin/pyrantel) should be administered orally at monthly intervals at the recommended minimum dose level of 6 mcg of ivermectin per kilogram (2.72 mcg/lb) and 5 mg of pyrantel (as pamoate salt) per kg (2.27 mg/lb) of body weight. The recommended dosing schedule for prevention of canine heartworm disease and for the treatment and control of ascarids and hookworms is as follows:

Dog Weight	Chewables Per Month	Ivermectin Content	Pyrantel Content	Color Coding On Foil Backing and Carton
Up to 25 lb	1	68 mcg	57 mg	Blue
26 to 50 lb	1	136 mcg	114 mg	Green
51 to 100 lb	1	272 mcg	227 mg	Brown

HEARTGARD Plus is recommended for dogs 6 weeks of age and older.
For dogs over 100 lb use the appropriate combination of these chewables.

ADMINISTRATION: Remove only one chewable at a time from the foil-backed blister card. Return the card with the remaining chewables to its box to protect the product from light. Because most dogs find HEARTGARD Plus palatable, the product can be offered to the dog by hand. Alternatively, it may be added intact to a small amount of dog food. The chewable should be administered in a manner that encourages the dog to chew, rather than to swallow without chewing. Chewables may be broken into pieces and fed to dogs that normally swallow treats whole.

Care should be taken that the dog consumes the complete dose, and treated animals should be observed for a few minutes after administration to ensure that part of the dose is not lost or rejected. If it is suspected that any of the dose has been lost, redosing is recommended.

HEARTGARD Plus should be given at monthly intervals during the period of the year when mosquitoes (vectors), potentially carrying infective heartworm larvae, are active. The initial dose must be given within a month (30 days) after the dog's first exposure to mosquitoes. The final dose must be given within a month (30 days) after the dog's last exposure to mosquitoes.

When replacing another heartworm preventive product in a heartworm disease preventive program, the first dose of HEARTGARD Plus must be given within a month (30 days) of the last dose of the former medication.

If the interval between doses exceeds a month (30 days), the efficacy of ivermectin can be reduced. Therefore, for optimal performance, the chewable must be given once a month on or about the same day of the month. If treatment is delayed, whether by a few days or many, immediate treatment with HEARTGARD Plus and resumption of the recommended dosing regimen will minimize the opportunity for the development of adult heartworms.

Monthly treatment with HEARTGARD Plus also provides effective treatment and control of ascarids (*T. canis*, *T. leonina*) and hookworms (*A. caninum*, *U. stenocephala*, *A. braziliense*). Clients should be advised of measures to be taken to prevent reinfection with intestinal parasites.

EFFICACY: HEARTGARD Plus Chewables, given orally using the recommended dose and regimen, are effective against the tissue larval stage of *D. immitis* for a month (30 days) after infection and, as a result, prevent the development of the adult stage. HEARTGARD Plus Chewables are also effective against canine ascarids (*T. canis*, *T. leonina*) and hookworms (*A. caninum*, *U. stenocephala*, *A. braziliense*).

ACCEPTABILITY: In acceptability and field trials, HEARTGARD Plus was shown to be an acceptable oral dosage form that was consumed at first offering by the majority of dogs.

PRECAUTIONS: All dogs should be tested for existing heartworm infection before starting treatment with HEARTGARD Plus which is not effective against adult *D. immitis*. Infected dogs must be treated to remove adult heartworms and microfilariae before initiating a program with HEARTGARD Plus.

While some microfilariae may be killed by the ivermectin in HEARTGARD Plus at the recommended dose level, HEARTGARD Plus is not effective for microfilariae clearance. A mild hypersensitivity-type reaction, presumably due to dead or dying microfilariae and particularly involving a transient diarrhea, has been observed in clinical trials with ivermectin alone after treatment of some dogs that have circulating microfilariae.

Keep this and all drugs out of the reach of children.
In case of ingestion by humans, clients should be advised to contact a physician immediately. Physicians may contact a Poison Control Center for advice concerning cases of ingestion by humans.

Store between 68°F - 77°F (20°C - 25°C). Excursions between 59°F - 86°F (15°C - 30°C) are permitted. Protect product from light.

ADVERSE REACTIONS: In clinical field trials with HEARTGARD Plus, vomiting or diarrhea within 24 hours of dosing was rarely observed (1.1% of administered doses). The following adverse reactions have been reported following the use of HEARTGARD: Depression/lethargy, vomiting, anorexia, diarrhea, mydriasis, ataxia, staggering, convulsions and hypersalivation.

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). Studies with ivermectin 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, paresis, 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.

For customer service, please contact Merial at 1-888-637-4251.

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HYPERGLYCEMIC HYPEROSMOLAR SYNDROME

Melissa Evans, LVT, VTS (ECC)

LEARNING
OBJECTIVE:

Upon completion of this article readers will gain an understanding of the pathophysiology of Hyperglycemic Hyperosmolar Syndrome (HHS), the clinical signs associated with HHS and the mechanism by which HHS occurs. Readers will also be able to describe the complexity involved in treating these patients.

Hyperglycemic Hyperosmolar Syndrome (HHS) is a rare, but life threatening complication of diabetes mellitus (DM). DM is a common endocrine illness in both cats and dogs. It is characterized by an absolute or relative deficiency of insulin production in the pancreas.^{1,2} This leads to high blood sugar (hyperglycemia), causing metabolic derangements in the body that contribute to life threatening complications for diabetic patients. HHS occurs when hyperglycemia overwhelms the body leading to an increase in the osmolality of the serum and causing a cascade of possibly fatal consequences.¹ Hyperosmolar refers to an excess of solutes in the blood. It is measured using osmolality, the amount of solute per kilogram of serum. Normal serum osmolality is 290–310 mOsm/kg. A

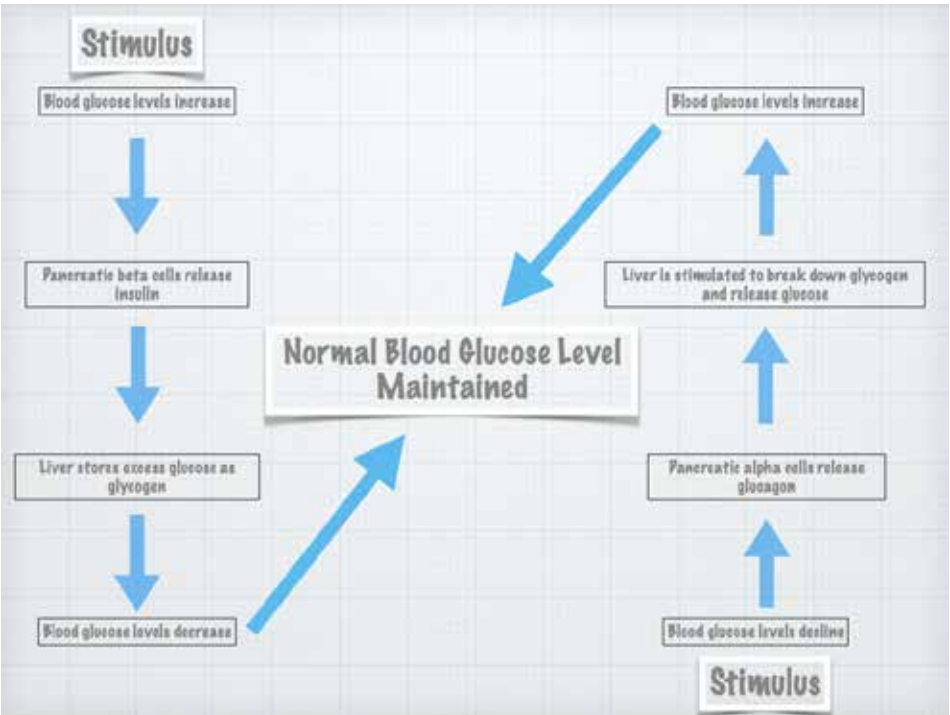


Figure 1: Diagram of blood glucose loop

patient is considered hyperosmolar when their serum osmolality is greater than 350 mOsm/kg.²
The infrequent occurrence of HHS in veterinary medicine means that there have only been a small number of veterinary studies done with small sample sizes. Most knowledge about the disease comes from human medicine.²

Pathophysiology

The pancreas is an organ that has both exocrine and endocrine responsibilities. It is the endocrine portion of the pancreas that is in charge of regulating blood glucose.³ This portion of the pancreas is made up of a small group of pancreatic cells called the Islets of Langerhans.⁴ The islets are composed of alpha cells, beta

This program was reviewed and approved by the AAVSB RACE program for 1 hour of continuing education in jurisdictions which recognize AAVSB RACE approval. Please contact the AAVSB RACE program if you have any comments/concerns regarding this program's validity or relevancy to the veterinary profession.

cells, pancreatic polypeptide cells and delta cells. Alpha and beta cells are most important for maintaining blood glucose level.⁵

Approximately 60% of the Islets of Langerhans are made up of beta cells.⁴ Beta cells respond to high blood glucose levels by releasing the hormone insulin into the bloodstream.⁴ Insulin then moves glucose from circulating blood into cells for energy. If there is excess glucose, insulin causes it to be stored in the liver as glycogen. Maintaining a consistent level of glucose in the bloodstream allows appropriate function of all major organs such as the brain, kidneys and liver.³ Alpha cells respond to low blood glucose levels by releasing the hormone glucagon. Glucagon raises blood sugar by acting on glycogen, converting it back into glucose and releasing it into the bloodstream to be used as energy.⁵ This loop maintains homeostasis to keep the blood glucose at normal levels (80–120mg/dL).⁶ (Figure 1)

Hyperglycemia

A breakdown in any part of this loop disturbs the homeostasis of the body and causes hyperglycemia. Hyperglycemia is defined as a blood glucose level of >180 mg/dL in canines and >280 mg/dL in felines.⁷ When the body has a relative or absolute lack of insulin the blood glucose levels rise and cause metabolic derangements.

In healthy patients, most glucose in circulating blood is reabsorbed by the kidneys to be used by the body. In diabetic patients, blood glucose levels become high enough that they exceed the kidneys ability to reabsorb glucose.^{1, 6} Glucose is then filtered by the kidneys and excreted in urine. Along with the glucose, water is also excreted, leading to dehydration. This is known as osmotic diuresis.⁸

Clinical signs associated with

hyperglycemia are polyuria with resulting polydipsia (pu/pd), polyphagia and weight loss.^{1,2,6} Due to osmotic diuresis, these animals will also have glucosuria. We define these patients as having DM.^{1,2}

Hyperosmolarity

Glucose is considered an osmotically active hormone – meaning where it goes, water will follow. As the blood glucose levels rise, water is pulled from the intracellular space into the extracellular space. The water is then excreted by the kidneys in urine. This, in addition to vomiting and diarrhea commonly seen in HHS, contributes to a free water deficit. This free water deficit leads to the severe dehydration seen in hyperosmolar patients.^{1, 2} The patient's free water deficit is calculated using the formula: (Box 1)

$$\text{Free Water Deficit} = (0.6[\text{wt in kg}])(\text{serum Na} \div 140)^1$$

As the body continues to lose water through urination, the concentration of solutes, such as sodium (Na), phosphorus (PO) and glucose continue to rise. This generates a cycle causing progressive dehydration and an increase in solutes.⁹ The patient becomes hyperosmolar.

An osmometer is used to measure serum osmolality. This is a machine that uses the freezing point of a solution to measure the number of osmotically active particles.² While it is agreed that this is the most accurate way to measure osmolality it is not the most convenient.² Most veterinary hospitals do not have this equipment, as they are expensive and used rarely. Instead osmolality must be

estimated using calculations. The most common equation used is total calculated osmolality. This equation takes into account the serum sodium, blood urea nitrogen (BUN) and glucose.

$$\text{Total Serum Osmolality} = 2(\text{serum Na}) + (\text{BUN} \div 2.8) + (\text{glucose} \div 18)^1, 2, 7$$

A simplified calculation has been devised using just the serum sodium and glucose measurements. This is referred to as effective osmolality:

$$\text{Effective Serum Osmolality} = 2(\text{serum Na}) + (\text{Glucose} \div 18)^1, 2$$

Another important equation to know when calculating osmolality is the corrected sodium calculation. Hyperglycemia causes water to be pulled from the intracellular space to the extracellular space causing a dilutional hyponatremia. ⁷ Since laboratory machines cannot differentiate between real hyponatremia and this “pseudohyponatremia”,⁷ it is necessary to calculate the corrected plasma sodium. The following calculation is used:

$$\text{Corrected Sodium} = (\text{Measured Na} + 1.6)([\text{measured glucose} - \text{normal glucose}] \div 100)^1$$

Hyperglycemic Hyperosmolar Syndrome

Patients are considered HHS if their blood glucose levels are greater than 600 mg/dL, they are hyperosmolar (>350 mOsm/kg), severely dehydrated and have central nervous system depression.⁹

Like DM, HHS begins with a relative or absolute lack of insulin. This causes a state of cellular starvation because without insulin the cells are unable to utilize glucose for energy. In diabetic ketoacidosis (DKA), a more common diabetic emergency, the cells break down free fatty acids (FFA) to use as an energy source.² FFA are broken down into triglycerides and ketone bodies via lipolysis. ² Ketone bodies can be used by the cells as an energy source for a short period of time, but cause metabolic acidosis in the body.

