For the love of veterinary technicians

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Celebrating veterinary technicians everywhere!

National Veterinary Technician Week 2020
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To the veterinary technicians who have worn masks all day, picked up pets curbside, video called clients and so much more, thanks for stepping up. This year, you’ve taken above and beyond to a whole new level and for that we appreciate you. Now and always.

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Fun: Meme’s the word for Vet Tech Week 2020

Fun: Meme’s the word for Vet Tech Week 2020
Getting forgetful team members on track

It can be tempting to nag the living daylights out of a forgetful staff member, but there is a more productive approach.

By Emily Shiver, CVPM, CCFP

Our team at dvm360.com and Firstline® magazine asked practice manager Emily Shiver to answer your questions about life in practice for managers, technicians, assistants, client service representatives, and more. Have a question for her? Email us at dvm360news@mjhassoc.com.

Q: What can I do to help a forgetful employee stay focused?

A forgetful employee can frustrate everyone on the team, and potentially could cause patient harm. I have worked successfully with several team members over the years to improve their performance. The attitude should never be “you are stupid” but rather “I want to help you conquer this weakness and as a team we can!” Here is what has worked for me.

Learn what makes them tick.

Start by asking the employee to write down 5 strengths and 5 weaknesses, and let them know that you will do the same about them. Then, schedule time to sit down to compare and review your lists. In most cases, the team member is just as frustrated with their forgetfulness as you are. Finally, determine together how they prefer to be coached (think lists, pictures, etc).

Get the whole team involved.

Once you narrow down how the employee prefers to be coached, share this information with the team. I am a huge advocate of getting feedback (and help) from everyone. Managers can’t be everywhere, so involving the entire team will help get things moving in the right direction that much faster. Not only is team feedback helpful, but it really makes the struggling employee feel supported.

Celebrate little victories.

I say this all the time: Little victories—no matter how small—should be celebrated, and frequent words of encouragement go a long way. When you bring attention to the good, your inattentive team member will start paying more attention and feel less exasperated.

A word of caution

For those of you trying to coach a forgetful team member, heed this warning: If the employee forgets something, don’t nag incessantly. If someone hears “you forgot to initial that you performed that treatment” 100 times, I can assure you they will not remember to initial it the next time. Try saying instead, “Take a look at this treatment sheet and tell me what is missing.” When they find the error, praise them. This makes them want to engage with you and work on their weakness.

I have found that with persistence, coaching, and celebrating the little victories, you can see a huge improvement in a forgetful team member within a few weeks. Your dedication to them builds loyalty. It is so fun for me to watch someone conquer a weakness they didn’t think they could. I want to make sure every team member is the best they can be. The sky is the limit.

Emily Shiver, CVPM, CCFP, is practice manager at Cleveland Heights Animal Hospital in Lakeland, Florida.
The importance of pain assessment in rehabilitation patients

A look at the causes and effects of pain, and how to assess your patients before beginning rehab.

By Ashleigh V. Fairfield, LVT, CCRP, VTS (Physical Rehabilitation)

Veterinary physical rehabilitation is most effective when a multimodal approach is used. Arguably, the most important aspect of multimodal management for these patients is proper pain control. Rehabilitation will be counterproductive if the patient’s pain is not identified and managed appropriately.1 Localizing, assessing, and managing pain are imperative to improve patient comfort and compliance, both of which are paramount for successful rehabilitation.

Pain versus nociception

Pain is a complex, often under-recognized phenomenon that includes both emotional and sensory components. Under the umbrella of pain lies nociception, which is the neural processing of a noxious stimulus. Nociception does not require consciousness. For example, a patient anesthetized with a hypnotic agent, such as propofol, will still exhibit a physiologic response to painful stimuli.

Pain is personal to every patient and, therefore, infinitely complicated. Our conscious perception of pain is subjective and “can be experienced even in the absence of obvious external noxious stimulation and... modified by behavioral experiences including fear, memory, and stress.”2 Understanding the uniqueness of each patient’s pain enhances the practitioner’s ability to assess the animal accurately and guide treatment. It is important to recognize that pain is multidimensional, encompassing not only what the patient feels but also how it makes them feel.3 →
Physiologic and psychological outcomes of pain
Uncontrolled pain has myriad, often unrecognized consequences, the full breadth of which are outside the scope of this article. This article focuses on the deleterious effects of neurologic and musculoskeletal pain, specifically pain leading to full or partial disuse of the limbs. One of the most common manifestations of pain seen in rehabilitation medicine is lameness, and this aversion or inability to use a limb at full function can lead quickly to multisystem changes (Table).

Changes to muscle
Changes to muscle secondary to disuse can often be appreciated easily on physical exam or even visualized from a distance. Muscle atrophy occurs quickly and is easily palpable; type 1 muscle fibers, which are important for maintaining posture, are most at risk. Decreased strength and loss of muscle force can also be appreciated. The latter is suspected to be secondary to a cellular component and not entirely explained by the atrophy itself. Flexibility deficits can occur if muscles are immobilized in a shortened position, resulting in decreased muscle fiber length. Altered biomechanics can cause a sustained low-level muscle contraction, which is thought to promote the formation of myofascial trigger points.

Changes to tendons, ligament, and bones
When tendons and ligaments are insufficiently loaded their mechanical integrity declines, with bony insertions particularly affected. A decrease in stiffness (the tissue's ability to resist deformation) occurs. There is also a decrease in maximum failure load, which is the point at which a force can cause complete breakdown of the tissue. Although tendons and ligaments are both at risk for similar detrimental effects, tendons are less severely affected.