Unlike DKA, ketone production in HHS is minimal or completely absent.^{1,7} Why an animal with HHS does not develop ketosis is unclear. It is thought that these animals are producing just enough insulin to limit ketone production but not nearly enough to prevent hyperglycemia.² Due to the lack of ketones, HHS was previously called nonketotic hyperglycemic hyperosmolar syndrome. Occasionally, trace amounts of ketones can be found when blood is sent to an outside lab, so the name has been updated accordingly.¹⁰

The main difference between a diabetic crisis such as HHS and an uncomplicated diabetic is an increase in circulating counter regulatory hormones such as glucagon, growth hormone, epinephrine and cortisol.^{1,7} These hormones are released due to a stressor that is unrelated to DM. Most often this stressor is a concurrent disease process. The main diseases thought to be related to HHS are renal failure, congestive heart failure



Figure 2: An obtunded HHS patient

(CHF) and neoplasia.¹

These counter-regulatory hormones inhibit insulin use by the cells.¹ This creates higher concentrations of plasma glucose. In addition, the patient's hypovolemia lowers renal perfusion. As a result, glomerular filtration rate decreases leading to glucose retention. This combination causes extreme hyperglycemia and hyperosmolarity.¹¹

Presentation

Patients who present with HHS may be previously diagnosed with DM or newly diagnosed at the time of crisis. A history of clinical signs reported by owners are similar to those of DM, including pu/pd, polyphasia and vomiting.¹ These symptoms may have been present for quite a long time without being recognized by owners. It is often the progression of these signs to anorexia, lethargy, weakness and mentation changes that cause owners to become concerned. ²

Physical exams in these patients can



Figure 3: Glucometer reading “HI”

vary based upon the length and severity of the disease. They are always dehydrated and often hypothermic with decreased capillary refill time.^{7,12} Mentation changes can be severe, ranging from depression to obtundation (Figure 2). As the disease progresses patients may slip into a coma and die. If the animal is able to walk they will be very weak or ataxic.^{1,2} Neurologic signs are presumed to be related to cerebral dehydration from hyperosmolarity.⁹ Animals may be disoriented, have abnormal pupillary light reflexes, twitching and seizures.¹² Cats may show a plantigrade stance due to diabetic neuropathy related to unregulated DM.¹ Other physical exam findings vary and will be consistent with the patient's concurrent disease.

During triage any patient with suspected hyperglycemia should have blood drawn for an immediate blood glucose and packed cell volume/ total solids (PCV/TS). The blood glucose is quickly measured using a point of care analyzer called a glucometer. The glucometer may not display a number if the blood glucose level is higher than the analyzer can read. The screen will read ‘HI’ (Figure 3). The PCV/TS may be increased secondary to dehydration.²

BOX 1. Important Equations for Calculating Osmolality in HHS

$$\text{Free Water Deficit} = 0.6(\text{wt in kg})(\text{serum Na} \div 140)$$

$$\text{Total Serum Osmolality} = 2(\text{serum Na}) + (\text{BUN} \div 2.8) + (\text{glucose} \div 18)$$

$$\text{Effective Serum Osmolality} = 2(\text{serum Na}) + (\text{Glucose} \div 18)$$

$$\text{Corrected Sodium} = (\text{Measured Na} + 1.6)([\text{measured glucose} - \text{normal glucose}] \div 100)$$

Ketones can be assessed quickly using a urine dipstick or a ketometer. If urine is not available at triage, serum from a hematocrit tube can be used in lieu of urine on a ketone dipstick. If the patient does have HHS, the patient will have high glucosuria but no ketones present on a urine dipstick. These results in addition to the mentation status of the patient and degree of dehydration should create suspicion for HHS.

Diagnosis

Definitive diagnosis of HHS is based upon laboratory findings and subsequent osmolality calculations. A complete blood count, biochemistry panel, electrolyte panel, blood gas and urinalysis/culture should be performed.¹

The complete blood count will likely show an increase in hematocrit secondary to dehydration.^{1,2} Anemia is not uncommon in both dogs and cats with HHS.² Feline red blood cells may form Heinz bodies and oxidative injury.²

A chemistry panel will give a precise glucose reading and may show an increase in BUN and creatinine (CREA) levels.

This increase can be caused by a pre-renal azotemia due to dehydration resulting in decreased blood flow to the kidneys. The elevated BUN and CREA may also be a sign of renal azotemia due to coexisting renal failure.¹

Electrolyte results commonly show a decrease in sodium and potassium due to elimination from increased urination.^{1,2} Phosphorus levels are often within normal limits at first glance. Insulin is important to promote the intracellular uptake of phosphorus needed to convert adenosine diphosphate (ADP) into adenosine triphosphate (ATP) creating energy for the cells. This is known as phosphorylation.¹³ The patient's insulin deficiency causes phosphorus to move into plasma where it is then excreted in urine.¹³ These patients may become hypophosphatemic as treatment continues.

Blood gas results tend to be normal as it is the ketones that are present in DKA patients, but not HHS patients, that cause significant acidosis.² Urinary tract infections are common in diabetic patients, and a urine culture should be done to confirm or rule out an infection.

When laboratory results have been collected, the serum osmolality calculation can be done to confirm the suspected hyperosmolarity in the patient (*Figure 4*).

Treatment

The goals of treatment are as follows^{1,2}:

1. Restore intravascular volume and resolve dehydration.
2. Correct electrolyte disorders.
3. Decrease blood glucose concentration.
4. Identify and treat coexisting disease.

The first step in treating HHS is to correct dehydration. 0.9% saline is usually the fluid of choice for rehydration, but any buffered isotonic crystalloid may be used.² Since many patients present in hypovolemic shock, it is recommended to give a portion of the fluid shock volume as a bolus^{1,2} and then reassess the patient's fluid needs. Circulating volume should be restored over 6–8 hours.¹¹ Rapid infusion of large volumes of fluids are contraindicated. During severe dehydration the brain produces idiogenic osmoles which are designed to protect the brain from dehydration.^{1,2} These osmoles

restrict water movement from the brain to the blood.¹⁴ Infusions of large volumes of fluid lowers plasma osmolality by restoring free water quickly, thus promoting flow into the cells and causing cerebral edema.²

The fluid plan needs to take into account dehydration deficit, maintenance needs and ongoing losses. The plan will need to be reassessed frequently as the patient's fluid needs change. The correction of dehydration should be done over 36 to 48 hours.¹¹ Patients who have coexisting CHF may need to be rehydrated more slowly to prevent fluid overload. As long as there is no contraindication, such as vomiting, an option for these patients is to have a nasogastric tube (NG) placed for enteral water supplementation in addition to intravenous (IV) fluids (*Figure 5*). Giving water supplementation through a NG tube directly to the stomach where it can be absorbed and used by the body lessens the stress put on the heart and the risk of fluid overload that can come from IV fluids. Frequent monitoring of a patient's weight and auscultation of their heart for the 'gallop' rhythm that can be associated with fluid overload is necessary for all patients on fluids.

Monitoring a patient's fluid loss from urine is important to ensure that the intravenous fluid rate is correct. Balancing these rates — the "ins and outs" — establishes that a patient is being appropriately hydrated and that the fluid plan is working the way it needs to. The easiest way to measure a patient's urine production is with a urinary closed system. Placing a urinary catheter and attaching it to this closed system is a simple way to take measurements of urinary output.¹⁴ This also helps to keep a patient who is immobile from becoming covered in urine. If an indwelling urinary catheter is contraindicated, such as in the case of a urinary tract infection, it is still possible to measure a patient's ins and outs. By weighing towels, pee pads or litter boxes you can estimate the amount of urine an animal is producing. It is

generally assumed that one gram of urine is equivalent to 1 milliliter.¹⁵ The most important thing to remember when using this method is to weigh your towels, litter boxes (with litter) or pee pads before placing them in a patient's cage.

Hypokalemia is the most common electrolyte disturbance associated with HHS . . . Patients should be connected to an electrocardiogram for close monitoring.

Hypokalemia is the most common electrolyte disturbance associated with HHS.^{1,2} Potassium may already have been low as potassium is excreted in the urine during osmotic diuresis. In addition, insulin promotes intracellular uptake of potassium leaving reduced amounts in the extracellular space.^{1,2} Fluid therapy may also exacerbate hypokalemia by diluting the amount of potassium in the blood. Potassium is the major cellular cation and is responsible for preserving resting cell membrane potential.¹⁶ Therefore, clinical signs of hypokalemia involve muscle weakness and cardiovascular effects. Tachycardia and arrhythmias are often seen.¹⁶ Patients should be connected to an electrocardiogram for close monitoring. Common arrhythmias seen with severe hypokalemia include supraventricular and ventricular arrhythmias.¹⁶ If hypokalemia is severe enough respiratory muscle paralysis will quickly lead to respiratory failure.^{2,16} It is almost always necessary to supplement IV fluids with potassium chloride (KCL).^{2,6} If the amount of KCL in fluids is greater than 60 mEq/L it should not be given via a peripheral catheter due to the danger of phlebitis.¹⁶ Supplementation should not exceed 0.5 mEq/kg/hr (KMAX).²

As previously mentioned, insulin

also moves phosphorus into cells to be used for phosphorylation.¹³ Insulin administration moves the extracellular phosphorus into the intracellular space. This may cause the animal to become hypophosphatemic (less than 2.0 mg/dL).² The major complication associated with severe hypophosphatemia is hemolysis.¹³ Ataxia and seizures may also occur.² Patients who are hypophosphatemic will require supplementation of phosphorus with potassium phosphate (KPO4). It is important to note that KPO4 needs to be diluted, but is contraindicated in fluids containing calcium, such as Lactated Ringer's Solution.¹³

Once appropriately rehydrated, the patient's hyperglycemia must be addressed. Correcting fluid deficits will likely change the patient's electrolyte balance, and the addition of insulin also has an effect on electrolyte balance, especially phosphorus and potassium.¹³ While it is important to start these patients on insulin to treat their underlying diabetes mellitus, waiting until the patient has been rehydrated before adding insulin therapy can help mitigate unnecessary electrolyte imbalances.²

To facilitate an insulin administration, in addition to allowing for frequent blood draws and necessary fluid therapy, it is useful to place a central venous catheter.^{2,7} These animals will need their blood glucose monitored every 1–2 hours and will need electrolytes checked every 6–8 hours to start.² A central venous catheter allows for blood sampling without constant venipuncture. Ideally, a triple lumen central line can be placed in the jugular vein. If a jugular catheter is contraindicated, or the owner has financial constraints, a sampling line placed in a peripheral vein can be just as useful to help save the animal from extensive venipuncture and make the technician's job a little easier.

Constant rate infusions of short acting regular insulin are recommended when starting insulin therapy. Dosage for insulin administration in HHS is 1.1 U/kg/day.²

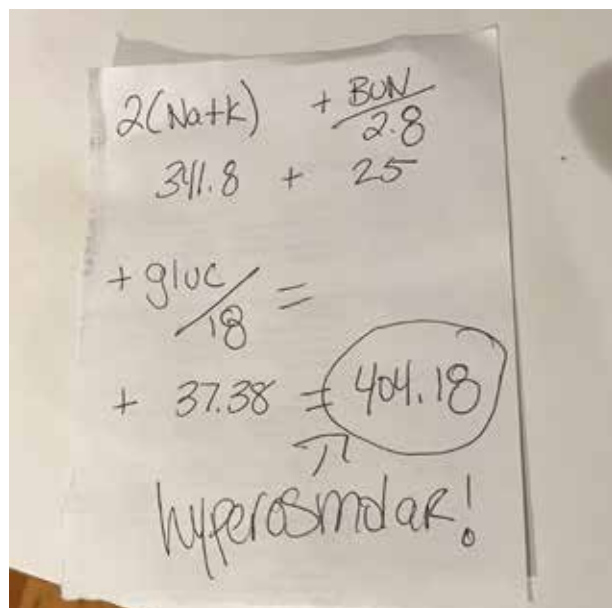


Figure 4: Total Serum Osmolality calculation for a hyperglycemic patient



Figure 5: Tap water being given via an NG tube



Figure 6: A patient who needs close technician monitoring

Frequent blood glucose monitoring (every 1–2 hours) is important. It allows for close supervision of the patient's glucose measurements so the CRI can be adjusted as needed. Dextrose supplementation may be needed based on blood glucose measurement until a consistent reading is reached (<250 g/dl).^{1,2} Intramuscular (IM) or subcutaneous (SQ) insulin administration is not recommended due to the circulatory compromise present in dehydrated patients.² This can cause variations the effectiveness and delivery of any medication given IM or SQ.² It will take approximately 48 hours to normalize a patient's glucose.^{2, 1}

When an animal is fully rehydrated and eating they can be transitioned to long acting SQ insulin administration

in preparation for discharge.² Enticing a patient to eat in the hospital can be difficult and takes some effort on behalf of the technician. If an animal is in pain or feeling nauseous it is unlikely eating is a top priority. Ensuring that they are comfortable can initiate eating.¹⁴ Giving a patient a variety of food options (wet and dry, as well as different flavors) can help convince them to eat. Sometimes warming food will stimulate the patient's sense of smell and tempt them to eat. Appetite stimulants do not work as well in patients who are completely anorexic, but maybe useful in patients who are eating a small amount.¹⁴ They are also a good first step for owners who do not want to have a feeding tube placed. Force feeding is not recommended¹⁴ as it may make them less

inclined to eat on their own. If all attempts to get the animal to eat voluntarily fail a feeding tube may be indicated.¹⁴

Finally, we must identify and treat the comorbidity that is present in these patients. If we are lucky, this is a previous disease process that has already been diagnosed. If not, it can be difficult to identify the illness due to the many factors associated with HHS. It may require extensive testing, including ultrasounds, radiographs, blood tests and echocardiograms.

Treating these patients will take up considerable staff time and energy. Most often animals are in need of a dedicated technician (Figure 6). If patients are recumbent they will need to be turned every 4–6 hours¹ and may need passive

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Technicians must recognize the difficulty of treating these patients and be aware of the speed at which they can become even more critical. With attentive nursing care, animals can be brought through the crisis and given a chance to get better.

range of motion exercises and eye lubrication.¹⁴ Frequent monitoring of urine output, blood glucose and electrolytes will be necessary.^{1,2} Keeping the animal clean and tempting it to eat is also required. Technicians must recognize the difficulty of treating these patients and be aware of the speed at which they can become even more critical. With attentive nursing care, animals can be brought through the crisis and given a chance to get better.

Prognosis

Unfortunately, the prognosis for patients with HHS is extremely guarded.^{1,2,12} One study showed that 65% of feline patients died or were euthanized within 10 hours of presentation for HHS.⁹ This same study

also showed that the long term survival rate for these patients was approximately 10%.⁹

The reason for these low survival numbers is threefold. Animals often present in extreme crisis. They are critically ill and may be too far along in the disease process to reverse the effects of the crisis. Co-morbid diseases, such as CHF and renal failure, are serious illnesses in their own right. If these conditions cannot be addressed and treated the patient will not survive. Human studies have shown that concurrent illness is a major factor in mortality for patients with HHS.¹⁷ These animals will require long periods of hospitalization and a high level of care. The cost of this care, both emotionally

and financially, can be restrictive to many owners.

HHS is the most critical diabetic crisis for an animal. The sizable challenges presented by these patients are difficult for medical practitioners to treat. Owners and staff need to be prepared for the unpredictability and emotional toll of this disease. **J**

REFERENCES

1. Koenig A. Hyperglycemic Hyperosmolar Syndrome. In: Silverstein D, Hopper K, eds. *Small Animal Critical Care Medicine*. St. Louis, MO: Saunders; 2015:347-351.
2. O'Brien M. Diabetic Ketoacidosis and Hyperglycemic Hyperosmolar Syndrome. In: Ettinger SJ, Feldman EC, Cote E, eds. *Textbook of Veterinary Internal Medicine*. St. Louis, MO: Elsevier, Inc.; 2017:1574-1587.
3. Columbia University Irving Medical Center. <https://columbiasurgery.org/pancreas/pancreas-and-its-functions>. Accessed June 26, 2020.
4. Bruyette, D. Merck Manual. <https://www.merckvetmanual.com/endocrine-system/the-pancreas/the-pancreas-in-animals>. Updated July, 2019. Accessed June 24, 2020.
5. Dasilva XG. The Cells of the Islets of Langerhans. *Journal of Clinical Medicine*. 2018; 7(3):54.
6. Randels, A. Endocrine and Metabolic Emergencies. In: Norkus CL, ed. *Veterinary Technician's Manual for Small Animal Emergency and Critical Care*. Chichester, West Sussex, UK: John Wiley & Sons, Inc; 2012: 197-220.
7. Koenig A. Endocrine emergencies in dogs and cats. *Veterinary Clinics of North America: Small Animal Practice*. 2013; 43(4):869-897.
8. Vorvick LJ, ed. University of Florida Health. <https://ufhealth.org/osmotic-diuresis>. Accessed June 20, 2020.
9. Koenig A, Drobatz KJ, Beale AB and King, LG. Hyperglycemic, hyperosmolar syndrome in feline diabetics: 17 cases (1995-2001). *Journal of Veterinary Emergency and Critical Care*. 2004; 14(1): 30-40.
10. Trotman TK, Drobatz KJ and Hess RS. Retrospective evaluation of hyperosmolar hyperglycemia in 66 dogs (1993-2008). *Journal of Veterinary Emergency and Critical Care*. 2013; 23(5):557-564.
11. DiBartola SP, ed. *Fluid, Electrolyte and Acid-Base Disorders in Small Animal Practice*. St. Louis, MO: Saunders; 2012.
12. Plunkett, SJ. *Emergency Procedures for the Small Animal Veterinarian*. St. Louis, MO: Saunders; 2013.
13. Drobatz KJ and Ward CR. Hypophosphatemia. *Internal Medicine Compendium*. 2005; 27(12). <https://www.vetfolio.com/learn/article/hypophosphatemia>. Accessed June 24, 2020.
14. Reineke EL. Blood Glucose Monitoring and Glycemic Control. In: Burkitt Creedon JM and Davis H, eds. *Advanced Monitoring and Procedures for Small Animal Emergency and Critical Care*. Chichester, West Sussex, UK: John Wiley & Sons, Inc; 2012:776-788.
15. Aspinall R. Measuring Clinical Parameters. In: Aspinall V, ed. *Clinical Procedures in Veterinary Nursing*. Edinburgh: Butterworth Heinemann Elsevier; 2014:41-64.
16. de Moraes HA. Potassium disorders in cats: Myths and Facts. World Small Animal Veterinary Association World Congress Proceedings, 2009. <https://www.vin.com/apputil/content/defaultadv1.aspx?pid=11290&id=4252634>. Accessed June 20, 2020.
17. Efsthathiou SP, et al. A mortality prediction model in diabetic ketoacidosis. *Clinical Endocrinology*. 2002; 57(5):595-601.

LET'S REVIEW...

1. Hyperosmolar refers to:

- a. A lack of insulin
- b. An increase in glucose
- c. An excess of solutes in the blood
- d. An increase in urination

2. HHS is defined as

- a. Blood glucose levels >600mg/dl and serum osmolality >350mOsm/kg
- b. Blood glucose levels >350mg/dl and serum osmolality >600mOsm/kg
- c. Blood glucose levels <600mg/dl and serum osmolality <350mOsm/kg
- d. Blood glucose levels <350mg/dl and serum osmolality <600mOsm/kg

3. Common concurrent diseases seen with HHS include

- a. Congestive heart failure
- b. Renal failure
- c. Parvovirus
- d. A and B

4. What is the most common electrolyte abnormality seen with HHS

- a. Hypercalcemia
- b. Hypokalemia
- c. Hypomagnesia
- d. Hyperphosphatemia

5. Correcting a HHS patient's dehydration should be done over:

- a. 6-12 hours
- b. 12-24 hours
- c. 24-36 hours
- d. 36-48 hours

MELISSA EVANS, LVT, VTS(ECC)

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Euthanasia can be a rather sensitive subject to many individuals, clients of veterinary professionals, and the veterinary team alike. With increased attention in recent years given to the human-animal bond, the emotional complexity of animals, and the focus on veterinary wellness, the importance of a good death has certainly come into focus. The euthanasia appointment is no longer an unpleasant burden in forward-thinking veterinary practices, but a chance for connectiveness and intimacy in the veterinary profession. Though sad and heartbreaking, euthanasia can lead to a personal satisfaction when performed well. With love at the heart of the veterinary profession, peace can be found, even when life is lost.¹

Good euthanasia is now beyond the “one step” of giving an injection; rather, it evolves around the right time, compassionate staff, and skillful techniques, with family gathered around. The emphasis today is toward ensuring that the pet’s last moments are comfortable and peaceful, not just “getting the job done.” There are no “do-overs” to euthanasia, thus it is worth doing right. A good death is achieved by advocating for the safest method for the pet, for what is most meaningful for the caregiver, and what will nourish the veterinary team, according Kathleen Cooney.¹ The

American Veterinary Medical Association (AVMA) Guidelines for the Euthanasia of Animals document² highlights the significance of proper technique choices and the ethical considerations to be considered.

What is the role of the veterinary tech professional in the euthanasia process? These professionals play an integral role in making the euthanasia process as stress-free and smooth-lined as possible for both the client and the veterinarian.³ Clients will rely on the knowledge and compassion of the vet tech person to give information in helping to make the right decision regarding euthanasia. Additionally, the veterinarian will depend on the vet tech for assistance before, during and after the euthanasia process, observes Amanda Jondle. Currently, 10 states allow vet techs to perform euthanasia with or without the veterinarian present. Nine states indicate the technician may perform euthanasia if the veterinarian is on site and able to assist should the need arise.⁴ Either situation requires the veterinarian to “prescribe” euthanasia as the best medical procedure for the patient given its physical and mental health. The veterinary technician cannot decide to perform euthanasia without a veterinarian’s consent. Some 26 states do not allow veterinary technicians to perform euthanasia outside of shelters, as veterinarians are the primary

facilitators in performing euthanasia procedures on animals. In animal shelters, however, euthanasia technicians with advanced training may perform euthanasia for shelter animals only.⁵

The method of euthanasia is somewhat standard across the 50 states, with most states authorizing the injection of sodium pentobarbital or a similar agent. Some states, however, allow the use of carbon monoxide chambers, often mandating that the animals must be of a certain age. Several states have enacted laws on “emergency” euthanasia, whereby if deemed to be dangerous, injured, or sick beyond treatment, law enforcement officers, animal control agents, veterinarians, or other designated persons may shoot or otherwise euthanize an animal in an emergency.⁵

The objective of this study is to determine how US veterinary tech programs are preparing students to deal with euthanasia of an animal. As noted above, veterinary technicians are pivotal members of the euthanasia team, though normally working with a veterinarian, not actually performing the procedure. It is our hope that the results of this study can help various vet tech programs to learn from each other and thus benefit. As anthropologists note, 90 percent of what we learn comes from diffusion, not invention. This study will hopefully reveal

best practices regarding euthanasia of animals, thus allowing vet tech programs to adjust their own programs accordingly.

Methods

Following approval by the IRB at the College of Charleston (Exemption for Protocol IRB-2019-09-23-125958), a survey was electronically mailed, using Qualtrics, to the 192 veterinary tech schools in the United States in the fall of

2019. Then in the spring of 2020, a follow-up postal service mailing occurred. The addresses of the vet tech programs were obtained from the Veterinary Technology Programs Accredited by the AVMA Committee on Veterinary Technician Education and Activities.⁶ Mailings included the cover letter which explained the purpose of the study, the survey, and a self-addressed, stamped envelope for return with the postal mailings. Questions on the survey included methods of euthanasia taught for various animals, number of hours devoted in the core curriculum to euthanasia methods and techniques, which professionals taught the methodologies, how the teachers were selected, whether euthanasia facilitation is considered a core competency for graduates, percentage of students who perform, or are present for, an actual euthanasia during their education, if students are taught to understand how euthanasia drugs accomplish death, and expected physical changes during euthanasia, made aware of euthanasia impact on clients, whether schools use a Quality of Life Scale, if taught ways to increase safety and comfort for patients, encouraged to familiarize themselves with euthanasia standards of various professional groups, knowledge taught regarding euthanasia, whether a death-fear test is given, provided option of

TABLE 1. Methods of Euthanasia Taught with Respect to Various Species (in percentages)					
Method	Dogs	Cats	Horses	Livestock	Exotics
Intravenous	96	96	80	60	65
Intracardiac	61	63	3		68
Intrahepatic	8	6	0	0	11
Intrarenal	3	17	0	0	8
Intraperitoneal	26	28	0	0	68
Gunshot	2	2	35	38	0
Captive Bolt	0	0	17	56	0
Anesthetic	11	11	3	5	67
Oral Admin	0	0	0	0	0

N = 45

animal hospice information, workshops on euthanasia encouraged after graduation, and whether euthanasia-related education is offered outside of the curriculum.