Changes to articular cartilage
The articular cartilage will atrophy and/or experience degenerative changes when deprived of stress or immobilized. In addition, synovial fluid production decreases, resulting in impaired nutrient delivery to the cartilage. Production of proteoglycans, a component of synovial fluid that aids cartilage lubrication, also decreases, potentially reducing cartilage stiffness. The joint capsule itself is also harmed by disuse. Contracture can occur causing increased intra-articular pressure and decreased passive range of motion.

Other types of changes
The experience of pain is stressful and affects not only a focal area but the entire body. The biologic stress response has many systemic effects, including hematologic, immunologic, and metabolic changes. Significant pain that is left untreated can lead to central sensitization, a dysfunction in the ability of the central nervous system to process pain that can be refractory to many common analgesics. The behavioral and emotional effects of pain should not be overlooked. Clients may notice a variety of behavioral changes in their pet, including becoming more withdrawn, anxious, aggressive, or submissive.

Assessing pain
Because the behaviors associated with pain can be nebulous, veterinary professionals must continually develop and sharpen their ability to interpret nonverbal pain cues in their patients. A seemingly innocuous observation from a client, such as reclusiveness, can sometimes signal a subclinical problem.

The patient should be assessed with a thorough physical examination that includes observing the patient both in motion and at rest. Look for abnormal weight distribution, lameness, difficulty with postural transitions, or the inability to relax. Does the patient have an altered or exaggerated response to palpation? Are they tense or guarding when a specific area is examined? Is there evidence of excessive grooming or a cessation of grooming?

Although some pets vocalize when a focal source of pain is discovered, others show their discomfort more subtly. In my experience, patients undergoing a painful examination may exhibit stress behaviors, such as a change in pupil size, lip licking, or yawning. Grimace scales, which use facial expressions, orbital tightening, and ear position as indicators, have been developed for measuring pain in several species.

The client should be interviewed about their pet’s behavior at home, such as difficulty eliminating, changes in food or water consumption, changes in demeanor or family interactions, and other alterations to their activities of daily living.
Pain scoring
Because pain is considered the fourth vital sign (behind heart rate, respiratory rate, and body temperature), the American Animal Hospital Association advocates for pain scoring to be routine and ubiquitous. Although there is no one-size-fits-all pain assessment tool, several standardized subjective and objective tools are available. Scoring systems vary widely depending on how the data are obtained (visual vs numeric), the patient’s species, or the type of pain experienced (adaptive vs maladaptive).

It is best practice to choose a single pain scoring system for use throughout your hospital. The chosen system should be convenient and uncomplicated, with good inter-rater reliability. An ideal pain scale is multidimensional, includes several aspects of pain intensity and pain-related disability, and evaluates the animal during activities of daily living. Using a clinically tested and validated scoring system strengthens confidence in the results. For rehab patients, I find it helpful to have the client also complete the same questionnaire for comparison, with both completed at regular, predetermined intervals. This allows for examination of the owner’s impressions in the home environment and can further guide treatment decisions.

Conclusion
Pain in veterinary patients can be difficult to assess. Because unabated pain can have insidious consequences, we must be vigilant pain investigators before beginning a rehabilitation program. Using standardized pain assessment and scoring methods allows the practitioner to devise a pain management program that can improve the patient’s physiologic and psychological health and thus improve compliance with the rehabilitation program leading to a more successful outcome.

Ashleigh V. Fairfield, LVT, CCRP, VTS (Physical Rehabilitation), has been working in veterinary rehabilitation for over 10 years. She is passionate about relieving pain and improving functional ability in our animal companions. Ashleigh is proud to work at EMMAvet Urgent Care, an innovative practice in northern Virginia that is committed to practicing advanced medicine and compassionate care.

REFERENCES
Clients with behavior headaches or questions are unlikely to wait until their pet’s next veterinary appointment for guidance. From television to Google to social media, pet owners can get nearly instant answers from a wide range of easily accessible “experts.” But according to E’Lise Christensen, DVM, DACVB, a lot of this advice is presented as one-size-fits-all (which it most certainly doesn’t), and much of it can be inappropriate and even dangerous for both the pet and the owner. Making matters worse, your opportunities to witness these training tips in action are sorely limited. And even if you were to see them firsthand, what could you say without upsetting the client?

If the thought of addressing a client’s bad training techniques leaves you at a loss for words, Christensen invites you to borrow a friendly question she’s devised. Instead of asking why they’re using this or that technique and where they learned it, she simply asks them if they’re having fun training their pet.

Appraoching the topic like this is far less likely to get your clients’ hackles up and can open the door to conversation and education, so don’t let a fear of pushback keep you silent. In fact, Christensen has found that many pet owners respond with relief that they don’t have to continue using upsetting or scary training techniques they felt forced or guilted into following.

Thus, what seems like a losing situation can end up a win-win-win for the veterinarian-client-patient relationship. And maybe—just maybe—you’ll have trained your client to see you as the go-to source for advice about their pet’s behavior.

By Sarah Mouton Dowdy
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According to an independent survey of 380 small-business customers and 350 small-business owners, commissioned by business software provider Weave, small businesses that allow clients to pay for services using a variety of methods earn 29% more revenue than those that offer fewer payment options.1

“Studies have repeatedly shown that providing more payment options, including Apple Wallet and Google Pay, Mobile payment options, more revenue

New data highlight another way your veterinary practice may be able to increase revenue: Offer additional payment options.

By Amanda Carrozza

How does mobile pay work?

Apple Pay and Google Wallet are 2 of the most popular mobile payment technologies on the market. Each allows users to upload credit card information to their smartphones. Accepting this form of payment requires 2 things:

• Your hospital must have an account with Apple or Google.
• Your point-of-sale terminal must be capable of accepting contactless payment.