Findings

The response rate to the electronic survey yielded a low return, even after a follow-up mailing via postal services. Thirty-five surveys were returned from the electronic mailings to the 192 veterinary tech schools and 10 from the postal mailing (10 out of 157). Obviously during a pandemic is not the time to send a postal mailing of a survey to academics! Overall, the return rate was 23.4 percent. Although disappointing, such a low rate is not surprising, given the dramatic reduction in survey response rates in recent years.⁷

Method of euthanasia most frequently taught for dogs, cats, horses, livestock and exotics was intravenous (*Table 1*). Also, a popular method for dogs, cats, and exotics was intracardiac. Two other frequently used methods for exotics were intraperitoneal and anesthetic gas. Captive bolt and gunshot were used primarily for livestock and horses.

Average number of hours devoted in the core curriculum to euthanasia methods and techniques (separate from training relating to client communication and ethical decision-making) was 3.74.

As to the background of the teachers who taught euthanasia methodology, they were veterinarians and veterinary technicians (96 percent and 84 percent, respectively). When asked how the teachers were selected, answers included DVM-based (thus the teachers simply followed those guidelines), taught in a variety of courses (the teacher of a particular course would then teach it), personal interest in that topic, licensed and experienced professionals, and based on clinical knowledge and experience.

Euthanasia facilitation is not considered a core competency for veterinary tech graduates for 63 percent of the programs. In the 45 vet tech schools responding, almost half (49%) reported that more than two-thirds of their students perform, or are present for, an actual euthanasia during their education. For the other schools, the number of students experiencing such was less than two-thirds. Therefore, most vet tech students are having some exposure to the methodology of euthanasia. If students do not have an opportunity to perform euthanasia, however, the question was asked as to the educational guarantee implemented to ensure that they understand how to perform such a procedure. As numerous respondents stated, euthanasia is not an essential skill for CVTEA, as most states require that a veterinarian perform

euthanasia. Others noted how students understood the process, as noted in *Sidebar 1*. In some vet tech programs students participate in preparation of sedation and IV catheterization and have exposure in

SIDEBAR 1. If Students Do Not Perform Euthanasia, What Guarantee Is Implemented to Ensure They Understand How to Perform Such a Procedure?

1. Euthanasia not a task for vet tech students

2. Observe euthanasia, thus knowledge gained

3. Lectures, reading, quizzes, discussion—learning didactic skills

4. View videos

5. Participate to some extent

6. Required to understand how euthanasia is performed

7. Simulated models used

8. Practice on deceased patients

9. Practicum experience

10. Taught IV catheterization and sedation

11. May Have opportunity to perform at a clinical site

12. Taught theory and methods

13. Proficient in blood draws

clinical rotation. Certain skills and knowledge regarding euthanasia taught in vet tech programs revealed that overwhelmingly programs so emphasized (*Table 2*). All or nearly all programs emphasize how euthanasia drugs work, physical reactions to the procedure, impact on the client, use Quality of Life Scales, taught safety, and encouraged to be familiar with euthanasia standards of various groups. Only one of 45 vet tech school administers any sort of death-fear test to determine the anxiety of students regarding death. Animal hospice is an option discussed in 73 percent of the vet tech schools responding. Fifty-one percent of vet tech schools encourage/provide workshops/orientation/continuing education on euthanasia outside of the curriculum. This euthanasia emphasis includes a local hospice, at-home euthanasia veterinarian guest lecture, speakers from the Vet Tech Club, talk from a licensed social worker, local animal crematorium sponsored CE credits on euthanasia, mental health faculty working with students on euthanasia counseling, ongoing CE for license renewal, veterinary conferences, and CE opportunities on grief counseling. **Discussion** Though a less than 25 percent return rate, we can draw some conclusions from our data. The most frequently taught method of euthanasia in US veterinary tech schools is intravenous (much like US veterinary schools, according to

unpublished data by the authors). Because veterinary technicians do not typically perform euthanasia, as do veterinarians, it is thus not considered a core competency for veterinary tech graduates, according to most of the schools responding. However, vet tech schools receive nearly four hours regarding euthanasia methods and techniques to prepare them to assist veterinarians. Interestingly, veterinary schools provide on average 2.8 hours of euthanasia methodology preparation, according to yet unpublished data by the authors. Nonetheless, most vet tech students are experiencing exposure to the methodology of euthanasia. Nearly three-fourths of vet tech programs present animal hospice as an option to euthanasia to their students. A slight majority of programs also encourage additional education on euthanasia beyond vet tech school through CEs and other opportunities. Thus, euthanasia and hospice are included in the education of most vet tech students. Overall, the vet tech schools reporting tend to give their students exposure to euthanasia methodology and ways to assist their clients, veterinarians, and the animal being euthanized. The majority (82 percent) of reporting vet tech schools encourage the use of Quality of Life Scales as an assessment tool in euthanasia-related decision-making. Quality of life is important for pets and people alike. As Sara Said⁸ observes, quality of life scales, such as the HHHHHMM scale from Dr. Alice

Villalobos for dogs and cats help evaluate the seven criteria to assist in decision-making for the final call. Veterinary personnel should feel honored that they are serving society’s needs by offering decision-making and counseling to help pet owners through this emotional and difficult time, notes Said. Only one of the responding veterinary tech schools offers a death fear test to determine the degree of death fear/anxiety which veterinary tech students may experience. A death fear test could be given to entering vet tech students, however, then to exiting students to determine if death anxiety went up or down during their tenure. There are various death fear scales which could be utilized. Some medical schools incorporate death orientation for first-year students prior to beginning gross anatomy laboratory to help reduce any anxiety which may exist. Veterinary tech schools might consider such an initiative regarding euthanasia procedures. If indeed, death fear was high with entering vet tech students, the programs might want to address this concern. Such a lessening of death anxiety would likely enhance the veterinary technicians’ ability to relate to their clients when euthanasia of a pet occurred. Though vet tech professionals primarily “assist” with euthanasia, they play a pivotal role in making the euthanasia process as stress-free as possible for all concerned. The goal of veterinary professionals is to ease the animal’s suffering and to keep the pet’s comfort and quality of life at the forefront. As veterinarian Amanda Jondle³ notes regarding veterinary technician’s role in euthanasia, at some point the move is from ensuring a quality of life to ensuring a quality of death. Suggestions by Dr. Jondle for veterinary technicians to assist include providing information ahead of time to the client, prepare the room (clean bedding, soft lighting, background sounds such as music, waterfalls), and prepare

The goal of veterinary professionals is to ease the animal’s suffering and to keep the pet’s comfort and quality of life at the forefront. At some point the move is from ensuring a quality of life to ensuring a quality of death.

the paperback. During the appointment, the vet technician can assist in getting the pet and client from their vehicle, going over the paperwork, talk about payment, expectations during the procedure by assisting the veterinarian in getting an accessible vein, for example, and after the procedure allow the clients to stay longer with the pet if they choose, talk about any memorial items, remove the body from the room and prepare for final disposition whatever the will of the client, then prepare a sympathy card, signed by the staff, to send to the client. With euthanasia of animals having numerous methodologies available, the topic of euthanasia should be of utmost significance to veterinary technicians. Primarily assisting veterinarians in euthanasia, however, it is important that veterinary technicians be well trained in their role in relating to both the animal and the client. Knowing the procedures and being knowledgeable regarding their interaction with the client is most important. With proper preparation in veterinary tech schools, these graduates will go out into their profession and make a most positive impact on their clients. According to Kathleen Cooney of the Companion Animal Euthanasia Training Academy (CAETA), the growing request for home euthanasia and the known

shortage of mobile veterinarians has left veterinary teams unable to fulfill the number of requests for such services. In states allowing veterinary technicians to perform euthanasia, their services can help an increased number of patients. Veterinary technicians well trained in euthanasia could fill the gap. Finally, feeling comfortable with one’s own interaction, the veterinary tech professional will feel good about self and know that she/he is making a difference in the lives of others, thus producing a feeling of integrity and senescence. **J**

REFERENCES

1. Cooney K. The “good death” revolution: Companion animal euthanasia in the modern age. <https://www.veterinarypracticenews.com/good-death-revolution-companion-animal-euthanasia>. May 28, 2019. Accessed June 4, 2020.
2. AVMA. Guidelines for the Euthanasia of Animals. <https://www.avma.org/KB/Policies/Documents/euthanasia.pdf>. January, 2020. Accessed June 4, 2020.
3. Jondle A. A veterinary technician’s role in euthanasia. EDUMED. <https://www.edumed.org/blog/a-veterinary-technicians-role-in-euthanasia>. August 26, 2019. Accessed June 5, 2020.
4. Cooney K. Veterinary technicians in euthanasia work. <http://caetainternational.com/veterinary-technicians-in-euthanasia-work-encouragement>. May 7, 2020. Accessed June 4, 2020.
5. AVMA. State Animal Euthanasia Laws. <https://www.avma.org/advocacy/state-local-issues/state-laws-governing-euthanasia>. September 2019. Accessed June 5, 2020.
6. Veterinary Technology Programs Accredited by the AVMA CVTEA (2019). <https://www.avma.org>. 2019. Accessed July 7, 2019.
7. Keeter S. Evidence about the accuracy of surveys in the face of declining response rates. In D.L. Vannette DI, Krosnick JA, eds. *The Palgrave Handbook of Survey Research*. New York, NY: Springer:2017:19–22.
8. Said S. Rethinking euthanasia. Veterinary Practice News. <https://www.veterinarypracticenews.com/rethinking-euthanasia/print>. August 21, 2018. Assessed May 27, 2019.

TABLE 2. Information Taught to Vet Tech Students (in percentages)		
Material Taught	Yes	No
Required to understand how euthanasia drugs accomplish death	98	2
Taught the expected physical changes during the euthanasia procedure (death)	100	0
Aware of the impact euthanasia might have on clients	100	0
Encouraged to use Quality of Life Scales as an assessment tool in euthanasia-related decision-making	82	18
Taught ways to increase safety and comfort for patients during euthanasia	100	0
Encouraged to familiarize themselves with euthanasia standards of groups such as the AVMA, AAHA, IAAHPC, or CAETA	78	22

N = 45



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REFERENCE:

1. AAHA. Promoting Preventive Care Protocols: Evidence, Enactment, and Economics. Indianapolis, IN: AAHA; 2018. www.aaha.org/globalassets/05-pet-health-resources/promoting_preventive_care_protocols.pdf. Published date unknown. Accessed April 10, 2020.

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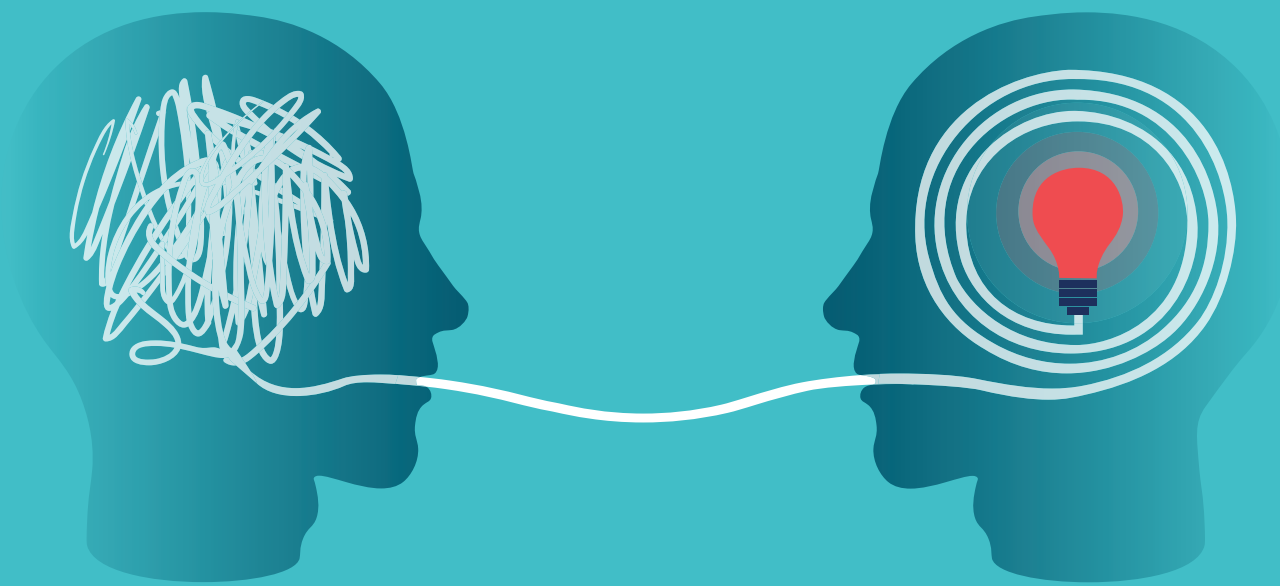
Dr. Richard Goldstein, DVM, DACVIM, DECVIM-CA is the current Vice President & Chief Medical Officer Zoetis Global Diagnostics, Medical Affairs. A past faculty member at the Cornell University College of Veterinary Medicine, Dr. Goldstein's clinical interests



include point of care and reference laboratory test development in infectious, renal and genetic diseases of dogs and cats. He has published over 70 peer reviewed manuscripts and book chapters, and is the recipient of the Norden Distinguished Teaching Award.

Andrea DeLoy, LVT, RVT, CVPM is a Senior Diagnostic Technician Specialist at Zoetis. Andrea uses her unique combination of practical applied knowledge and management skills to help clinics improve their quality point of care laboratory systems. She has been the Vice President of the Virginia Association of Licensed Veterinary Technicians and remains an active member of the chapter. Andrea is also a member of NAVTA and the Veterinary Hospital Managers Association.





VETERINARY TECHNICIAN TO VETERINARY NURSE

Changing Assumptions and Gaining Respect

Heather Scott, RVT, LVT, VTS-ECC

Tonight, I was having a quiet evening by the fire pit with my roommate and friend, who is a veterinarian. We were finishing a glass of dinner wine while talking about how much we loved our neighborhood. My husband came running out to tell us we were needed and that a man had been stabbed. I don't live in a normally crime-filled area.

We ran to the scene and a man was passed out in the driveway across from us. He had a deep penetrating stab wound to the cranial area of the abdomen. Given his level of consciousness and how pale he was, I didn't take a bunch of time to assess the wound. I saw the wounded area and the blood and applied constant pressure with a towel while my roommate vigilantly monitored his vitals. He was tachycardic, tachypneic, and in and out of consciousness. We continued to

monitor him and apply pressure until the ambulance arrived. We didn't hesitate, we didn't think, we just went into ER mode. He was rushed to the hospital.

Later a reporter began to question me, and something interesting happened. He asked me if I was a nurse. My first response was yes. Then, I quickly added "veterinary." He nodded with approval and continued to set up his interviewing gear. Later, just prior to the TV interview, I realized I could cause issues with the world of nurses and some veterinary technicians so I changed my response and clarified to him that the term was "veterinary technician".

Honestly, it pained me for the first time ever. The confusion on the reporter's face was so obvious. He had no idea what my title meant. Sadly, having to clarify the meaning of our professional title as "a

nurse for animals" is common. But what made it different this time was, for the first time ever, the ability to do my job or, rather, to do what I knew was right because of my experience and training, was somehow lessened and not because the word "veterinary" was in front of technician, but because "technician" wasn't a term often associated with medicine. I never knew I could feel like that until that moment.

The name never mattered before. I have always said, "I know what I do. I know my skill level and knowledge. I don't need to care about a title to prove that." But on this night, for the first time in 25 years of being in the veterinary field, it felt different. It felt like the responsibility to care about the patient during this critical situation was placed at my feet and then virtually stepped on by the idea that what

Most people, including human nurses who are fighting against our title change, think that technicians are just veterinary assistants who didn't make it through vet school. Do they know that our education is rigorous and that our training is comprehensive?

we did for him was almost bizarre given the job title I gave someone. Even though we had the knowledge and ability to provide appropriate assessment and aid to a living being in need (reminder, I only acted within what the emergency situation called for), that somehow in that moment, what we did was reduced to a civilian-like act of kindness instead of a call to duty inherent in us because of our background. All I could think was, "My God, I really just experienced how so many feel, right in this moment, like never before."

While I know I am not alone in this feeling, I also know there are many members of our profession who feel strongly that our title should not be changed, even when title protections are strongly implemented and enforced. For the first time, I can say without a doubt, I disagree. And while I worry about the backlash I may get from some for saying this, I have taken a long time and given it much consideration and research before coming to this conclusion. Our profession is broken, our patient care is suffering from this, and what we are doing now, isn't working and hasn't been for quite some time. We are perceived by the public as inferior largely because of the association to our title (as well as the lack of much needed education that is painstakingly obvious) and this has been made painfully clear to me. Most people, including human nurses who are fighting against our title change, think that technicians are just veterinary assistants who didn't make it through vet school. Do they know that our education is rigorous and that our training is comprehensive? I have realized that most human nurses who are fighting against our

title change do not know what we do or that our training is similar and, in some ways, even more advanced for many of us. I often wonder if a human nurse would run to the aid of an injured animal and apply their training to help it. Do they realize that small animal medicine has so many similarities? Do they know we use mostly the same drugs and therapies, or that we use many human nursing books and videos as well as studies to help guide us through our profession? Do they know the history and development of our profession is extremely similar to the history and development of their profession and that we are just in earlier stages? I also wonder why the thought of veterinary technicians being called veterinary nurses is such a difficult concept to grasp for some and so heavily protested against by those who oppose it, but the idea of veterinarians being called doctors is not.

To those who see my change of heart on this as traitorous, know that until recently, I was on the fence about this issue. I honestly didn't care what our title was. I also thought, like many others, that the VNI was only about title change. I quickly found out this wasn't the case and that, in fact, it entails many levels of action intended to improve our professional standing in every state across the nation. Do I feel that the title change will be the end all be all answer to all of our problems? No, but I think it's a start and I think it will make educating the public an easier task with this title change in place. I do think that it is a large step in opening doors to the overall much needed change we all seek whether we know it or not. I don't think that it's the answer to all of our

problems, only a puzzle piece to the entire picture.

As a side note, I have spoken at length with many veterinary nurses in other countries where the title is or has become Registered Veterinary Nurse, and the conclusion was, while all of the issues we struggle with exist on some level, they agree that it is far less confusing to the general public with their title as it is vs. as being called an unfamiliar term. Another argument is the misuse of title, are there people in our profession, right now, who misuse the titles we already have? Yes, there are; however, this is already being changed, in a legal sense, in many states. This is actually a step that other countries did not take immediately whose titles are already "registered veterinary nurse," so in my opinion the fact that we are already taking these measures in prevention of title misuse puts us ahead in the area of taking the proper steps to achieving our goals. As credentialed professionals, the change we need to make on a personal and direct level does need to be in respect to protecting the title we earned (no matter what that title is) and not standing for it to be disrespected, not even on a casual level.

That said, on a public level, a title change that is uniform in all 50 states, can help us achieve this as another part of credentialing standards. When it comes to gaining public attention and providing much needed education, we can directly influence the public perspective by using familiar terms to describe what we do simply and easily. The public doesn't appear to need an education on the term nurse. And why should they? By looking at the definition of both, it is clear why this is: Technician is defined as "a person employed to look after technical equipment or do practical work in a laboratory" or "a worker in a field of technology who is proficient in the relevant skill and technique." A nurse is defined as "a person trained to care for the sick or infirm, especially in a hospital." So as a technician, our title is not associated

with the largest part of what we do as a profession, “CARE for the sick, in a HOSPITAL.” That said, does this still seem like an appropriate title fitting what we do as a whole?

In a perfect world, the idea of our title having a recognizable relationship to what we do wouldn't be so outrageous to me. Some say “we do more than nurses do” which might be true depending on the way you look at it, but their education is primarily the same, even though ours is spread across multiple species. Their profession is simply more separated by areas of specialty than ours is. In a perfect world, people would recognize us as more than glorified doctors' assistants who cuddle with puppies and kittens all day. In a perfect world, people would know that we have a standard of education and veterinarians would value us and our credentials as more than “just a more expensive assistant.” They would know that their patients are safer and their survival rate improved because they hired an educated and experienced professional to protect and care for them. Our value as credentialed professionals would be well known to the public and our ability to provide first responder aid wouldn't be considered so odd. Why is this perfect world idea so difficult to conceptualize? Does a title really matter? I guess I just realized that public perception *does* matter and what we do only is understood when we generalize it to “a nurse for animals.” Is there a title that fits with everything we do? Is there one that describes our profession as exactly what it is? Not that I have found. But I do know that the public more easily and immediately understands what we do when we use a familiar term to describe it and technician doesn't seem to have the same weight or effect on perception. I have learned that the VNI is working on title protections, scope of practice, reciprocity, creating a model practice act, creating public education about our profession, and is also pushing for a uniform credentialing requirement


and for all states to require licensure to perform veterinary nursing.

Through this experience, I have come to realize how important it is for us to work together to educate the public and

I have come to realize how important it is for us to work together to educate the public and the human nursing field about what we do and what is required of us on an ongoing basis.

the human nursing field about what we do and what is required of us on an ongoing basis. Can a title change make this easier? I feel like it can. As another example, a few months prior to this incident, I was speaking with my neighbor, who is a hospice nurse. At first, she was pushing me to consider going back to school to get my veterinary medical degree so I could be a doctor. She genuinely believed that I was only a technician because I gave up my “dream” of being a DVM. I started telling her what I did on a daily basis, about the cases we dealt with, the abuse from owners and the public, and about all of the things our jobs entailed. She looked at me in shock and awe because of the terms I was using and the knowledge I displayed. When I was done, she almost looked embarrassed that she had no idea our jobs were so parallel or required such a heavy burden of knowledge and skill. This isn't the first time I

had experienced this nor is it the first time I have heard this from others, including a friend who just finished human nursing school and is also a VTS(ECC). In nursing school, he experienced constantly being ignored and overlooked when things required knowledge and skill. He saw the utter surprise his instructors showed when they realized that one of the most knowledgeable and skilled students they had came from veterinary medicine.

This is our reality. With technicians leaving the field at an alarming rate, it is time we look at things that we can do as individuals to improve our industry and how we are perceived publicly. With increased recognition and value, we can strive for better pay and working conditions and we need to do it together. We can all do our part in helping our colleagues learn more about our under-recognized profession to dispel assumptions. 



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HONEY, I [SHRUNK] THE NASAL LYMPHOMA

Shay Bordelon, RVT • Jennifer E. Merkle, DVM

Lymphoma is the most common nasal tumor in cats with an average age at diagnosis of 9 to 10 years. CT is often a part of the diagnostic process for nasal tumors in dogs and cats and is used in planning radiation treatment. Diagnosis of feline nasal lymphoma is obtained via cytologic or histopathologic examination. Nasal lymphoma in cats is locally invasive and less likely to spread systemically like other types of lymphoma in cats. Cytologic evaluation of any enlarged regional lymph nodes is recommended as part of staging. Treatment is focused on the primary tumor site. Since curative surgery is not possible in this location, radiation therapy is the local treatment of choice. Nasal lymphoma tends to respond very well to radiation therapy with response rates of 70–90% and long median survival times reported as 174–955 days. Systemic failure, or progression of lymphoma at non-nasal sites, is seen in 13–16% of patients, so systemic chemotherapy treatment following radiation therapy may be of benefit.¹

History and Presenting Problem

Honey, a 12-year-old female spayed DLH, presented to the emergency service of a referring specialty center for respiratory distress and loud breathing. She had a several month history of coughing/sneezing, nasal discharge, and stertor. Right-sided epistaxis was noted two months prior to presentation and had recently progressed to bilateral epistaxis. On presentation, thoracic radiographs showed no cause of respiratory distress, so she was hospitalized for transfer to the internal medicine service and further diagnostic testing. CBC and chemistry showed only moderate thrombocytopenia with platelet clumping. Honey was anesthetized with alfaxalone (2 mg/kg) after pre-medication with hydromorphone

(8 mcg/kg) and dexmedetomidine (0.1 mg/kg). She was intubated and maintained on isoflurane with 100% oxygen for computed tomography (CT) which revealed a mixed-contrast enhancing mass within the right nasal cavity that encompassed the entire right frontal sinus and caused destruction of the nasal turbinates and septum. A biopsy of the nasal mucosa diagnosed high grade diffuse B-cell lymphoma. Honey was then referred to the Veterinary Teaching Hospital at Louisiana State University for radiation therapy.

Intervention

On presentation one week later to the LSU-VTH Oncology Service, Honey was quiet, alert, and responsive. She had moderate to severe bilateral hemorrhagic-mucopurulent nasal discharge and stertorous breathing. She had no peripheral lymphadenomegaly.

Abdominal ultrasound was performed as part of staging the recently diagnosed nasal lymphoma and to ensure localized disease before treating the nasal tumor. Honey was sedated with butorphanol (0.3 mg/kg) and dexmedetomidine (3 mcg/kg) for abdominal ultrasound which was unremarkable. Honey was then induced with midazolam (0.2 mg/kg) and propofol (4 mg/kg), intubated, and maintained with sevoflurane with 100% oxygen. CT for radiation planning and local lymph node aspirates were performed under general anesthesia. She was positioned in sternal recumbency in a vacuum deformable mattress (Vac-Lok™, CIVCO, Orange City, Iowa) and bite block (3M-Express STD Putty ESPE Dental Products, St. Paul, Minnesota) for the planning CT.