To pay via phone, the client simply hovers their phone over the terminal to transfer data and make the payment.
increases customer satisfaction and encourages repeat business,” says Jeff Lyman, Weave’s chief product officer. “Additionally, businesses that do not begin to explore ways to offer expedited services risk falling behind their competitors who can allow clients to take their ill or anxious animal out of a crowded lobby, settle them down and then pay their bill.”

Nearly half of the small businesses surveyed said that the more payment types they accept, the more money they make.

**Mistakes small-business owners make**

Credit card fees are a major point of contention for business owners and customers alike. Upwards of 35% of small-business owners surveyed believe they overpay for credit card transaction fees, and 21% say they’ve had to cut back on spending elsewhere because of processing fees, forgoing investments in marketing, new products, and updated technology. But should those fees be passed onto the customer?

Nearly half of the small-business owners surveyed (41%) worry that charging a credit card fee will cost them customers—and with good reason. Almost three-fourths of customers surveyed (71%) said they try to avoid businesses that charge fees to use a credit card.

But limiting payment options to check or cash could prompt clients to look for pet care elsewhere. According to the survey findings, more small businesses have lost a sale because they didn’t provide sufficient payment options than because of negative online reviews. In fact, respondents reported, not accepting the right payment options has cost small businesses more customers than inconvenient hours, poor customer service, or unfriendly employees.

**What do customers want?**

With online sales in the United States totaling an astronomical $601.75 billion in 2019, many customers are looking for that same purchasing ease at physical locations. While cash, checks, and credit cards remain the 3 most commonly used and accepted forms of payment, they aren’t the only options. Carrying cash is becoming a thing of the past. Only 36% of the customers surveyed say they always carry cash and just 20% are sure they carry enough cash to make a purchase in the stores they frequent. If given the option, 30% of small-business customers would frequently or always pay via text. That number more than doubles to 62% for buyers under age 35 (these younger buyers are also nearly twice as likely to avoid small businesses that don’t accept their preferred payment type).

Lyman also suggests that practices consider instituting a text-to-pay option. “This allows the practice to bill for services without forcing clients to wait and pay if an animal is experiencing anxiety in a crowded lobby or if the appointment was a no-show,” he says.

Instead, customers are much more likely to carry a cell phone and a growing number are interested in paying via their phone.

“Billing for no-shows is becoming more of a norm in today’s world and without an efficient way to collect those payments, practices are leaving money on the table,” he adds.

Amanda Carrozza is a freelance writer and editor in Maryland.

**REFERENCES**


October 11 to 17 marks the 27th annual National Veterinary Technician Week, a time to honor you! We join in celebrating all that you do every day to care for animals of all shapes and sizes, and in both traditional and nontraditional ways. So, take time this week to celebrate your accomplishments large and small, and take the opportunity to educate pet parents everywhere about all you do to care for their animal companions. dvm360.com, navta.net, and avma.org offer loads of great ideas to help you and your practice make the most of this week. While we acknowledge and appreciate all technicians (and other team members), this year we asked veterinary technician specialists to share what they love about working in the veterinary field. Their comments follow.

BECOMING A VTS: WHAT IT TAKES TO MAKE IT

There are currently 16 recognized veterinary technician specialties: anesthesia and analgesia, behavior, clinical pathology, clinical practice, dentistry, dermatology, diagnostic imaging, emergency and critical care, equine nursing, internal medicine, laboratory animal medicine, nutrition, ophthalmology, physical rehabilitation, surgery, and zoology.

Each specialty academy has specific requirements for credentialing, but all applicants must complete a formal process of education, training, experience, and testing to qualify. You must be able to show mastery in the core skills specified by the academy.

Requirements for demonstrating mastery typically include 3 to 5 years of hands-on experience in your chosen discipline, a log of 30 to 70 cases related to the specialty field from the year preceding the application, detailed case reports on several of these cases, and letters of recommendation. Once your application is accepted, you must pass the specialty exam to become a VTS.

To learn more about becoming a veterinary technician specialist, visit navta.net or the individual specialty academy websites.
Every day is different
“Caring for zoo animals comes with challenges, but it can also be extremely rewarding. The best thing about my job is that every day is different. Because zoo vet techs work with all species, most days require a lot of creativity and flexibility. I am continually inspired to learn new techniques and treatment methods for the benefit of my patients. I love having the opportunity to work with a variety of creatures, and the knowledge and professional growth that come with it.”

Erica Campbell, AAS, LVT, VTS (Zoo)
Detroit Zoological Society
Royal Oak, MI

More than skin deep
“Being a veterinary technician means I get to help improve the lives of not only our patients but their owners as well. I love when clients come back and tell me how much happier, playful, and joyful their pets are since starting treatment. Our patients deserve the best quality of life we can give them. Skin disease is more than skin deep!”

Juliann London, AAS, RVT, VTS (Dermatology)
Animal Dermatology & Allergy
Rocklin, CA

Drawn to the “pop”
“Becoming specialized in veterinary dermatology was a lifelong dream for me. I have been focusing solely on dermatology for 17 years and have loved every minute of it. I have always been drawn to the “pop”! I love to watch an abscess being drained, and being able to express a cyst is always the highlight of my day. In academia, we see a variety of species with a variety of diseases. It is very satisfying to be a part of the team that can help a miserable patient become a happy lovable pet again.”

Amanda Friedeck, BS, LVT, VTS (Dermatology)
Texas A&M University
College Station, TX

Doing good
“Being a veterinary technician boils down to soul searching and being a steward of the Earth and all of the creatures that live here. My path started back in the 1980s and has led me to finding my niche as a VTS (Dermatology). This allows me to be an advocate for my patients and to improve their quality of life, which in turn improves their owners’ quality of life. Being a veterinary technician has allowed me to do good in this world, while touching the lives of many.”