CT confirmed the previously diagnosed right-sided nasal mass with extension into

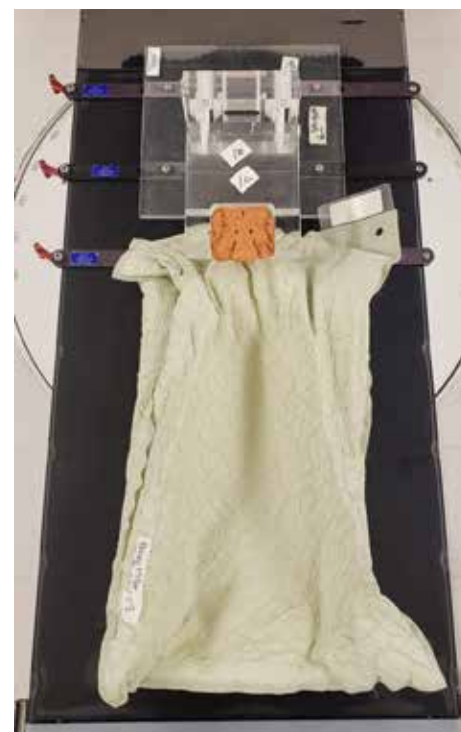


Figure 1: Shows immobilization devices including a vacuum deformable mattress (Vac-Lok™, CIVCO, Orange City, Iowa) and bite block (3M-Express STD Putty ESPE Dental Products, St. Paul, Minnesota).

the nasopharynx, right retrobulbar space, and left nasal passage. Right sided frontal and sphenopalatine fluid accumulation could have been due to sinusitis or obstruction secondary to the nasal mass. Mandibular lymph node enlargement was also seen. Cytology of the both mandibular lymph nodes diagnosed reactive lymphoid hyperplasia with no evidence of lymphoma spread. Honey was prescribed prednisolone 5mg twice a day as an adjunctive treatment to radiation therapy for solitary site lymphoma.

Treatment

Honey's owner elected to pursue stereotactic radiation therapy. Stereotactic radiation therapy (SRT) is a form of

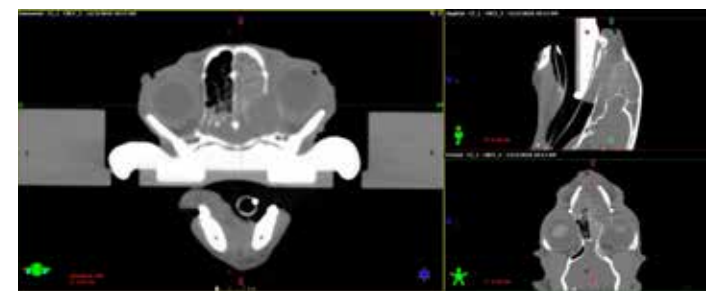


Figure 2A: Original tumor size at the time of planning CT

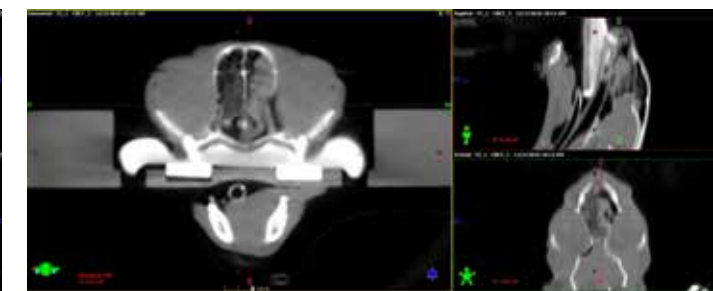


Figure 2B: Approximately 50% reduction in tumor size five days after starting treatment.

advanced radiation technology which originated in human medicine and has been recently applied in veterinary radiation oncology. SRT uses tightly focused beams to administer high doses of radiation directly to the tumor volume and limit doses to normal tissues by verifying patient positioning prior to each treatment. This technology has several proposed advantages over traditionally fractionated radiation therapy including reduced side effects and fewer anesthetic events. SRT delivers a large dose of radiation in 1–5 fractions compared to conventionally fractionated radiation which is administered daily for 3–4 weeks.²

Honey's CT was used for treatment planning on computer software by a board-certified veterinary radiation oncologist. This allowed her tumor to be treated with a high dose of radiation while protecting her normal tissues from radiation side effects. Her SRT prescription was 9 Gray administered once daily for three consecutive weekdays for a total 27 Gray.

For each radiation treatment, Honey was induced with propofol (6 mg/kg), intubated, and maintained with isoflurane with 100% oxygen. She was then placed in her previously formed immobilization devices (Figure 1) including a bite block and vacuum deformable mattress for precise positioning. Cone beam CT (CBCT) was performed before each treatment to ensure correct positioning. CBCT is a medical imaging technique that provides three-dimensional volumetric data similar to that obtained during the planning CT. Some linear accelerators are equipped with this on-board imaging technique to verify proper patient positioning

within millimeters prior to treatment when compared to the planning CT by overlaying the two scans and matching the anatomy and target structures. Honey started radiation therapy on a Thursday, so her treatments spanned a period of five days. The CBCT at her third treatment showed a 50% reduction in tumor volume (Figure 2A and 2B). Honey experienced no notable radiation side effects. She remained on low dose prednisolone as part of her maintenance with no adjunctive chemotherapy treatments.


Follow-Up

Honey presented over a year post-SRT for a recheck due to increased respiratory noise. Honey was bright, alert, and responsive, and bloodwork preformed was unremarkable (Figure 3). Honey's thoracic radiographs and abdominal ultrasound were stable from previous visits. She had mildly decreased air flow out of the left nostril, so a recheck CT scan was recommended.

On CT scan, Honey did appear to have a very small amount of fluid or soft tissue in the left nasal passage. A biopsy would be necessary to diagnose this as inflammation or recurrence of lymphoma. Biopsy was not pursued at this time, and a recheck CT was planned for 2–3 months for continued monitoring.

Conclusion

Honey's cancer is classified as a solitary site lymphoma. The nasal cavity is one of the most common anatomic locations for this type of cancer in cats, and it usually remains localized there. It can spread elsewhere, in disseminated form, in less than 20 percent of cases.

Honey's lymphoma is incurable; however, with radiation therapy treatment these cats with solitary site lymphoma have a median remission of 1.5–2.5 years. At the time of writing, more than 17 months post-SRT, Honey is doing well at home! 

REFERENCES

1. Withrow SJ, Vail DM, Page RL, editors. *Small Animal Clinical Oncology*. 6th ed. St. Louis: Saunders Elsevier; 2013. pp. 503–504.
2. LaRue SM, Custis JT. Advances in Veterinary Radiation Oncology: Targeting Tumors and Increasing Patient Comfort. *Vet Clin Small Anim*. 44 (2014) 909–923.



Let's Talk Money!

VETERINARY TEAM SALARIES, LIMITING BELIEFS & BUDGETS

Rebecca Rose, CVT, Certified Career Coach, WellBeing Task Force Co-Chair

The headlines read “Technician Shortage” and “Higher Wages for Veterinary Teams.” You are living it. You want to stay in the career you love, even though you may tell yourself “I’m not in it for the money.” Understanding limiting beliefs about money, outlining local and national wages and using a family budget may help us to retain veterinary team members.

Let’s talk money! The taboo subject that is neither good nor bad. We will look at money as a tool to be managed in a healthy way.

You work 40 hours a week for your money. However, the majority of people never consider how to make their money work for them or consider their money a tool of success that allows for choices in their lives. Rarely do couples discuss the daily habits of expenses, future plans or retirement. Money is a tool, always has been, always will be, nothing more, nothing less than a tool. It has never been evil, it has never been wicked, nor will it ever be a God. Money is a good Servant, it is a poor Master.

Today, more than ever, understanding where your money is coming from and where it is going is important.

Veterinary Team Finances

Many times, within a month I will be asked, “What is the salary of other veterinary team

members where I live?”

That is a valid question. Team members want to know how their wage stacks up to others.

I remind veterinary team members that their wage is directly linked to the management and profitability of the practice in which they are employed. When considering wages and benefits, be sure to consider the efficiency of the team, hospital budget and income (directly impacted by each team member in financial stewardship of the practice).

You have a great tool at your fingertips:

Salary Expert (www.salaryexpert.com). When viewing this site, you can determine the salary of veterinary technicians in a city or zip code. Place the title “veterinary technician” in the search box. Add the zip code you wish to search, answer a few questions and you will receive a free report. This is a very handy tool explaining highs and lows of wages along with the cost of living comparisons in that town or zip code.

Another site worth visiting is the Bureau of Labor Statistics (www.bls.gov). You will

tab to Occupational Outlook Handbook, professional, health technology and technicians, then veterinary technologists and technicians. At this point you can review earnings, open the job outlook (experiencing more growth than other professions!) and view projections data (Figure 1).

One of the great things about the Bureau of Labor Statistics is that there are graphs for states and statistics for some rural and metropolitan areas. As an example, you can see that Colorado has a high volume of veterinary technicians and those living in the Northwestern part of the state make above average wages. You are encouraged to view the website to learn more.

You will find other surveys within various veterinary organizations. The Veterinary Hospital Managers Association (VHMA) compiles a Benefits and Compensation report every two years. The National Association of Veterinary Technicians in America (NAVTA) surveys their members every three years. The American Animal Hospital Association (AAHA) reports their findings in many surveys throughout the year.

Quickly calculating hourly wage into annual income

An easy formula to remember. If an employer offers to pay you \$15.00 per hour that can be multiplied by 2,000 to get an estimate of your yearly income of \$30,000.00 per year. Why multiply by 2000? There are 52 weeks in a year, subtract 2 weeks for vacation, that is 50 weeks of work at 40 hours per week per year equaling 2,000.

$$\begin{aligned} \$15.00 \times 2000 &= \text{roughly } \$30,000.00/\text{year} \\ \$18.00 \times 2000 &= \text{roughly } \$36,000.00/\text{year} \end{aligned}$$

I’m not in it for the money

In my experience, veterinary team mem-

National estimates for this occupation: [Top](#)

Employment estimate and mean wage estimates for this occupation:

Employment (1)	Employment RSE (3)	Mean hourly wage	Mean annual wage (2)	Wage RSE (3)
110,650	1.8 %	\$17.63	\$36,670	0.6 %

Percentile wage estimates for this occupation:

Percentile	10%	25%	50% (Median)	75%	90%
Hourly Wage	\$11.79	\$13.98	\$16.98	\$20.45	\$24.63
Annual Wage (2)	\$24,530	\$29,080	\$35,320	\$42,540	\$51,230

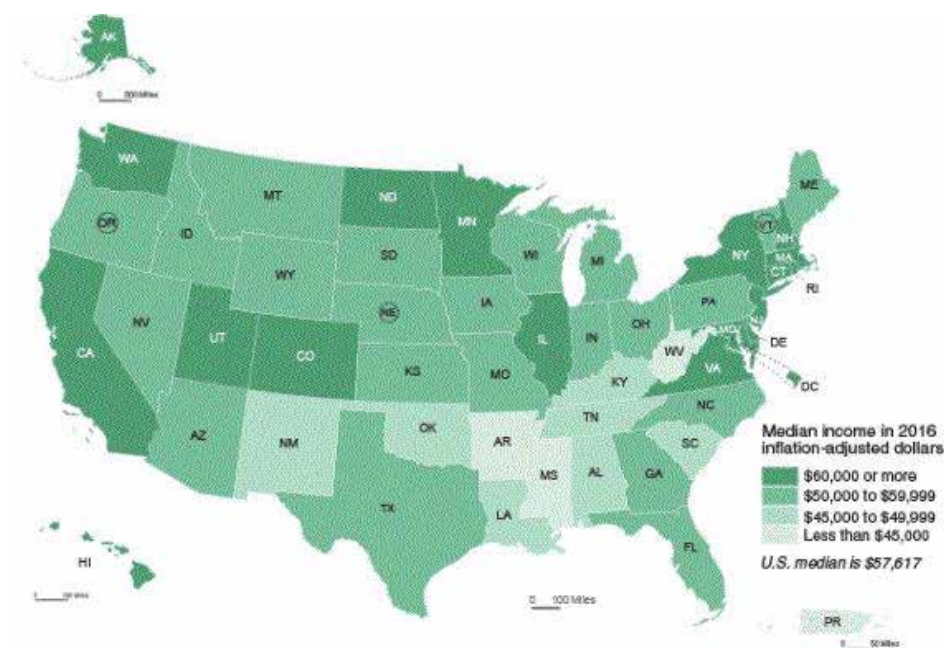


Figure 1 (top): National Wage Estimates data that can be accessed on the Bureau of Labor Statistics website. Figure 2 (bottom): US Census Bureau 2017 Average Household Income

bers want to make more money, but they may have an internal struggle with the concept. Consider how often you have heard veterinary team members say, “I am not in it for the money.” This just makes me cringe! There are limiting beliefs about money that stops people in their opportunities for personal and professional development and they may not even know it.