Jennie Tait, AHT, RVT, VTS (Dermatology - Charter)
Yu of Guelph Veterinary Dermatology
Guelph Veterinary Specialty Hospital
Guelph, Ontario, Canada
A new adventure every day

“Being a veterinary technician is exciting and rewarding. I started bringing stray animals home when I was a small child. I had every small animal possible. I took care of them all on my own. It taught me about responsibility and husbandry. And it is never boring. Every day is a new adventure. Working in academia is extremely fulfilling as we continue to help teach and guide the veterinarians of the future. I absolutely love my job and couldn’t imagine doing anything else. Being veterinary technician specialist has given me the tools and confidence to excel in my career. I am extremely proud to be a veterinary technician.”

Christopher Rizzo, LVT, VTS (EVN, LAIM)
University of Pennsylvania School of Veterinary Medicine
New Bolton Center
Kennett Square, PA

Paving the way

“I have been a veterinary technician for 42 years. To me, being a technician means that the research I am a part of every day will help not only humans but also animals. Working in primate research can be very rewarding in so many ways, from providing enrichment to anesthesia to study paradigms. I love being in the forefront of science ready to tackle the next unknown, and paving the way for future generations of veterinary technicians!”

Victoria Elam, CVT, VTS (LAM)
Kalin Lab, University of Wisconsin Department of Psychiatry
Madison, WI

Can’t ask for more

Being a veterinary technician in a zoological facility means having the good fortune to work with remarkably diverse species and constantly learning through daily experiences with the animals. In addition, it means being in the company of incredible keepers, curators, zoological managers, and veterinary staff at my facility and within the profession as a whole. As a member of the Association of Zoo Veterinary Technicians, I can say that my colleagues at other facilities are some of the best caretakers in the country. Basically, I am surrounded by amazing animals and people all the time, and I can’t ask for anything more.

Joe Ullmer, BS, RVT, CVT
Kansas City Zoo
Kansas City, MO

Stressful but rewarding

“I am a zoo veterinary technician, which means I get to provide care for some of the world’s most charismatic animals and help in the conservation process for these incredible species. This career path can be stressful, but it is extremely rewarding! My day can start in one direction and completely swing in another direction within a few hours, which provides the variability and challenges that I love.”

Dewey Maddox, CVT
White Oak Conservation
Yulee, FL
An honor and a privilege
“A veterinary technician’s job, at its core, is service. Not only do we support and assist our veterinarians, we actively work to improve the lives of the animals around us. For a zoo tech, this responsibility means not only developing and maintaining a skill set that can medically accommodate a wide range of species, but also advocating for all the creatures who share our world through conservation and field work. It is an honor and a privilege to be entrusted with these rare and vulnerable patients, and I enjoy rising to the challenge.”

Lisa Bonanni, CVT, BS, VTS (Zoo)
Buttonwood Park Zoo
New Bedford, MA

Collaboration and networking
“Being a veterinary technician means collaboration with other veterinary professionals to provide the best possible animal care. Networking to share knowledge and experience is essential in zoo medicine to keep current with evolving medical, husbandry, and voluntary training techniques. Excellent resources for me include organizations like the Association of Zoo Veterinary Technicians and the Academy of Veterinary Technicians in Anesthesia and Analgesia.”

Angie Sutton, BS, CVT, VTS (Anesthesia and Analgesia)
Henry Vilas Zoo
Madison, WI

A hell of a ride
As I wind down my career after 38 years, I am beaten up, arthritic, and have no retirement to fall back on, BUT I would not have changed a single thing about my life as a veterinary technician. I have loved, lived, and lost with my clients and their companions, and I have done it with a glad heart. If anyone asks if they should pursue a career as a vet tech, I wholeheartedly tell them to do it and hang on for a hell of a ride.

Sara Sharp, AAS, CVT, VTS (Dentistry)
Bel-Rea Institute of Animal Health Technology
Denver, CO

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How your online presence can make your practice shine

To stand out from the crowd, veterinary practices must take advantage of every online opportunity to showcase their offerings and exceptional service.

By Sudhir Bhatti

Taking care of patients may be your top priority—and rightly so—but we live in a world where people spend quite a bit of time online. That means your online presence is almost as important as your physical facility. Through your practice website, online reviews, and social media, your online presence should highlight what makes your clinic unique and demonstrate to existing and future customers how your practice will meet their pets’ needs. And you need to do this with friendliness, consistency, and the human touch.

Your website

A well-designed website will attract new customers, provide in-depth information about pet care, and make it easy to connect with existing and prospective clients alike. Companies report that improving the online customer experience increases loyalty, boosts revenue, and saves the business money,¹ and 73% of consumers say a positive experience with a business is key in influencing their brand loyalties.²

Considering that 93% of people have left a website because it didn’t display properly on their mobile device,³ and 53% of visitors will abandon a website if it takes more than 3 seconds to load,⁴ ensuring mobile friendliness is critical. So, put in maximum effort to create an enjoyable, effective online user experience by making sure your website is informative, easy to navigate, and loads quickly on any device. Also, take time to ensure that your website mirrors your practice’s look and feel.
Some potential clients focus on the veterinarian’s professional training, while others will want to know about the practice’s pet care philosophy. Including this information on your clinic’s website in a way that shows the expertise and dedication of your team gives customers a better idea of how you run your practice.

Your online reputation
Considering that 90% of consumers read online reviews before patronizing a business and customers are willing to spend 31% more at a business with excellent reviews, earning those positive reviews is critical to your practice’s success. On the other hand, negative reviews can severely impact your bottom line: Businesses risk losing as many as 22% of customers with just a single negative review.

The best approach to earning a good online reputation is 2 pronged: Ask satisfied clients to provide a positive review of your practice on Google or Yelp, and provide a professional and polite response when the inevitable bad review pops up. It’s best to reach out to dissatisfied clients by phone or see if you can meet them in person to try to resolve the perceived issue.

Your social media presence
Social media plays a vital role in client engagement. Research shows that 90.4% of millennials, 77.5% of gen Xers, and 48.2% of baby boomers are active social media users. While social media is an easy way to promote your practice, it’s important to note that it’s not a substitute for advertising. Think of social media as a way to develop a 2-way communication channel between you and your clients. The main goal of social media is to encourage clients to share their positive experiences, thus attracting potential new clients.

The bottom line
To give your practice a leg up on the competition, you need to make sure your online presence is as robust as possible. Once you achieve that, you can sit back and watch a stream of new customers flood through your door.

Sudhir Bhatti is the co-founder and CEO of GrowthPlug, a technology company created to help health care practices become modern and efficient and grow online by delivering a patient-first experience.

REFERENCES
We have all heard the STAT triage call to the lobby for the “panting” cat, or spoken on the phone with a panicked owner whose French bulldog is wheezing uncontrollably after playing fetch outside in the heat. Streamlining nursing care for patients in respiratory distress is critical to improving outcomes. Preparation, triage, and assessment based on the clinical signs can increase the odds that the patient will be discharged safely from the hospital.

Preparation, triage, and initial assessment
The minute a technician hears that a respiratory emergency is presenting to the hospital, it is time to get ready. Vascular access supplies, a way to evaluate and secure the airway (ie, appropriately sized endotracheal tubes, laryngoscope), and a plan to provide supplemental oxygen should be in place before the patient enters the treatment area.

Immediate nursing care steps should include the following:
• Evaluate the patient’s airway and intubate, if needed.
• Perform an initial assessment by obtaining the patient’s baseline temperature, respiratory rate and effort, heart rate, pulse oximetry parameters (if the patient allows), mucous membrane color, capillary refill time, mentation, and posture.
• Provide supplemental oxygen therapy.
• Obtain vascular access.
• Begin active cooling therapy depending on patient temperature.
• Provide sedation/anxiolytic therapy.
• Obtain a thorough patient history.

Improving outcomes for patients in respiratory distress
Veterinary teams must be prepared to provide immediate triage and assessment for patients that are having difficulty breathing.

By Jordan Sanchez, RVT

Figure 1. Providing oxygen via a face mask (left) with flow rates of 2 to 3 L/min can increase FiO2 to 35% to 55%, whereas using anesthetic machine tubing (right) at the same flow rate only increases FiO2 to 24% to 45%.

Figure 2. A dog with suspected laryngeal paralysis presented with significant respiratory stridor (top). Fifteen minutes after administration of oral transmucosal acepromazine (0.05 mg/kg), the patient was sedate but rousable and had significantly decreased respiratory effort and stridor (bottom).
A thorough patient history can change the treatment plan significantly. Asking guiding questions will greatly aid in the ability to gather a more complete clinical picture:

- Did the respiratory signs come on abruptly, or has the animal been declining over time?
- Do you give daily, weekly, or monthly medications?
- Does the pet have any previously diagnosed conditions or illnesses?
- Has this happened before?
- Has the patient had anesthesia or sedation recently?
- Is there any chance of toxicity or trauma?
- Has the animal gone missing recently?
- Does the animal frequently get tired after exercising or in the heat?

Answers to these questions will assist the practitioner or veterinary team in determining whether the patient is suffering from upper airway, lower airway, pulmonary parenchymal, or pleural space disease.

### Providing supplemental oxygen therapy

An immediate treatment step for patients in respiratory distress is to provide supplemental oxygen. This can be accomplished in a number of ways, including via oxygen cage, face mask, or nasal oxygen cannula. The goal of supplemental oxygen therapy is to increase the percentage of oxygen in the air the patient is breathing (FiO₂, Table 1). Normal FiO₂ of room air is 21%.

Increasing the FiO₂ around the patient can rarely be accomplished by providing "flow-by" oxygen via anesthetic machine tubing because oxygen disperses too quickly in open space (Figure 1). If an oxygen cage is not available, and the patient is stressed by placement of a face mask or nasal cannula, anxiolytic therapy should be considered to facilitate appropriate supplementation. It is important to note that nasal oxygen cannulas are irrelevant in brachycephalic breeds due to their abnormal facial anatomy.²

### Causes of respiratory distress

#### Upper airway disease

The upper airway consists of the larynx, trachea, and nasopharynx. Brachycephalic airway obstruction occurs in both dogs and cats. The most commonly affected canine breeds include bulldogs, boxers, pugs, Cavalier King Charles spaniels, shih tzus, and mastiffs. Among cats, Persians and British shorthair are the breeds frequently affected. Other upper airway diseases include laryngeal paralysis (seen more often in geriatric Labrador and golden retrievers, and hypothyroid dogs), tracheal collapse (Yorkshire terriers and Chihuahuas), and nasopharyngeal polyps (juvenile cats).

The most noticeable clinical signs of upper airway disease are loud and stridorous inspiratory effort, and cyanosis. These patients often require anxiolytic therapy to facilitate appropriate nursing care (Table 2). Sedation with butorphanol, acepromazine, or dexmedetomidine (Figure 2) can allow the patient to become relaxed enough to tolerate a face mask, intravenous catheter placement, and cooling therapy, if indicated.

Patients with upper airway disease, specifically brachycephalic breeds, often present with hyperthermia, and active cooling must be initiated if the animal’s temperature exceeds 105 °F (personal communication, Dickerson N, University of California, San Francisco, 2020). Active cooling is achieved by maximizing heat dissipation mechanisms and can be accomplished by dousing the entire body with tepid water, increasing air circulation over the body with fans to improve evaporation, and intravenous fluid therapy.³ Care must be taken when initiating active cooling, and it should be stopped once the patient’s temperature has dropped to 103 °F, as body temperature will continue to drop and patients may become hypothermic.