“Recognize that you are a **GREAT ASSET**, worthy of recognition, and carry that belief forward, instead of ‘I’m not in it for the money,’ generating an almost negative, devaluing (even if meant to be humbling) attitude,” as quoted from CAT-ALYST VetPC’s blog with the same title.

Personal Income and Expenses

Lewis Humphries wrote in Investopedia, “It is fair to say that young adults have different spending priorities compared to previous generations. As much as the current economic climate is impacting consumer spending in the U.S., it is clear that cultural changes and a significant shift in the priorities of young adults are equally influential. Millennials in America have a different set of values and beliefs than their elders. Home and auto ownership are no longer as important as they once were. A negative perception of the economy is also discouraging young-people from making long-term future plans.”

While looking at the median household income, it is easy to see the differences state by state. There are many variables impacting income and expenses. Another reason why cost of living plays into the role of sustainability (*Figure 2*).

Family Budget

When speaking with veterinary team members about family budgets, typically 1/3 of them have a budget. Upon further dialog, half of those rarely refer to the budget when there is one. Creating a budget with today's technology is fairly easy. Online banking apps can graph past spending and then you can project future spending. The benefits of using a family budget include:

- Plan for your money
- Identify areas for improvement
- Visually see where the money is going
- Helps for saving purposes
- Simple beans-in and beans-out
- Sense of control when budgeting is used as a daily, monthly, yearly tool

Coffee Example


This is a reality check for all of you who prefer to drink your coffee from a kiosk or franchise (or any vice, at all). If you drink 4 cups of “fufu” coffee (\$4.95 medium plus tax= \$5.29) each week at \$21.18 per week for an entire

year, you pay out \$1,101.67 throughout the year for your caffeine fix!

In conclusion:

You work hard for your money; you deserve to make it work hard for you. Create career and financial goals. Write your goals down, review them often and reevaluate, bringing them to fruition. Organize your spending and savings. Protect your family with adequate insurance and pay yourself first. Generate a realistic budget, review it monthly. Speak with your accountant and/or financial planner regarding your retirement. What will you need and how will you reach that financial goal? Communicate with your spouse about finances, openly. Seek help if you are having a difficult time expressing your

money concerns. It is never too late to rethink your attitude about money and how it works as a tool in your life. Take care of yourself to build a sustainable, healthy and purposeful life.

Create a fulfilling, sustainable career, today, you deserve it! 

RESOURCES

1. Salary Expert, www.salaryexpert.com
2. Bureau of Labor Statistics, www.bls.gov
3. Veterinary Hospital Managers Association, Benefits and Compensation Survey 2017, <http://www.vhma.com>
4. Humphries, Lewis. *Money Habits of the Millennials*. <https://www.investopedia.com/financial-edge/0912/what-young-people-are-spending-their-money-on.aspx>



SUMMER Late Spring Organization CLEANING

Oreta M. Samples, BS, LVT, MPH, DHSc

The advent of spring brought with it COVID-19, and new experiences for Americans such as stay-at-home orders and quarantine along with much social-distancing. Unfortunately, veterinary care and emergency services continue even with many pet parents locked down, yet in need of veterinary services such as yearly check-ups, vaccines and surgical needs such as spays and neuters of their pets. COVID-19-associated quarantines have also provided economic challenges for the veterinary profession through decreased revenue as well as brainstorming new ways to keep staff as well as clients safe. These uncertain times also provide some down time to freshen up clinics and update various areas of the clinic.

Discussion

While the world is in quarantine and practicing social-distancing, medical personnel are on the front lines caring for human and animal patients day after day. Those providing such care must also care for themselves in order to stay strong and effective in their jobs. This includes getting necessary rest, nutrition and of course avoiding infection from those being cared for.

Self-Care

Veterinary technicians often work long hours fulfilling many roles within the clinic including surgery, radiology and anesthesia to name a few. All of these roles can offer opportunities to be exposed to zoonotic diseases as well as diseases such as COVID-19. Exposure to owners (i.e.

clients) can put technicians at risk for such transmittable diseases as COVID-19. For these reasons, technicians should utilize appropriate PPE's that are germane to the specific situation. Masks that fit comfortably over the nose and mouth as well as gloves which may be changed easily and often. Such PPE's should be changed as often as deemed necessary during interactions with not only pets but clients as well.

Clinical Disease Prevention

While it is critical for all clinical areas to be clean and sanitized to prevent the spread of disease between patients; COVID-19 has made it necessary to take sanitary efforts to a new level. All areas must be viewed as potentially capable of disease spread. This involves areas which are not normally cleaned daily such as door knobs, drawer handles, computer keyboards and of course...the mouse. In order to slow the possibility of infection, such areas should be wiped down with disinfectant several times daily.

Directing Clinic Traffic

Traffic throughout the clinic should be slowed to only include clinic personnel. By decreasing the number of clients passing through the clinic, one decreases disease transmission. By enforcing drop-off of patients and car-side payment services, it is possible for patients to be seen promptly and may actually be a time-saving strategy. Consider for those waiting for their pets, offering bottled water when you

come to escort their pet inside or perhaps phone text-alerts for those who may have errands to run while their pet is being seen; there is no end to the creative ways that you can support your clients.

Personnel Scheduling:

The COVID-19 pandemic has presented economic challenges to many businesses that include a lack of fully staffed facilities. A lessening of client traffic and board animals can mean that the clinic does not need three kennel workers, 2-3 veterinary technicians and 2 veterinarians on staff every day in addition to a fulltime and perhaps a part-time receptionist. But, how to decide who goes home? To effectively address this situation without losing personnel, have a general clinic meeting. Explain the lack of need for everyone at the same time and put forth some scenarios to the group for their consideration to keep everyone working and not have anyone go without a paycheck. This may include:

- **Scenario I:** Temporarily allow all employees to become part-time employees so that all get to work and take home a paycheck during the pandemic. This may be an acceptable solution to some who are struggling to find child-care and need some time at home. Assure them that the full-time employees will revert back to full-time when the Pandemic is over.
- **Scenario II:** Ask for volunteers (especially among part-time workers)

SPRING/SUMMER CLEANING RESOURCES

AVMA Drug Disposal Guidelines

<https://www.avma.org/resources-tools/avma-policies/best-management-practices-pharmaceutical-disposal>

Fire Extinguisher Do's and Don'ts

https://www.osha.gov/SLTC/etools/evacuation/portable_required.html



who are not comfortable working during the pandemic that want to go home until the pandemic is over. Assure them that they will have a job when the pandemic is over OR will be given first consideration when it is time to rehire.

- **Scenario III:** Do you have workers such as office managers or book-keepers who can work from home and decrease on-site personnel? Offer work-from-home options on a part-time or full-time basis depending on clinic needs during the Pandemic.

Spring Cleaning—Summertime Style

When business is slow, it presents an opportunity for organizing, cleaning, and increasing business through communication with clients. First, organization: many areas of the clinical environment often need to be organized and updated to remain functional. Such areas include client files (more on this later), controlled substance log, inventory and safety logs. Because these are often overseen by different individuals, tasks should be divided. Some ideas on the division of labor include:

Receptionist:

There is perhaps no-one as adept at organizing as



Figure 1: Consider cleaning and relabeling staining sets. All labels should be easy to read.

a receptionist. Between juggling files that disappear “to the back” the reappear at days end for “charge out” of the patient to tending to the appointment book to ensure a full house without over-whelming the clinicians; receptionists should be responsible for keeping clients records filed and easily accessible by all as needed. Therefore, downtime is often a great time to do the following:

- **Remove files** to a secondary system/location for clients that are dead, moved or have not engaged the clinics services for 5 years. While legally, such files need to be kept, they can be stored in an alternate, secure location.
- **Identify clients** who are overdue for preventative pet care and reach out to them to let them know that the clinic values them as a customer and can still meet their needs during the Pandemic. Schedule appointments to ensure their pets continue to experience positive health and well-being.
- **Peruse sales items** that are situated in the lobby or reception area; consider changing the displays to attract location. Instead of housing items such as leashes and toys behind the receptionist desk, move them to the lobby for easy visibility of priced items. Ensure that prices are current and visible and consider sales on items that have been around a while.
- **Organize files** by client's last name in alphabetical order and maintain



Figure 2: Consider wall storage to free up counter space in exam rooms, note the organization.

this order when re-filing patient files. Designate a place for files to be placed for refiling. If only the receptionist is refiling, there is less chance of mis-filing and inability to locate files later.

Veterinary Technician:

Next to the receptionist, the veterinary technician is perhaps the best organizational planner in the clinic. Because they often function in a variety of areas including radiology, surgery, anesthesia and the exam room, they are often tasked with keeping certain log-books current. During down time, technicians can review and update logs that reflect treatment and procedures such as x-rays. This is especially important in hospitals that are AAHA recognized as the organization has stringent requirements for continued accreditation. Also, in order to be OSHA compliant, this could be a good time to ensure that eye-wash stations have been flushed and documented as well as inspection of fire extinguishers which may

EYE-WASH STATION CLEANING TIPS



DID YOU KNOW? Eye-wash stations should be checked and flushed at least **once weekly**. Turn on water and allow to flow for **2 minutes** to adequately flush any contaminants from pipes.

need to be inspected by local Fire Marshall along with testing of fire alarm. Additionally, this is a good time to enlist help of others such as kennel help in the following areas:

- **Bath and Dip Station:** Check for and discard expired shampoos, conditioners, eye ointment, ear wash, eye wash, etc. from the bathing area (both in use and stock containers).
- **Food Storage:** Inventory the food items that are used as well as sold to clients to ensure all are in-date. Arrange to either discard or return expired items for credit.
- **Exam Room Drawers:** Check drawers in exam rooms for expired and almost empty tubes of lubricant, eye ointment and ear or eye flush solution. Discard and replace with fresh new items.
- **Exam Room Containers on Counter:** Empty, wash and refill containers with disinfectant that hold fecal loops and thermometers as well as bottles of alcohol, lubricant, disinfectant, table sanitizers, etc.
- **Sharps® Containers:** Check the level of fullness for Sharps® containers and replace as needed. Arrange to have them picked up by medical waste company.

Veterinarians:

While the veterinary technician often records usage of controlled substances (i.e. during surgery), it is ultimately the veterinarians' job to ensure that they controlled substance log is up-to-date and balanced. This is therefore a good time for both the veterinarian and the veterinary technician to inspect the pharmacy inventory together to make sure it is up-to-date and functional. Remember to follow AVMA guidelines (See Box 1) for drug disposal protocols for drugs which cannot be returned to manufacturer for credit.



Figure 3 (top): Take a look at specific areas such as the darkroom area, are charts readable, is the area clean? The area floor should be clear of any impediments that may cause tripping or stumbling when developing film.



Figure 4 (bottom): The laboratory area of the clinic should be clean, easy to maneuver in and accessible to running water and several electrical plugs with safety switches.

Conclusion

COVID-19 may have slowed down its attack, but as of the writing of this article, it is still an issue with many states still experiencing lock-downs and encouraging of social distancing. Today, at least one western state reports a lack of ICU beds due to the disease.

Veterinary technicians have never been more important to the care of their animal clients, both large and small than now. The organizational as well as clinical skills of technician's aids in allowing clinics to continue to serve their clients, albeit in a new and distant way. During this time, it is especially important for technicians

PHARMACEUTICAL CHECK-LIST

- ☐ Pull all expired items (See AVMA Drug Disposal Guidelines link in the Spring/Summer Cleaning Resources Box on page 32)
- ☐ Arrange multiples of one item with newest date towards the back
- ☐ Collect returns that may be shipped to manufacturer for credit
- ☐ Collect shipment to be picked up by medical disposal company
- ☐ Update order list and place order
- ☐ Check exam rooms for expired drugs and remove/replace
- ☐ Check sales shelf, making sure nothing is expired, remove and replace if found.
- ☐ Balance the pharmaceutical inventory in computer (if available)



to take time for their own mental and emotional well-being. This includes knowing when enough is enough and there is a need for a break. Take a break, read a book, listen to music—whatever takes you to your happy place. And remember, you are important. **J**

REFERENCES

1. AVMA Drug Disposal Guidelines. Retrieved on 6-10-2020 from: <https://www.avma.org/resources-tools/avma-policies/best-management-practices-pharmaceutical-disposal>
2. Fire Extinguisher Do's and Don'ts. Retrieved on 6-10-2020 from: https://www.osha.gov/SLTC/etools/evacuation/portable_required.html

5 THINGS

RVTs Can Say to Help Clients Deal with COVID-19

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During the months of the COVID-19 pandemic, when the rule was “stay at home,” or “shelter in place,” and all essential businesses were closed in many states, veterinary professionals stepped up to do their part. In many ways, the professionals in veterinary medicine (this includes DVMs, RVTs, all veterinary staff) have been unsung heroes. They have not been given the kudos health care workers, grocery store workers, and first responders have received repeatedly. Yet, as Steve

Dale points out in *Head to Tail*, “It is impressive how practices all responded around the country similarly” to meet the crisis imposed by the pandemic and continue to care for people and their pets.¹ Registered Veterinary Technicians, Veterinarians, etc., are applying Centers for Disease Control and Prevention (CDC) guidelines to protect themselves and their clients, and stay in business. This includes, but is not limited to, wearing masks and gloves, curbside service, social distancing, frequent hand washing, self-monitoring for fever, or other signs of illness.