Depending on patient history, glucocorticoids such as dexamethasone sodium phosphate (0.1-0.25 mg/kg via slow IV) may be administered at the discretion of the veterinarian to reduce laryngeal swelling.

Careful handling and reducing stress are critical to providing appropriate nursing care to the patient in respiratory distress. It is important to monitor carefully for adverse effects of anxiolytic medications as patients can become oversedated and occlude their own airway if not watched closely.

<table>
<thead>
<tr>
<th>Supplemental oxygen technique</th>
<th>Mean FiO₂ achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow-by oxygen</td>
<td>24%-45%</td>
</tr>
<tr>
<td>Face mask (loose fitting)</td>
<td>35%-55%</td>
</tr>
<tr>
<td>Oxygen cage</td>
<td>21%-60%</td>
</tr>
<tr>
<td>Nasal oxygen cannula (unilateral)</td>
<td>30%-70%</td>
</tr>
<tr>
<td>Nasal oxygen cannula (bilateral)</td>
<td>30%-50%</td>
</tr>
<tr>
<td>Intubation (anesthesia machine)</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 1. Effectiveness of various supplemental oxygen techniques¹
Pulse oximetry (with the probe on the lip, toe, vulva, or prepuce), electrocardiography, and blood pressure (oscillometric or Doppler) should be monitored as soon as the patient is tolerant.

**Lower airway disease**

Lower airway disease involves expiratory airway obstruction. Patients presenting with lower airway obstruction are able to move air into their trachea and lungs, but have constriction or obstruction when trying to exhale, resulting in expiratory effort.

Lower airway diseases include feline asthma (common in Siamese cats) and canine chronic bronchitis (in Northern breed dogs, such as the Siberian husky, Alaskan malamute, and Samoyed); lower airway obstruction are able to move air into their trachea and lungs, but have constriction or obstruction when trying to exhale, resulting in expiratory effort.

Lower airway diseases can also result from acute anaphylaxis. Clinical signs include coughing, wheezing, and gagging in dogs, and an abdominal “push” on expiration in cats.1

**Pleural space disease**

Patients with pleural space disease typically present with rapid, shallow breathing because of the lung’s limited ability to expand and ventilate. These patients are working hard to breathe. If the pleural space is filled with air, neoplastic tissue, fluid, or other organs (eg, diaphragmatic hernia), the lungs have less room to expand normally. Common disease processes that result in pleural space disease include pleural effusion (secondary to heart failure or neoplasia), pneumothorax (secondary to infection, foreign material, or trauma), and hemothorax.

Thoracentesis to remove air or fluid from the pleural cavity can almost immediately alleviate clinical signs in these patients; in some cases a chest tube can be placed to facilitate drainage procedures. Once the animal is stable, it is typically placed in an oxygen kennel while a diagnostic plan is being determined. Diagnostics can include TFAST (quick thoracic ultrasound), thoracic radiography, advanced imaging (computed tomography, echocardiography), and cytology of any aspirated fluid.1

**Conclusion**

Technicians play a crucial role in the initial evaluation and treatment of patients in respiratory distress. Careful preparation, providing initial treatments, evaluating clinical signs, and obtaining a careful patient history can significantly improve outcomes for these patients. 

**REFERENCES**


### Table 2. Sedatives used to relieve anxiety in patients experiencing respiratory distress4

<table>
<thead>
<tr>
<th>Drugs</th>
<th>Dose</th>
<th>Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butorphanol</td>
<td>0.2-0.4 mg/kg</td>
<td>IM or IV</td>
</tr>
<tr>
<td>Acepromazine</td>
<td>0.02-0.05 mg/kg</td>
<td>IM, IV, or oral transmucosal</td>
</tr>
<tr>
<td>Dexmedetomidine</td>
<td>3-5 µg/kg</td>
<td>IM or IV</td>
</tr>
</tbody>
</table>
Happy National Veterinary Technician Week!

Who says vet medicine is stressful?

Tell that to my brain, back, and knees!

Tell me again about the puppies I snuggle all day?

What do you mean there is a separate exam fee for each animal?

You know you’re a vet tech when...

You’ve found pocket poop.

Doesn’t agree with angry client

Still does his job with a big flipping smile.

For all the things veterinary technicians do

We say, thank you!
**Table 1. Adverse reactions seen in the safety population (276 dogs)**

<table>
<thead>
<tr>
<th>Adverse Reaction</th>
<th>Number and Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lethargy (lethargy, depression, listless, and tiredness)</td>
<td>45 (16.3%)</td>
</tr>
<tr>
<td>Anorexia (anorexia, decreased appetite, inappetence, and not eating)</td>
<td>28 (10.1%)</td>
</tr>
<tr>
<td>Hypoglycemia with clinical signs</td>
<td>24 (8.8%)</td>
</tr>
<tr>
<td>Vomiting</td>
<td>21 (7.6%)</td>
</tr>
<tr>
<td>Seizures</td>
<td>16 (5.8%)</td>
</tr>
<tr>
<td>Shaking/trembling/twitching</td>
<td>13 (4.7%)</td>
</tr>
<tr>
<td>Ataxia (ataxia, balance problem, stumbling gait)</td>
<td>11 (4.0%)</td>
</tr>
<tr>
<td>Diarrhea (includes bloody diarrhea)</td>
<td>9 (3.3%)</td>
</tr>
<tr>
<td>Infection/infusion</td>
<td>9 (3.3%)</td>
</tr>
<tr>
<td>Weakness</td>
<td>8 (2.9%)</td>
</tr>
<tr>
<td>Restlessness/anxiety/ agitation</td>
<td>6 (2.2%)</td>
</tr>
<tr>
<td>Cataract</td>
<td>6 (2.2%)</td>
</tr>
<tr>
<td>Panting (crying and tachypnea)</td>
<td>6 (2.2%)</td>
</tr>
<tr>
<td>Hematuria</td>
<td>4 (1.5%)</td>
</tr>
</tbody>
</table>

Clinical pathology: The only change seen in complete blood count, serum chemistry, and urinalysis was an increase in creatinine. A mean of 120 mg/dL at Day 182 (62.6 mg/dL, normal range 131-245 mg/dL) compared to Day 1 (337.3 mg/dL).

**Injection site reactions:** Seven dogs had injection site reactions, including observations of thickened skin, erythema, and swelling in an area of injection (mean erythema score at Day 182 6.2±2.6 mg/dL, normal range 131-245 mg/dL).

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ProZinc® (protamine zinc recombinant human insulin)

40 IU/mL

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

Description: ProZinc® is a sterile aqueous protamine zinc suspension of recombinant human insulin.

Each mL contains: recombinant human insulin 40 International Units (IU) protamine sulfate 0.4 mg zinc oxide 0.088 mg glycerin 16.00 mg dibasic sodium phosphate, heptahydrate 3.78 mg phenol (added as preservative) 2.50 mg hydrochloric acid 1.63 mg water for injection (maximum) 1005 mg pH is adjusted with hydrochloric acid and/or sodium hydroxide.

Indication: ProZinc® (protamine zinc recombinant human insulin) is indicated for the reduction of hyperglycemia and hyperglycemia-associated clinical signs in cats with diabetes mellitus.

Dosage and Administration: Use of a SYRINGE OTHER THAN A U-40 SYRINGE WILL RESULT IN INCORRECT DOSING.

For SUBCUTANEOUS INJECTION ONLY.

Do not shake or agitate the vial. 

ProZinc should be mixed by gently rolling the vial prior to withdrawing each dose from the vial. Once mixed, ProZinc suspension has a white, cloudy appearance. Clumps or visible white particles can form in insulin suspensions: do not use the product if clumps or visible white particles form after gently rolling the vial. Using a U-40 insulin syringe, the injection should be administered subcutaneously on the back of the neck or on the side of the cat.

Always provide the Client Information Sheet with each prescription.

The initial recommended ProZinc dose is 0.1 – 0.3 IU insulin/pound of body weight (0.2 – 0.7 IU/kg) every 12 hours. The dose should be given concurrently with or right after a meal. The veterinarian should re-evaluate the cat at appropriate intervals and adjust the dose based on both clinical and blood glucose results until adequate glycemic control has been attained. In the effectiveness field study, glycemic control was considered adequate if the glucose nadir from a 9-hour glucose curve was between 80 and 150 mg/dL and clinical signs of hyperglycemia such as polyuria, polydipsia, and weight loss were improved. Further adjustments in the dosage may be necessary with changes in the cat’s diet, body weight, or concomitant medication, or if the cat develops concurrent infection, inflammation, neoplasia, or an additional endocrine or medical disorder.

Contraindications: ProZinc is contraindicated in cats sensitive to protamine zinc recombinant human insulin or any other ingredients in ProZinc. ProZinc is contraindicated during episodes of hypoglycemia.

Warnings: User Safety: For use in cats and dogs only. Keep out of the reach of children. Avoid contact with eyes. In case of contact, immediately flush with eyes running with water for at least 15 minutes. Accidental injection may cause hypoglycemia. In case of accidental injection, seek medical attention immediately. Exposure to product may induce a local or systemic allergic reaction in sensitized individuals.

Animal Safety: Owners should be advised to observe for signs of hypoglycemia (see Client Information Sheet). Use of this product, even at established doses, has been associated with hypoglycemia. A cat with signs of hypoglycemia should be treated immediately. Glucose should be given orally or intravenously as dictated by clinical signs. Insulin should be temporarily withheld and, if indicated, the dosage adjusted.

Any change in insulin should be made cautiously and only under a veterinarian’s supervision. Changes in insulin strength, manufacturer, type, species (human, animal) or method of manufacture (rDNA versus animal-source insulin) may result in the need for a change in dosage. Appropriate diagnostic tests should be performed to rule out other endocrinopathies in diabetic cats that are difficult to regulate.

Precautions: Cats presenting with severe ketoacidosis, anorexia, lethargy, and/or vomiting should be stabilized with short-acting insulin and appropriate supportive therapy until their condition is stabilized. As with all insulin products, careful patient monitoring for hypoglycemia and hyperglycemia is essential to attain and maintain adequate glycemic control and to prevent associated complications. Overdose can result in profound hypoglycemia and death.

Glucocorticoids, progestogens, and certain endocrinopathies can have an antagonistic effect on insulin activity. Glucocorticoid and progestogen use should be avoided.

The safety and effectiveness of ProZinc in breeding, pregnant, and lactating cats has not been evaluated.

Adverse Reactions: Effectiveness Field Study

In a 45-day effectiveness field study, 176 cats received ProZinc. ProZinc hypoglycemia (defined as a blood glucose value of < 50 mg/dL) occurred in 71 of the cats at various times throughout the study. Clinical signs of hypoglycemia were generally mild in nature (described as lethargic, a blood glucose value of < 50 mg/dL) occurred in 71 of the cats at various times throughout the study, one of which resolved by Day 45. Four cats were diagnosed with diabetic ketoacidosis during the study. Two were euthanized due to poor response to treatment. Five other cats were euthanized during the study, one of which had hypoglycemia. Four cats had received PROZINC for less than a week and were euthanized due to worsening concurrent medical conditions.

The following additional clinical observations or diagnoses were reported in cats during the effectiveness field study: vomiting, lethargy, diarrhea, cystitis/hematuria, upper respiratory infection, dry coat, hair loss, ocular discharge, abdominal vocalization, black stool, and rapid breathing.