Now that the country is beginning to “open up,” little by little (more or less), state by state, the need to practice CDC precautions continues. To add to the angst of COVID-19 concerns are civil unrest in cities and political turmoil in general. The veterinary community wittingly or unwittingly feels the force of the maelstrom of current times. And the professionals continue being professional. Thought had to be given to how things are done and how veterinary practices function in order to change precipitously and quickly to morph to a more “safe” service.

But how much thought has been given to what RVTs specifically, with their knowledge, training, experience, and empathy, can do or say to help “make things better” for the owners of the animals they are caring for? There are

many ways in which owning and caring for an animal can improve the health and general life of a pet owner. RVTs already know these ways, but it may not have thought to share their knowledge with owners as a way to empathize and help owners deal with stress.

Below are 5 scientifically studied facts RVTs can quickly share to encourage owners to think about and acknowledge as they wait for their furry friend to be returned to their arms or car. There might even be a small flier handed out listing the facts for owners to read.

1. RVTs know that blood cortisol levels increase in stressful situations.

Petting dogs and cats reduces stress as measured by a reduction in cortisol levels.² Mention that more petting is good for dog and human. Animals can make us laugh with their antics and expressions. Laughter is also a way to reduce stress. Just smiling helps. But one must alert the muscles of the face to smile as one strokes the pet.

2. Dogs (and some cats) need to be walked, even during “shelter in place.”

Maybe the walk has to be around the back yard, or throwing the ball on the patio. Studies have shown that people with heart problems benefit from owning a pet, and that dog owners who walk their dogs have lower blood pressure than people who do not.³

3. There is evidence that being raised with pets may actually boost the immune system.

This might not work for adults who already have allergies, but babies who grow up in families with pets may be less likely to get allergies, and have fewer colds and ear infections than those raised in a more sterile environment, according to Dr. Alan Beck, Director of the Center for the Human-Animal Bond at Purdue University.³

4. Owning and interacting with a pet is good for the mental health of the human.

The pet might be a dog, a cat, a rabbit, a turtle, a fish, or a cricket. Studies with Alzheimer’s patients, the elderly, people with PTSD, and children with autism have all shown positive effects a pet animal can have on the mental health of the human. Mention that caring for the animal may have extra mental health benefits. (Be careful how you word this. Nobody wants to be called unstable or not sane, and right now, we’re all a little uptight.)

5. Finally, a simple statement about the fact that the COVID-19 virus affects mostly humans, not their pets, may help encourage people to keep their pets rather than get rid of them out of fear of contagion.

The American Veterinary Medical Association (AVMA) states, “There is evidence that transmission of SARS-CoV-2 (the COVID-19 virus) from humans to dogs and cats is uncommon,” and that it is “critically important that pet owners not overreact to the few cases involving animals which tested positive, and that pet owners do not abandon their pets.” The article further says, “There is no evidence to suggest that animals infected by humans are playing a role in the spread of COVID-19, and the human outbreak is being driven by person-to-person contact. However, these health organizations



True empathy is not self-focused but other oriented.

{AVMA, CDC, OIE} do recommend, out of an abundance of caution,” that people ill with COVID-19 limit contact with animals.⁵ Guess that means if the owner has COVID-19, somebody else gets to clean the cat box and feed the dog for a while. Hopefully, clients driving to veterinary clinics will be healthy, but it is recommended that vigilance be maintained for possibility of infections in animals in contact with people who have COVID-19. The AVMA has a website for further information on what to do for animals in homes with owners with COVID-19: <http://jav.ma/SARS-CoV-2inanimals>.

“True empathy is not self-focused but other oriented,” says Dutch ethologist Frans de Waal in his book, *Are We Smart Enough to Know How Smart Animals Are?*⁶ Registered Veterinary Technicians usually have more than their fair share of empathy for animals. They have been trained to interact kindly and professionally with animal owners, even though they may like animals better. Applying some creatively

chosen words and empathy in talking to their stressed out clients at curbside, in cars, or in waiting rooms may bring kudos and possibly a warm fuzzy feeling as a result of an unexpected random act of kindness. **J**

REFERENCES

1. Dale, Steve, *Head to Tail with Steve Dale. The NAVTA Journal*. April/May 2020
2. Pendry, Patricia, Jaymie L. Vandagriff. *Animal Visitation Program (AVP) Reduces Cortisol Levels of University Students: A Randomized Controlled Trial. AERA Open*, 2019; 5 (2): 233285841985259 DOI: 10.1177/2332858419852592
3. Fields, Lisa. 6 Ways Pets Can Improve Your Health. WebMD (2013)
4. Oaklander, Mandy, Science Says Your Pet Is Good for Your Mental Health. Time, April 17, 2017
5. Larkin, Malinda. (2020) Human-to-animal COVID-19 spread not common; Routine testing of animals not recommended despite its availability. JAVMA 256(10):1074-1077
6. deWaal, Frans, *Are We Smart Enough to Know How Smart Animals Are?* 2016. ISBN 978-0-393-24618-6

.....CATS Decoded.....

In 2014 American College of Veterinary Behaviorists authored *Decoding Your Dog*. Since the book was my idea, I am well aware of what motivated that book, and it was twofold. At that time, people (and I include veterinary professionals) were buying into dog trainer Cesar Millan's antiquated dominance-based and aversive approaches. Also, most pet parents had no clue veterinary behaviorists even existed; a part of my goal was to create awareness that this specialty is available as an option for pet parents.

Anyone and everyone was calling themselves behaviorists, still problem in the dog training world, arguably that's even more an issue in the world of cats. It took long enough, but now *Decoding Your Cat* is out.

There are self-proclaimed cat behaviorists with zero props. Others literally may depend on reading tea leaves or checking cat horoscopes to solve problems. It's not unusual for the "expert" to be the dude re-stocking pet food at the pet store.

"Of course, the advice we offer is a bit more scientific than tea leaves, but it's also practical advice," says lead co-editor Megan Herron, DVM, DACVB.

Like *Decoding Your Dog*, the feline version is indeed based on science but written for cat parents, from beginners to those who have lived with multiple cats for their entire lives.

There are a myriad of goals, which range from busting myths—which seem never ending in the cat world—and ultimately to maintain the human-animal bond.

"Cats wave a flag, there's something wrong," says one of the book's contributors Amy Pike, DVM, DACVB, CABC. "Well that is the cat's perspective, they're

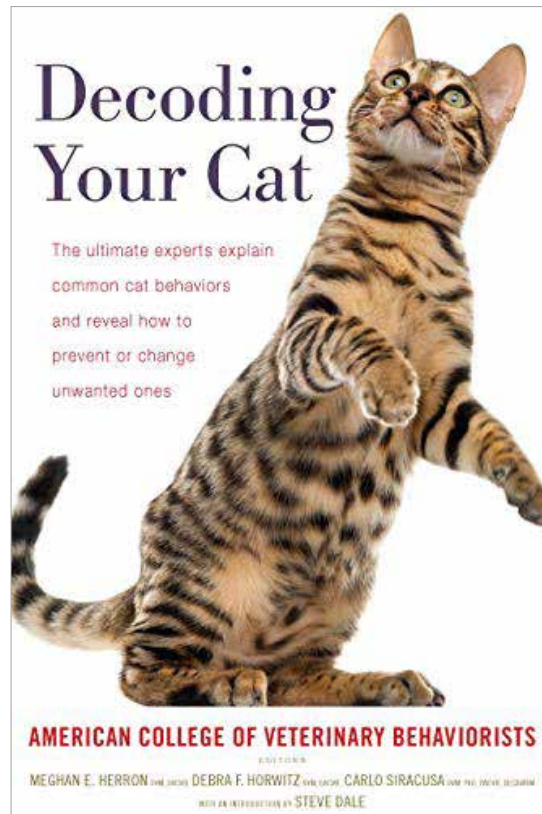
waving the flag. Cat parents may misinterpret or may even be unaware the cat is waving that flag. For example, they often maintain the cat is angry at the them or being spiteful when really what's wrong is a medical problem."

Herron agrees, "Every day when I was in general practice, people would come in and say 'give me Prozac.' And it turned out that we mostly found a medical explanation.

"Domestic cats physically haven't changed a whole lot," adds Herron. "So that means the behavioral repertoire is quite similar too. A strong hunting instinct, a desire to scratch and climb all over things and to perhaps, to do anything to feel safe. Perfectly normal behaviors for cats, but problematic for some families. When it comes to cats, our (clients) expectations are too often not what cats truly are."

Of course, those expectations, however unrealistic, and that fact that cats don't bark or require walks, per se, are reasons they're more popular than dogs. "We don't write about damaging cat training, as we did damaging dog training (in *Decoding Your Dog*)," says and laughs contributing author Julia Albright, DVM, DACVB, associate professor veterinary behavior at University of Tennessee College of Veterinary Medicine, Knoxville. "While cats are way more self-sufficient than dogs, we're often not fair to cats, not giving them what they need."

Albright is referring to enrichment. There's an entire chapter on enrichment, but there's mention of it in every chapter.



"Enrichment should no longer be considered a nice option for clients of indoor cats," says Albright. I actually prescribe enrichment all the time. I have a handout; I circle what's right for that individual cat. We talk about what individual client can do and meet them where they are at. I actually tell clients to set times and have reminders to ensure that they do it. I talk about how cats can be taught to play fetch; I think there should seriously be an equivalent of canine nose work for cats. I have moose scent and put that on a paper towel."

Pike adds, "Technicians (and nurses) have so much of a place in when it comes to communication and education—and it's worth the time investment to address, in-person, or via telehealth. Maybe have



the technician teach the (clients') kids. The favorite thing for our 12-year daughter and for our cat, is to enjoy a stroller ride around the neighborhood. Or hiding the Hunting Feeder (a feeding device) for the cat to seek and then manipulate to get food from."

Enrichment is about meeting a cats' hard-wired needs. Albright brings up a new area of study, "Enrichment releases the neuro chemical brain derived

neurotrophic factor (BDNF)." At least that's the case in rodents, humans and limited studies in dogs. BDNF serves as a sort of natural anti-depressant.

Herron agrees and add that she doesn't believe that "selling" cat parents on the necessity of an enriched environment is as challenging as some profess.


Perhaps, there can be a designated technician (nurse) in the practice who is the enrichment king or queen—and using

telemedicine or a phone consultation—can offer creative ideas which are suitable for that family.

Another important objective consistent throughout the book is help clients be more aware than a change in behavior may be a result of a medical issue. Herron says, "Clients want a magic pill which doesn't exist. And because the Internet says the problem is behavioral, it must be. So they add litter boxes for the cat with kidney disease, that's fine except that the cat still has kidney disease."

So many clients are embarrassed to even bring up a behavior problem, or they don't think it's important or don't think a veterinarian would have any interest in a behavior problem. "I suggest private practitioners always ask, not if there's a behavior problem, but if there's been any change your cat's behavior," says Pike. "Sometimes people may not even think about it until you ask. Or they may think a change, like an older cat no longer jumping on a counter is to be expected. Of course, that tells us the cat may be in pain, right? And we can do something for that cat."

"I'm so glad that cats are finally receiving attention they deserve—and hope *Decoding Your Cat* clears up the long list of misconceptions and misunderstandings people have about cats," Albright adds.

Debra Horwitz, DVM, DACVB and Carlo Siracusa, DVM, PhD, DECAWBM also served as co-editors, and I authored the introduction to *Decoding Your Cat*. 

ABOUT STEVE DALE

Steve Dale, CABC, has been a member of the Winn Feline Foundation Board of Directors for thirteen years. Steve is a founding member of the CATalyst Council, and serves on the Board of Directors of the Human Animal Bond Association. He's a contributor to several books including *The Cat: Clinical Medicine and Management*, edited by Dr. Susan Little; and *Treatment and Care of the Veterinary Geriatric Patient*, edited by Dr. Mary Gardner and Dr. Dani McVety; and he edited *Decoding Your Dog*, authored by members of the American College of Veterinary Behaviorists. Steve is the host of three radio talk shows, and he speaks at veterinary and animal welfare conferences around the world. His website is www.stevedalepetworld.com.



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