Extended Use Field Study

Cats that completed the effectiveness study were enrolled into an extended use field study. In this study, 145 cats received PROZINC for up to an additional 136 days. Adverse reactions were similar to those reported during the 45-day effectiveness study and are listed in order of decreasing frequency: vomiting, hypoglycemia, anorexia/poor appetite, diarrhea, lethargy, cystitis/hematuria, and weakness. Twenty cats had signs consistent with hypoglycemia described as: sluggish, lethargic, unsteady, wobbly, seizures, trembling, or dazed. Most of these were treated by the owner or veterinarian with oral glucose supplementation or foods; others received intravenous glucose. One cat had a serious hypoglycemic event associated with seizures and blindness. The cat fully recovered after supportive therapy and finished the study. All cases of hypoglycemia resolved with appropriate therapy and if needed, a dose reduction.

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

To report suspected adverse drug events, for technical assistance or to obtain a copy of the Safety Data Sheet (SDS), contact Boehringer Ingelheim at 1-888-637-4251.

Information for Cat Owners: Please refer to the Client Information Sheet for Cats for more information about PROZINC. PROZINC, like other insulin products, is not free from adverse reactions. Owners should be advised of the potential for adverse reactions and be informed of the associated clinical signs. Potential adverse reactions include hypoglycemia, insulin resistance, insulin-induced hyperglycemia (Somogyi Effect), and local or systemic reactions. The most common adverse reaction observed is hypoglycemia. Signs may include: weakness, depression, behavioral changes, muscle twitching, and anxiety. In severe cases of hypoglycemia, seizures and coma can occur. Hypoglycemia can be fatal if an affected cat does not receive prompt treatment. Appropriate veterinary monitoring of blood glucose, adjustment of insulin dose and regimen as needed, and stabilization of diet and activity help minimize the risk of hypoglycemic episodes. The attending veterinarian should evaluate other adverse reactions on a case-by-case basis to determine if an adjustment in therapy is appropriate, or if alternative therapy should be considered.

Effectiveness: A total of 187 client-owned cats were enrolled in a 45-day field study, with 176 receiving PROZINC. One hundred and fifty-one cats were included in the effectiveness analysis. The patients included various purebred and mixed breed cats ranging in age from 1 to 19 years and in weight from 4.6 to 20.8 pounds. Of the cats included in the effectiveness analysis, 101 were castrated males, 49 were spayed females, and 1 was an intact female. Cats were started on PROZINC at a dose of 0.1-0.3 IU/lb (0.2-0.7 IU/kg) twice daily. Cats were evaluated at 7, 14, 30, and 45 days after initiation of therapy and the dose was adjusted based on clinical signs and results of 9-hour blood glucose curves on Days 7, 14, and 30.

Effectiveness was based on successful control of diabetes which was defined as improvement in at least one blood glucose variable (glucose curve mean, nadir, or fructosamine) and at least one clinical sign (polyuria, polydipsia, or body weight). Based on this definition, 115 of 151 cases (76.2%) were considered successful. Blood glucose curve means decreased from 415.3 mg/dL on Day 0 to 203.2 mg/dL by Day 45 and the mean blood glucose nadir decreased from 407.9 mg/dL on Day 0 to 142.4 mg/dL on Day 45. Mean fructosamine values decreased from 505.9 μmol/L on Day 0 to 380.7 μmol/L on Day 45. Cats that completed the effectiveness study were enrolled in an extended use field study. The mean fructosamine value was 342.0 μmol/L after a total of 181 days of PROZINC therapy.

How Supplied: PROZINC is supplied as a sterile injectable suspension in 10 mL and 20 mL multidose vials. Each mL of PROZINC contains 40 IU recombinant human insulin.

Storage Conditions: Store in an upright position under refrigeration at 36-46°F (2-8°C). Do not freeze. Protect from light.

The mean fructosamine value was 342.0 μmol/L after a total of 181 days of PROZINC therapy.

Approved by FDA under NADA # 141-297

Marketed by: Boehringer Ingelheim Animal Health USA Inc. Duluth, GA 30096

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Boehringer Ingelheim
THE PROVEN WAY
TO TREAT CANINE DIABETES
ONCE-A-DAY

The breakthrough you’ve been waiting for is here: now you can deliver glycemic control in most diabetic dogs WITH A SINGLE DAILY INJECTION.1,2 To learn more, contact your Boehringer Ingelheim Sales Representative or Professional Services Veterinarian.

*PROZINC is approved for twice-daily use in cats.3

IMPORTANT SAFETY INFORMATION: PROZINC is for use in dogs and cats only. Keep out of the reach of children. Animals presenting with severe ketoacidosis, anorexia, lethargy, and/or vomiting should be stabilized with short-acting insulin and appropriate supportive therapy until their condition is stabilized. As with all insulin products, careful patient monitoring for hypoglycemia and hyperglycemia is essential to attain and maintain adequate glycemic control and to prevent associated complications. Overdose can result in profound hypoglycemia and death. The most common adverse reactions were lethargy, anorexia, hypoglycemia, vomiting, seizures, shaking (dogs only), diarrhea, and ataxia. Many of the adverse reactions, such as lethargy, seizures, shaking (dogs only), and ataxia, are associated with hypoglycemia. Glucocorticoid and progestogen use should be avoided. The safety and effectiveness of PROZINC in puppies, kittens, or breeding, pregnant, and lactating animals has not been evaluated. PROZINC is contraindicated during episodes of hypoglycemia and in animals sensitive to protamine zinc recombinant human insulin or any other ingredients in PROZINC. For more information, please see full prescribing information.

References:
1 Data on file at Boehringer Ingelheim.

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